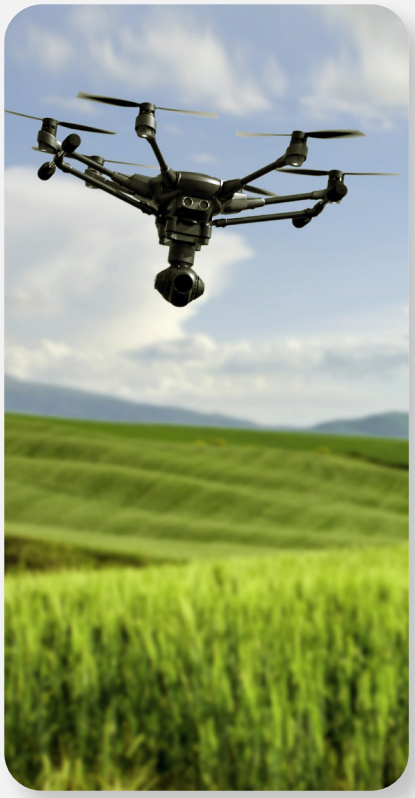
Smart Places RoadMAP - A Guide and Template



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SMART REGIONAL SPACES
READY...SET...GO!

NSW GOVERNMENT

THE UNIVERSITY OF SYDNEY

UNSW SYDNEY

Acknowledgements

Acknowledgement of Country

We acknowledge the Traditional Custodians of Country throughout Australia and their connections to land, sea and community. We pay our respect to their Elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples today.

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1 Introduction

About this Guide

The **Smart Places RoadMAP – The Guide** (hereafter referred to as The Guide) has been prepared to assist any regional council in developing its own, context-specific Smart Places RoadMAP. The Guide is not intended to be an explicit 'how to' manual. Instead, it offers encouragement and outlines actions, tools, and resources to inform the preparation of a Smart Places RoadMAP.

What is a Smart Places RoadMAP?

Conceived at the local level, a Smart Places RoadMAP is a smart strategy or plan intended to guide a regional council in its thinking and decision-making, as they embrace digital change and technology, and transform into a smarter region. Your RoadMAP should offer a holistic, long-term vision for the region, and a way forward to develop smart places, to use smart technology and to consider smart project funding and delivery.

Specifically, a Smart Places RoadMAP aims to support the provision and management of smart *public open spaces*. Public open spaces include parks, playgrounds, nature reserves, gardens, campgrounds, rest stops, open-air malls, and historical and cultural locations, to name few.

A Smart Places RoadMAP should apply to an entire region or a local government area (LGA).

The RoadMAP may be an internal (to council) document only, or an external document that is adopted as an official plan with council endorsement. This process should be determined by your council when you start to develop your RoadMAP.

The look and feel of your Smart Places RoadMAP will vary depending on where your council is on its smart journey. You do not necessarily need to develop a new document. It may be preferable to adapt or build on existing strategies, plans or policies. However, whichever format a Smart Places RoadMAP takes, it is important that it:

1. Establishes the CONTEXT where you describe your region, your relevant opportunities and constraints, and existing plans and policies
2. Provides a clear FRAMEWORK—comprised of a vision, principles, and goals—to guide the implementation of smart projects that respond to your existing context, and
3. Identifies SMART PROJECTS—past, present, and future—that can be leveraged or implemented in response to the region's opportunities and challenges, and to help achieve the region's vision and goals.

How the RoadMAP will be updated, and who is responsible for managing and monitoring the progress of smart project implementation also needs to be considered. Otherwise the RoadMAP risks becoming outdated or worse, unused. The RoadMAP is an evolving document that needs to remain responsive to the latest advancements in technology and changing community priorities. It could change slightly or considerably at every update. The projects or the locations might change but the principles behind council's thinking and why council wants to become smarter will likely remain the same. It is best practice to update the RoadMAP every 3-5 years.

Why create a Smart Places RoadMAP?

Research indicates that local governments with smart strategies are making more significant technological investments compared to those which do not have a smart strategy. However, the benefits extend beyond technological advancement. A Smart Places RoadMAP can be used by a regional council to:

- **Consolidate strategic thinking**, bringing together existing piecemeal initiatives and ideas, or starting new projects and processes, whilst taking direction from an overarching council-wide plan.
- **Communicate a vision and priorities for the region**, internally within council, or externally with stakeholders, ensuring good governance and transparent decision-making.
- **Evaluate and prioritise the delivery of smart places and projects**, including initiating discussions within council.
- **Guide collaboration between council and external stakeholders**, including the state and federal governments, businesses, academia, and the community.
- **Support funding and investment,** including the preparation of grant applications or business cases.
- **Inform the preparation of other council plans and policies**, in line with the Local Government Integrated Planning and Reporting (IP&R) Framework.
- **Engage with the smart places movement.** Regional areas need context-specific strategies to successfully engage with the smart places movement and the benefits it has to offer.

Relationship to the Smart Places RoadMAP Template

A team of researchers and practitioners (called the Smart Regional Spaces: Ready Set Go! project team from The University of Sydney and UNSW Sydney) have compiled the **Smart Places RoadMAP – The Template** (hereafter referred to as The Template) for a contemporary and well-considered smart strategic plan. The Template is a tool developed to support a regional council in preparing its own strategic Smart Places RoadMAP.

Developing a Smart Places RoadMAP can be resource intensive, and knowing where to start can be a challenge. The Template consists of a predefined structure, comprised of sections and, sub-sections to be completed by the council. Each section contains sample text, prompts and guidance to assist the writers.

A council is welcome to use The Template as provided. However, there is no obligation to do so. As outlined above, you do not necessarily need to develop a new document, it may be preferable to adapt or build on existing strategies or plans. Similarly, you may use an existing template using your council's branding and style. Notwithstanding, it is recommended that you read the Template before beginning your own RoadMAP.

Whether you choose to use The Template provided or your own, the actions outlined in Section 2 below will assist you in preparing your RoadMAP. This includes information gathering, strategic planning and decision-making.

More Information

Before you begin it is recommended that you visit the Smart Regional Spaces project website – www.smartregionalspaces.net.au – and review other relevant materials including the online learning Start Smart Modules, the Smart Readiness Tool and the Smart Precedent Projects.

The Start Smart Modules are:

- Module 1 – From smart cities to smart regions
- Module 2 – Smart governance
- Module 3 – Data, people and security
- Module 4 – Smart hardware
- Module 5 – The Internet of Things (IoT) and sensors
- Module 6 – Dashboards
- Module 7 – Digital platforms and supporting people and place
- Module 8 – Technology and social connection
- Module 9 – Smart public open spaces
- Module 10 – Heat resilient smart communities
- Module 11 – Smart economic development in regions
- Module 12 – Final thoughts: Shaping a smart future

Image: Photograph by Penny Vozniak.

2 Preparing Your RoadMAP

This section outlines key actions that will assist you in preparing your own Smart Places RoadMAP. The actions directly relate to completing the Smart Places RoadMAP Template, which will will be relevant to the preparation of any RoadMAP. The actions are broken into four parts. It is recommended that you begin at Part A, however, it is not a linear process and you will find that you move back and forth between the parts, particularly Part C and Part D.

- **Part A:** Context – Establishing the regional context for your RoadMAP.
- **Part B:** Vision and Goal Setting – Creating a framework to guide the implementation of smart projects and processes. One very good set of principles has been provided for you to use and make your own.
- **Part C:** Site Selection – Identifying potential locations for adding a smart overlay to a place and smart project implementation.
- **Part D:** Project Selection – Identifying potential smart projects that would work best for your council.

Top Tips - Collaboration

- The complexities of smart projects usually require multidisciplinary, collaborative partnerships. Each partnership has unique actors, different capacities, and skills to deliver smart projects.
- Partnerships between council, community, industry, and academia can help share project risk and ease the financial burden through shared funding arrangements.

Part A: Context

Understanding the specifics of your region and its community is the basis for becoming 'smarter.' There are many ways of profiling your region, to better understand who your community is, and to identify associated needs, opportunities, and challenges. These may include plan and policy reviews, research-type baseline surveys, consultation, and participatory profiling.

A.1 Action: Prepare a regional profile

A Regional Profile documents the key characteristics of the region and its community. It is likely you will have this information in your Community Strategic Plan, Local Strategic Planning Statement, or in other council documents.

The profile could take on many forms and may comprise text, infographics, maps or images. An indicative structure and associated considerations are outlined in the table below.

Table – Example of regional characteristics and considerations

Characteristic	Considerations
Our Community	What is the make-up of the current population? What is the median age? How many households exist?
Our Geography	What is the size of the LGA? What are the key or unique geographical features of your region? What are its key natural attractions?
Our Public Open Spaces	Identify key public open spaces. How many council-owned or managed parks, playgrounds, or historic sites are in the region?
Our Economy	How many businesses operate in the LGA? How many local jobs exist? What are the rates of workforce participation and unemployment?
Our Top Industries	What are the area's main industries (e.g., agriculture, education, health)? What are the growth industries?

More Information

- Profile.id (webpage).
- Australian Bureau of Statistics (ABS) (webpage).
- Existing plans e.g., NSW Regional Plan, Regional Economic Development Strategy, Community Strategic Plan, and Local Strategic Planning Statement.

A.2 Action: Identify regional needs, opportunities, & challenges

Context-specific smart strategies and targeted smart projects should respond to the current and future needs, opportunities, and challenges of a region and its community. There are multiple methods to identify these (for example, a SWOT analysis of strengths, weaknesses, opportunities, and threats). It is recommended that the analysis starts with region-wide considerations, and then narrows to a focus on specific smart opportunities and challenges within the region or at a particular locality.

Consider:

- Regional strengths across rural industry, education, research, tourism and natural assets.
- Significant current or future (public and private) development projects or infrastructure.
- Stakeholder collaborations, e.g., other councils, Joint Organisations, NSW government.
- Digital infrastructure and connectivity.
- Demographic changes and future community developments.
- Resources, budget, and funding.

Table – Examples of smart opportunities

Smart Opportunities	
Consolidating Existing Systems	**Improve Place Experience**
A primary quality of good smart infrastructure network is the centralisation or consolidation of digital infrastructure resources in one central platform or management system. Smart technologies can streamline council operations and services, provide data for evidence-based decision-making, and result in resource, and cost efficiencies.	Smart projects, such as digital placemaking, can be used to attract visitors and improve the visitor experience of the region's natural, cultural, and historical sites. They can be used to protect and enhance our region, including from natural disasters. Data can be used to inform evidence-based decision-making in the planning and development of our places.

Table – Examples of smart challenges

Smart Challenges	
Digital Connectivity	**Budget and Funding**
Digital connectivity has been a long-standing issue in regional and rural areas outside the main town centre. Expanding physical infrastructure, including broadband internet, underpins the council and our community's ability to access and use digital technologies and services.	Innovation does have costs associated with it. Limited financial resources can be a barrier to the implementation of digital infrastructure and technologies that often have significant foundational costs. However, investment in smart technologies offers long-term cost and resource efficiencies. The cost-benefit analysis must reflect long-term gains.

Top Tips - Resourcing for Smart Projects

- Resourcing is a particularly critical aspect that often makes the addition of new digital assets challenging for regional councils. Treat your digital assets like you do your traditional asset classes such as roads, buildings, or utilities. All of them should have clear long-term resourcing, funding, and operational models.

A.3 Action: Review existing plans and policies

Australia has a series of strategies, plans and policies that establish strategic visions, goals, and priorities at the federal, state, territory, regional, and local levels. Your RoadMAP should align with these plans where reasonably possible.

The plans and policy review could:

- Identify relevant plans and policies (see Table below for some examples).
- Identify which parts of these plans and policies are relevant to your RoadMAP, and the creation of smart places. For example, specific goals, places, or projects.
- Identify how your RoadMAP, and the places and projects selected can respond to the specific goals, objectives, or priorities identified in The Template.

Table – Existing plans and policies

Australia	New South Wales
Smart Cities Plan (2016) *Smart Cities Standards Roadmap* (2022)	*Smart Places Strategy* (2020) *SmartNSW Roadmap 2022-2027*
Regional	**Local**
Regional Plan Regional Economic Development Strategy Joint Organisation Charter or Strategic Plan	Community Strategic Plan Local Strategic Planning Statement ICT Strategy (or similar) Other strategies, plans and policies

Refer to the infographic on the following page illustrating the hierarchy of existing ‘smart’ strategies, plans and policies at the federal, state, and local levels.

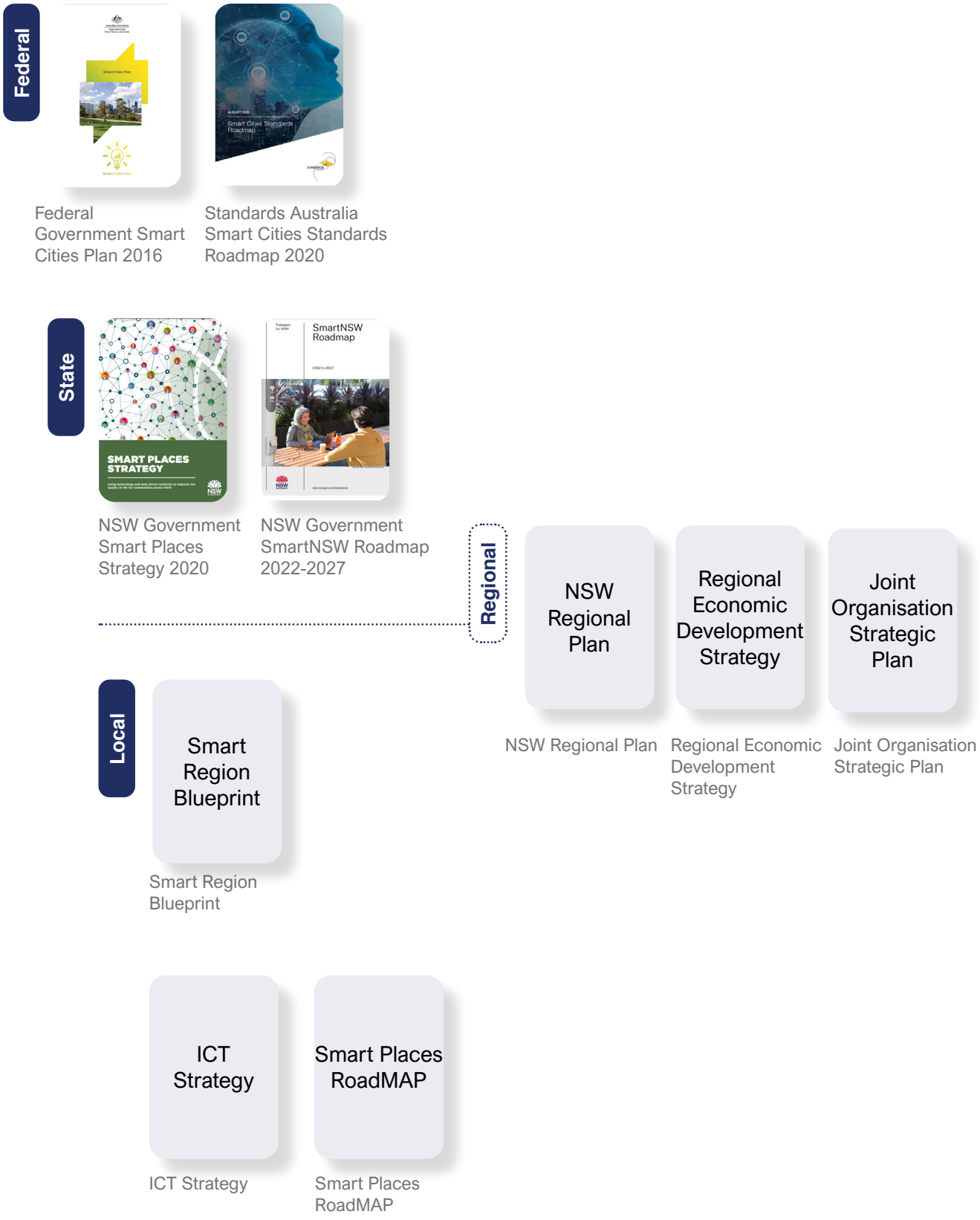

Figure - Hierarchy of existing ‘smart’ strategies, plans and policies at the federal, state, and local levels.

Part B: Vision and Goal Setting

Being smart can take many forms and smart strategies need a clear framework consisting of principles, and associated goals to support decision-making.

B.1 Action: Establish a vision

A vision statement should be future-oriented, ambitious but realistic, and communicated clearly and concisely. The vision statement may be adapted from an existing plan or policy, or be developed specifically for the RoadMAP. They are usually just one sentence long and contain high-level thinking. Your existing community vision outlined in your Community Strategic Plan may be a point of inspiration and guidance.

B.2 Action: Establish guiding principles

The Smart Regional Spaces project team has established a framework of four smart principles to guide the implementation of smart projects (each is described below). We suggest you use this framework but there are others your council could use.

- **Capacity Building** within the council and the community.
- **Social Experience** of public open space.
- **Environmental Monitoring** of key components localised in an area.
- **Asset Management** of public infrastructure and facilities.

Figure - Guiding principles for smart places.

Each guiding principle and its benefits are outlined below. When completing The Template, you may ‘copy and paste’ (in whole or in part) whatever might apply to your context. The definitions are likely to stay ‘as is’ but the benefits should be customised to reflect your council’s situation.

Capacity Building

Definition

Capacity building refers to improving an organisation's capacity and expertise to lead and manage the change needed to leverage smart technologies. Capacity building projects include knowledge and skill development as well as upgrading systems and services to the latest technology standards. These projects are aimed at preparing the foundation for the council's operations and services to become smart, as well as empowering the community to access and use these services. Capacity-building runs as a through line across all the other guiding principles.

Smart capacity-building projects can:

- Build a smart culture within council and the community that responds to the unique dynamics, needs, challenges, and opportunities of the region.
- Upskill council staff to understand and lead the implementation of smart projects. This can reduce reliance on external consultants, ensure projects cater to local challenges and needs, and encourage council-led partnerships.
- Contribute to council staff satisfaction, sense of contribution, and retention.
- Help transform data into useful information that supports evidence-based decision making and transparent governance.
- Support the provision of high-quality services to the community with a focus on customer needs, financial sustainability, and efficient operations.
- Support equitable access to digital technologies and reduce the digital divide within and between our communities.
- Support a thriving business environment that makes it easier to do business, promotes innovation and collaboration, attracts new investment, and strengthens the local economy.
- Help protect and enhance our natural environment and its biodiversity.
- Enhance infrastructure and asset management and investment.

Social Experience

Social experience is a uniquely personal experience emerging from a person's physical, social, and emotional interactions within different places. Smart social experience projects involve the provision of digital technology into public places to support equitable access and introduce an innovative new layer of amenity into public space which enhances social use and connection. Social experience can be improved through digital placemaking projects, providing innovative sensory experiences, connecting to digital information services, or capturing and learning from user data.

Social Experience

Benefits

Smart social experience projects can:

- Support the identity and spirit of diverse communities.
- Encourage varied use of public open spaces to improve community health and well-being.
- Improve public safety by using smart technology in place, for example, CCTV.
- Diversify the uses (including time and frequency of use) of public open spaces.
- Attract increased tourism to the region. Monitoring can provide better visitation data to support the development of new tourism opportunities and focus marketing efforts.
- Enhance and strengthen iconic events or attractions and plan new events.
- Increase social inclusion and connectedness.
- Reduce the digital divide by providing accessible services, such as free public Wi-Fi.
- Increase communication between the council and its communities.

Environmental Monitoring

Definition

Environmental monitoring is the system of using digital technology to collect and convert raw data into useful information that can assist with the protection or enhancement of the environment. Smart environmental monitoring projects use technology to capture data about air, water, and soil quality, natural assets, weather changes, and wildlife in real time.

Benefits

Environmental monitoring projects can:

- Provide data to support evidence-based decision-making that balances the need for growth and development with the protection of the natural environment.
- Foster partnerships between council, government bodies, and organisations to promote cross-boundary approaches and knowledge-sharing projects.
- Improve public safety by distributing emergency information to the community.
- Monitor and respond to changing environmental conditions in real time, for example:
  - » Detect changes in weather conditions to inform emergency warning and response, such as risk of landslide or fire evacuation.
  - » Monitor water levels and flows in upstream catchments to provide early warnings of flood events downstream.
  - » Monitor water quality to detect and raise alerts for algal blooms or other contaminants.

Environmental Monitoring

Benefits

- Monitor longer-term environmental conditions to help plan for the future.
- Help assess the state of environmental areas.
- Detect illegal activities, such as waste dumping in public open spaces.
- Protect natural, cultural, and historical areas from misuse or overuse.
- Inform community education programs on sustainable practices and emergency response.

Asset Management

Definition

Asset management is the use of digital technology for predictive maintenance, infrastructure performance assessment, and lifecycle estimation. Smart asset management projects include attaching sensors to physical infrastructure to collect data about its performance. Data is collated via an Internet of Things (IoT) network and often displayed on a dashboard. Asset management extends the concept of automated monitoring to assess the condition of assets and remotely manage operations, making it easier to track and manage assets in real time.

Benefits

Smart assets or smart asset management projects can:

- Determine the use of services and infrastructure to better understand the value of these assets, and plan ways to encourage increased use with more or different assets.
- Improve the design and user experience of infrastructure and facilities.
- Improve public safety. For example, smart bins include sensors to determine fill levels and alert for fire.
- Optimise efficiency and effectiveness in the operations and management of infrastructure. This can include usage data, remote access, dashboards, and digital twins.
- Monitor, assess and manage the condition of assets, particularly those in difficult-to-reach areas. This might include the use of aerial mapping and drone imagery.
- Support grant funding applications or future plans with real data.
- Lay the foundational hardware for the future installation of IoT equipment.

B.3 Action: Establish goals

The goals underpin the vision statement. The goals may be taken from an existing plan or policy or be developed specifically for the RoadMAP. The following could be considered when establishing key goals:

- What are the most important goals the council wants to achieve through the RoadMAP?
- How do these goals address the specific needs, opportunities, and challenges of your region and its community (see Part A above)?
- How do these goals link to goals, obectives, priorities, and initiatives of existing plans and policies (see Part A above)?

Examples of goals for each of the smart places principles are outlined in the table below.

Table – Examples of smart goals by principle

Smart Goals
Capacity Building
• To expand knowledge and skills to innovate, test, and use smart technologies in the region. • To increase community access to and use of smart services, infrastructure, and facilities. • To encourage partnership and collaboration with industry and businesses on smart projects.
Social Experience
• To plan for and provide high-quality, vibrant, and welcoming public open spaces. • To develop a strong tourism industry that attracts visitors and enhances visitor experience. • To support equitable access to digital technologies and reduce the digital divide.
Environmental Monitoring
• To balance, protect and enhance our natural environment and its biodiversity. • To prepare for, prevent and manage emergencies and natural disasters. • To collect data that supports evidence-based decision-making.
Asset Management
• To plan for and provide high-quality, well-maintained services, infrastructure, and facilities. • To optimise resource management to ensure efficient operations and financial sustainability. • To collect data that supports evidence-based decision-making.

Part C: Site Selection

There is no 'right' approach to becoming a smarter region, and knowing where to start can be challenging. A place-based approach involves implementing smart projects at a particular location.

A place-based approach prompts council to strategically select one particular open space for the implementation of smart projects, which responds to opportunities or offers a solution to a challenge in that location. Place-based smart projects provide the opportunity for 'living labs' or 'testbeds' to pilot new technology at a manageable scale. This can help determine a project's success prior to wider-scale implementation, reducing risk.

Understanding your public open spaces is critical if you wish to apply a place-based approach.

C.1 Action: Develop an inventory of public open spaces

Start by undertaking an inventory of your region's public open spaces. The inventory may be structured by a particular type of public open space (e.g., children's playgrounds), by an area (e.g., new housing development), or across the entire LGA. Potential resources include council GIS mapping software, Asset Management Plan, or other management plans.

C.2 Action: Audit your public open spaces

Conduct an audit and build a profile of all or your key public open spaces. The audit could:

- Identify key social, economic or environmental characteristics of the site.
- Identify current and future needs, opportunities, and challenges of the site.
- Compare and contrast identified sites.

More Information - Smart Readiness Tool

A key resource to assist with building a profile of selected public open spaces is the Smart Readiness Tool – www.smartregionalspaces.net.au/smart-readiness-tool – created by the Smart Regional Spaces project team.

The tool uses a set of Performance Indicators to evaluate the physical and social attributes of a place, as well as existing smart readiness features. The tool synthesises ideas such as 'what constitutes a good place,' 'places that people like to be in,' 'what makes a place smart,' and 'using smart technology as a tool to enhance people's experience of spaces' to create a standardised system for site audits of public open spaces. It helps the user conduct a quick site audit and provides comparative graphs and a summary matrix to understand how each site performs against the others.

C.3 Action: Select sites for smart projects or infrastructure

Having identified and reviewed all or selected active open spaces, select the sites where your Council wishes to add smart infrastructure or consider other smart aspects for the site (see Part D below). Methods for selecting the sites could include:

1. **Create a selection criterion:** The site may demonstrate high-social value (well-used and well-loved by the community, or significant heritage value), be strategically located (in an area of planned change or expansion), be earmarked for investment and upgrade, or have existing digital infrastructure.
2. **Consult with internal and external stakeholders or council members:** Stakeholders may include council staff, politicians, or the community.
3. **Use the Smart Readiness Tool:** The tool, described above, offers a standardised methodology to compare and shortlist potential 'smart-ready' sites.

You may decide to use one or a combination of these methods. The number of sites selected will vary from region to region. However, no more than six sites are recommended for a 3–5-year plan.

Top Tips - Community Engagement and User Focus

- For council decision-makers, it is critical to listen to communities and understand what makes their area not only a safe place to live but also fun, innovative, and connected.
- Increasing local community awareness and participation is critical in creating the fundamental social infrastructure needed to facilitate smart regional projects at a local government scale.

Part D: Project Selection

A smart project is a digital technology, activity, or initiative through which smart principles and goals can be achieved. Smart projects aim to improve the productivity, liveability, and sustainability of a place through positive social, physical, environmental, or economic impacts.

As new and updated technologies continue to enter the market, knowing which technologies are most appropriate requires clear strategic-led planning. Before you decide to implement the latest or on-trend technology, you must always consider 'why' and 'for whom' you are doing it, and ask what change (physical, social, environmental, or economic) it is likely to bring to your region or what problem will it solve (see Part A and B above).

D.1 Action: Develop an inventory of existing or planned digital infrastructure assets

Identifying existing infrastructure is essential. This inventory may already exist within your council. Creating an inventory and updating it regularly can assist with technology integration, resource efficiencies, and multipurpose functions. The inventory may focus on all of Council's digital assets or just a particular type. Digital assets include:

- **Physical infrastructure** such as smart transport systems, smart lighting systems, environmental monitoring systems, automation, or drones.
- **Social infrastructure** such as smart libraries or digital literacy programs.
- **Digital infrastructure** such as Wi-Fi, mobile apps, websites, dashboards, or Geographic Information Systems (GIS).

D.2 Action: Identify potential smart projects

As outlined above, there is no 'right' approach to becoming a smarter region. Three approaches or starting points to identify and implement potential smart projects are:

1. **Leverage existing smart projects and associated infrastructure** by building on what is already there, extending the project, or adopting the technology in other locations or on a larger scale.
2. **Develop smart projects by place as described** in Part C above.
3. **Develop smart projects by type,** where a specific type of smart technology is implemented in key open spaces, or across a specific area or the entire LGA.

All approaches are valid. You may decide to use one, or a combination of two or three to guide the implementation of smart projects in your region.

A type-based approach is the focus of this section. It offers council a chance to build expertise in a specific project type (such as drone usage) or to improve specific amenities across the LGA (for example, installing smart water meter systems or environmental monitoring sensors). It is particularly useful for achieving economies of scale through an LGA-wide rollout of a particular type of smart technology.

To assist with identifying potential smart projects (relevant for all three approaches) a glossary of potential smart projects is provided in **Section 3** of this document.

More Information - Smart Precedent Projects

To be inspired by smart projects that may be relevant to your region, please see the Smart Precedent Projects – www.smartregionalspaces.net.au/smart-precedent-projects – created by the Smart Regional Spaces project. There are 21 international smart projects for review. Most of the precedent projects address an opportunity or challenge relevant to some or all of regional NSW.

Top Tips - Digital Hardware and Connectivity

- Before technology can be used, hardware including foundational infrastructure and connectivity must be in place, at least in certain parts of the region.
- Be prepared to respond to digital systems that use different standards, protocols, and data formats, making it difficult to integrate them into a cohesive system. Councils often have legacy systems and technology that may not be easily compatible with new technologies.

D.3 Action: Implement potential smart projects

Once you have identified sites for smart activation and potential smart projects, key considerations for their successful implementation include:

- **Delivery timeframe:** The RoadMAP is an evolving document that should be updated every 3-5 years. Projects could be categorised as short-term (less than 1 year), medium-term projects (1-3 years) and long-term projects (more than 3 years). These timeframes should align with the council's corporate documents, such as operational and financial plans. An example of how the delivery timeframe may be visually presented is found in the RoadMAP.
- **Treating digital assets the same as physical assets:** It is important to elevate the importance of digital infrastructure assets to the same status as other physical infrastructure with regards to the project planning and development stages. It is imperative for councils to recognise digital infrastructure as a distinct asset class like traditional infrastructure, and to implement a comprehensive and long-term resourcing and funding strategy for digital assets.
- **Risk assessment and mitigation:** Thorough assessment of risks and challenges, and having an action plan to manage risks, is vital to the success and longevity and success of any smart project. This could be facilitated by having a chain of command and designated team, designated processes, and fail-safe measures in place.
- **Data collection, use, and management:** When implementing smart projects, related data systems and management processes need to be considered. This includes legal and regulatory compliance aspects such as data governance, ethics and the law, data privacy, cyber security, and the concept of digital rights. It is recommended these processes be determined early on in any smart project.

- **Funding smart projects:** Smart infrastructure and projects can be costly upfront. Cost savings are usually seen because a problem is solved or it is a 'value proposition' because of the environmental, social, or economic benefits that result from technology. There are funding options available to councils as it becomes 'smarter.' These include private collaboration, federal and state programs, grants with universities, community funding, or a combination of these.
- **Capacity building:** Developing specialised skill sets within council teams is essential to navigate the ever-changing technology world and be able to match suitable forms of smart technology with the region's needs.
- **Smart advocacy:** Every planning and delivery process needs 'champions' to advocate for the successful implementation of projects.

Image: Photograph by Penny Vozniak.

3 Resources

Smart Projects Glossary

It is difficult to know what types of projects are available and what might be best for your region. Below is an alphabetical list of some smart projects that are currently operating in councils and regional areas in NSW. This is not an exhaustive list but it provides you with ideas of what might be possible. The projects vary by scale, cost, impact, and complexity. You may 'copy and paste' any or all project text directly into The Template.

Table – Smart Projects list

ChillOUT Hubs	Sensors and the Internet of Things (IoT)
Closed-circuit Television (CCTV)	Sensors for Counting People or Things
Computer or Mobile Applications (Apps)	Sensors for Environmental Monitoring
Dashboards	Sensors for Large-scale Asset Management
Digital Information Boards	Sensors for Micro-infrastructure Asset Management
Digital Placemaking	Smart (Automated) Irrigation Controllers
Drones	Smart Lighting
Electric Vehicle (EV) Charging Stations	Smart Micro-Infrastructure
Free Wi-Fi	Smart Parking
LPWAN & LoRaWAN Networks	Smart Poles
Quick Response (QR) Codes	Smart Water Meters
Self-cleaning Toilets	Virtual Reality and Augmented Reality Technology

Project	ChillOUT Hubs
About	ChillOUT Hubs are multifunctional, open-air community spaces where residents and visitors can meet, work and play. They are modular systems enabled with a variety of smart technologies that can be customised to meet local needs. Each Hub integrates a powered shade structure and different types of smart street furniture. The Hubs can be enabled with environmental sensors to capture data on the microclimate around the Hub. User numbers and utility usage can also be collected. These sensors and their data can be linked to a web-based dashboard application, enabling a digital twin of the ChillOUT Hub to be monitored to understand how and when each asset is being used. ChillOUT Hub features can include: • Smart Tree shade structures, which include mains power outlets • Seats and tables • USB charging points • IoT-enabled sensors • Public Wi-Fi • Solar power • Smart drinking fountains, smart bins, lighting, misters for cooling • Public art, and • Greenery for shade
Alignment with Smart Places Principles	**Capacity Building** ✓ | **Social Experience** ✓ | **Environmental Monitoring** ✓ | **Asset Management** ✓
Key Benefits	• Increase digital connectivity with Wi-Fi and device charging points. • Reduce the digital divide by facilitating access to Wi-Fi and digital services. • Increase opportunities for social interaction. • Monitor smart bins with sensors to determine fill levels and temperature. • Track the use of water fountains and monitor them for leaks and faults. • Record local weather conditions via climate sensors. • Monitor power usage to remotely capture consumption and faults. • Deliver IoT-enabled sensor data to staff and council via a dashboard to provide an evidence base for future design and planning decisions. • Share data with other councils, researchers, and technology entrepreneurs.

Project	Closed-circuit Television (CCTV)
About	Closed-circuit television (CCTV) is a camera system where signals are broadcast to a specific location for viewing on a limited number of screens. It is used primarily for the surveillance of infrastructure, the natural environment, people, and traffic. Video content analysis software developed by Canon and released in 2019 can count thousands of people in seconds by using artificial intelligence (AI) technology for crowd counting. This kind of technology was used during the Covid-19 pandemic to monitor crowded beaches and other public spaces subject to crowding limits. It can also be used to count people at community festivals or other events. Examples of CCTV uses include: • Security cameras at parks, playgrounds, building sites, dams, etc. • Licence plate monitoring • AI-assisted people counters, and • Hazard monitoring in remote locations.
Alignment with Smart Places Principles	Capacity Building ✓ | Social Experience ✓ | Environmental Monitoring ✓ | Asset Management ✓
Key Benefits	• Promote safety and deter crime by monitoring public spaces. • Protect against vandalism and inappropriate use of cultural or historic sites. • Detect and deter illegal activities such as waste dumping in public areas. • Use AI-enabled CCTV to count people and monitor traffic. • Provide footage of water levels in dams and other water bodies.

Project	Computer or Mobile Applications (Apps)
About	An Application (App) is a software program that allows you to perform specific tasks. Apps can be downloaded onto computers tablets or smartphones. Some provide information (e.g., weather apps, disaster dashboards), while others enable a service (e.g., online banking, paying for parking). Others allow governments to engage the community on proposed policies or projects, announcing events, or reporting local issues. Examples of Apps used by local governments include: • Service request apps to report local issues • Emergency updates (e.g., local Disaster Dashboard apps) • Parking apps to enable easy payment or find available spaces • Transit and traffic flows (e.g., transit use, the availability of buses or trains), and • Historic or cultural tours (e.g., self-guided audio or augmented reality tours using mobile apps or QR codes on paper maps).

Project	Computer or Mobile Applications (Apps), continued

Alignment with Smart Places Principles	Capacity Building	Social Experience	Environmental Monitoring	Asset Management
	✓	✓	✓	✓

Key Benefits

- Distribute a range of real-time information, especially during emergencies or natural disasters.
- Enable residents and visitors to learn about and participate in local initiatives.
- Provide a one-stop-shop for tourists to access essential visitor information, as well as local marketing and promotions.
- Help people navigate to specific locations and explore what different neighbourhoods or towns have to offer.
- Showcase historical landmarks, educate the community about their significance, and promote a sense of place and place attachment.
- Galvanise and educate the community around environmental or conservation matters.
- Provide community residents with an opportunity to get involved with local storytelling past and present.

Project	Dashboards

About

A dashboard is a visual display of data or information that shows the status of assets, projects, or situations in a way that is easy to understand. Dashboards can be simple infographic templates that are used once or updated periodically and shared online. They can include high volumes of indicator data presented in charts, graphs, or maps for ease of understanding. They can also serve as a digital twin to display data from infrastructure to improve public asset management, planning, and decision-making.

Dashboards are often used by local governments internally to communicate important operational information to council and local government staff. They can be used to present key performance indicators or progress reports for projects or programs. Dashboards can be used to share information with citizens via the Internet. They can also increase government transparency and accountability.

Alignment with Smart Places Principles	Capacity Building	Social Experience	Environmental Monitoring	Asset Management
	✓	✓	✓	✓

Key Benefits

- Share data and information with government staff and council, as well as the public, in an easy-to-understand format.
- Create a local evidence base and trend data to help staff and council with operational and strategic planning and decision-making.
- Improve asset management.

Project	Dashboards, continued
Key Benefits	• Provide citizens with near real-time data on weather or beach conditions; emergencies such as fires or floods; traffic and parking data; or road work. • Promote community activities and public events.

Project	Digital Information Boards
About	Digital or electronic information boards are a dynamic means of sharing information. The boards use display technologies like LED screens that can be pre-programmed to display websites or feed important, real-time information to the community. This could include time and temperature data, transit or parking information, safety conditions at the beaches or in the mountains, upcoming community events, and emergency information related to fires, floods, or road conditions. Digital information boards can be equipped with interactive features, such as touch screens, that allow users to select relevant information depending on their location. Digital signage boards also include scoreboards and advertising screens. Digital information boards can include: • Community and visitor noticeboards • Emergency information during natural disasters or severe weather events • Holiday messaging or event promotion • Scoreboards in arenas or on playing fields, and • Transit, parking, and safe driving messages.
Alignment with Smart Places Principles	Capacity Building: ✓ · Social Experience: ✓ · Environmental Monitoring · Asset Management
Key Benefits	• Distribute a range of real-time information, especially during emergencies or natural disasters. • Enable residents and visitors to learn about and participate in local initiatives. • Provide a one-stop shop for tourists to access essential visitor information, as well as local marketing and promotions. • Help people navigate to specific locations and explore what different neighbourhoods or towns have to offer.

Project	Digital Placemaking
About	Placemaking is an approach to the planning, design, and management of public spaces that take advantage of a community's assets, aspirations, and potential to strengthen community connections. Digital placemaking involves the use of technology to enhance traditional placemaking practices. Digital placemaking can include functional or artistic installations that invite people to interact with the environment in educational and playful ways. This can include light projections, sound installations, and interactive digital artwork, as well as virtual reality (VR) or augmented reality (AR) technology. Digital storytelling using street furniture is another way that communities are building a sense of place and making neighbourhood connections.
Alignment with Smart Places Principles	**Capacity Building** ✓ **Social Experience** ✓ **Environmental Monitoring** **Asset Management**
Key Benefits	• Build pride of place. • Attract increased tourism to the region. • Showcase local art, nature, and history by using an interactive format that directly engages people. • Diversify the time and frequency of use of public open spaces and cultural, historical, and natural attractions. • Encourage the active and passive use of public open spaces to improve community health and well-being. • Increase social inclusion and connectedness. • Build social capacity among participants to encourage place-based collective action for community improvement. • Use play to persuade people to perform actions and activities that have an impact on health, traffic, energy consumption, or social behaviour. • Monitor placemaking events to demonstrate to council, local businesses, and the community the benefits of investing in them.

Project	Drones
About	Drones, also known as unmanned aerial vehicles (UAVs), are operated remotely by drone pilots, who must be licensed by the Civil Aviation Safety Authority (CASA). Drones can be equipped with a variety of sensors. These include cameras, microphones, ultrasonic technology, or light detection and ranging (LiDAR) sensors to measure distances and detect objects, thermal sensors to measure heat; and ground penetrating radar (GPR) sensors to identify buried structures.

Project	Drones, continued
About	Drones can be used for civil, military, and commercial applications. In a regional setting, drones are increasingly being used for: • Photography and videography • Land use mapping (often in collaboration with artificial intelligence and GIS) • Project management (e.g., capturing stages of work, looking at land slips) • Asset management • Farming and land care • Coastline, mountain, mining, or pipeline surveillance, and • Disaster management (e.g., to help with firefighting). Their compact size and ability to tolerate harsh environments makes them ideal for use in inaccessible or less accessible locations.
Alignment with Smart Places Principles	**Capacity Building** ✓ **Social Experience** ✓ **Environmental Monitoring** ✓ **Asset Management** ✓
Key Benefits	• Monitor council assets and infrastructure in remote or harsh environments. • Monitor and report progress on projects. • Analyse environmental conditions. • Enhance council communication materials by using drone images or videos for websites, corporate documents, and social media campaigns. • Use drone imagery and data to: » Map land uses, infrastructure, and building features » Analyse data manually or with the assistance of artificial intelligence (AI) » Map damage caused by natural disasters such as floods or bushfires » Map vegetation to identify crops and weeds, and conduct aerial spraying » Photograph upstream and downstream conditions in river networks » Count pedestrian traffic or vehicle movements, and » Provide new perspectives on events or festivals by capturing images from unique aerial vantage points.

Project	Electric Vehicle (EV) Charging Stations
About	Electric vehicles (EVs) are growing in popularity for personal or business use and are increasingly being installed in public places. EVs can be used as municipal fleet vehicles, which can also use public charging stations. Municipal EV charging stations can be strategically located to draw people to areas or attractions within a local government area.

Project	Electric Vehicle (EV) Charging Stations, continued
About	There are three types of EV chargers: 1. EVSE Chargers – Electric Vehicle Supply Equipment (EVSE) ports can provide an emergency electricity supply when there are no public chargers nearby. Portable units about the size of a small suitcase are appropriate for smaller batteries such as those in petrol-hybrid EVs or when a longer charging time is acceptable. 2. Wall Chargers – Wall chargers connect EVs to the electrical network through a special socket and plug on a dedicated circuit. This common type of charger works quickly but requires special housing to handle the heat it generates. 3. DC Fast Chargers – Fast Chargers using direct current require significant panel and service upgrades and are expensive to install. Fast chargers are recommended for petrol station operators, motorways, street-side charging, fleet vehicles, and commercial users.
Alignment with Smart Places Principles	Capacity Building ✓ | Social Experience ✓ | Environmental Monitoring ✓ | Asset Management
Key Benefits	• EV charging stations at strategic locations can encourage users to explore adjacent businesses, parks, or other attractions. • A network of EV chargers across the region can encourage the use of EVs and reduce greenhouse gas emissions. • Contribute to a regional or state-wide network of EV charging routes. • Add one or more EVs to the municipal fleet and possibly contribute to a regional EV car-sharing system during off hours.

Project	Free Wi-Fi
About	Free Wi-Fi in public places enables people with mobile phones, tablets, or laptops to connect to the Internet at no cost. Wi-Fi can be provided by setting up 4G or 5G hotspots at strategic locations within public open spaces such as parks, plazas, playing fields, historic or cultural sites, rest stops, or gathering places. Hotspots provide Internet access through a Wireless Local Area Network (WLAN). They can be created by installing routers supplied by Internet service providers or by integrating router functionality within smart poles, other micro-infrastructure, and street furniture, including ChillOUT Hubs.
Alignment with Smart Places Principles	Capacity Building ✓ | Social Experience ✓ | Environmental Monitoring | Asset Management

Project	Free Wi-Fi, continued
Key Benefits	• Reduce the digital divide by providing free public Internet access. • Incentivise telecommunications providers to provide public Wi-Fi hotspots by allowing municipal assets such as light poles to hold necessary routers. • High-speed, reliable Internet connectivity in public places can: » Diversify the use of public open spaces » Enhance the user experience of public open spaces » Improve access to online services and information for marginalised and vulnerable individuals or those living further from town centres » Support economic growth by attracting digital businesses, start-ups, and entrepreneurs to the area » Facilitate employment for gig workers who can wait for calls in public areas near where they are likely to be needed, and » Promote the digital services offered within the region by directing Wi-Fi users to council webpages or services when they first connect.

Project	LPWAN & LoRaWAN Networks
About	LPWAN is a Low-Power Wide-Area Network designed for devices that require wide-range transmission and long battery life with minimal power consumption. LPWAN uses existing public radio spectrums to transmit Machine-to-Machine or Internet of Things data in locations where the use of other networks or types of connectivity may be too expensive or unavailable. LPWAN was forecast to be the fastest-growing IoT communication technology by 2023, with over one billion devices connected to its networks. LPWAN applications include asset management for: • Utilities – using smart meters for electricity, gas, and water use • Agriculture – monitoring crops, soil, and water levels • Cities – monitoring parking metres, streetlights, and waste management, and • Infrastructure – monitoring for downed power lines or short circuits. LoRaWAN is a Long-Range Low-Power Wide-Area Network that uses the Cloud to transmit data collected from its sensors. As an example, Shoalhaven Water uses LoRaWAN devices for real-time monitoring of the water and sewer systems between large water reservoirs, as well as motorised valves, sewer pumping stations, and treatment plants. These alert the utility about system failures and provide flow rate data that enables water storage management at dam sites.
Alignment with Smart Places Principles	Capacity Building ✓ | Social Experience | Environmental Monitoring ✓ | Asset Management ✓
Key Benefits	• Efficient and cost-effective asset management using Internet of Things devices transmitting sensor data to municipal staff and council.

Project	Quick Response (QR) Codes
About	A Quick Response (QR) code is a barcode that stores information as a series of pixels in a square grid. QR codes can be easily scanned by digital devices using a built-in camera or a QR code reader app. By scanning QR codes placed on signage, notice boards, windows, maps, or products, the user is directed to an app or website where they can receive more information about the product, service, upcoming event, or location. QR codes can be used to track information about products in a supply chain and are often used in marketing and advertising campaigns. They also provide a quick and easy way to engage the community. For example, QR codes in parks (e.g., digital tree tags) can generate interest in preserving the natural environment. Local governments can add QR codes to advertising materials that are then placed in visible locations (e.g., in public facilities; places of worship, and grocery stores). QR codes can also direct people to surveys about municipal programs or policies.
Alignment with Smart Places Principles	Capacity Building: ✓ Social Experience: ✓ Environmental Monitoring: Asset Management:
Key Benefits	• Present digital information on local government services. • Promote upcoming events. • Provide detailed information about local products or services. • Stimulate interest in protecting the natural environment. • Generate interest among locals, new residents, and visitors in the history and culture of local places, structures, or landmarks.

Project	Self-cleaning Toilets
About	Self-cleaning toilets are prefabricated modular units that come in a variety of configurations to suit the needs of different kinds of public spaces. They can be stand-alone units or integrated into an existing structure. Options range from low-tech manual designs to fully automated systems with pre-programmed door-locking systems and a cubicle auto-wash function. The exterior cladding can be customised with artwork or imagery to give the units a contemporary appearance or highlight the natural or heritage assets of the city or region. Self-cleaning toilets are accessible and have touch-free, sensor-operated toilets and sinks. As they are self-cleaning, they are safe and hygienic, and reduce the human resource costs associated with routine maintenance. They are also vandalism resistant. Automated units can be programmed to open and close at set times each day. This eliminates the need for separate security visits to permit or prevent entry to the facilities. Automated units use a web-based monitoring system, where the sensor data collected can track usage and remotely assess the condition of the cubicle.

Project	Self-cleaning Toilets, continued

Alignment with Smart Places Principles

Capacity Building	Social Experience	Environmental Monitoring	Asset Management
✓	✓		✓

Key Benefits

- Provide an essential public amenity.
- Save on security and maintenance costs through automation.
- Track asset usage and facility conditions with sensors.
- Customise the appearance to suit the location and profile local artists, regional history, or natural assets.

Project	Sensors and the Internet of Things (IoT)

About

In a smart place, we can connect people with people, people with objects, and objects with other objects. These connections happen through digital networks. The Internet of Things (IoT) consists of physical devices that collect and share data via the Internet. These devices include infrastructure, vehicles, wearable devices, home appliances, and medical technologies. These and other objects that are embedded with electronics, software, sensors, and actuators enable devices or 'things' to share and exchange data. When that data is filtered and analysed, those devices can be directed to perform their functions more efficiently and effectively.

Sensors are integral to the IoT. They are low-cost, standalone, micro-electronic devices attached to a radio transceiver. When many sensors are deployed over a defined area, they form a wireless sensor network. Sensors connect to the Internet and transmit data, which is stored and processed in the Cloud. Asset managers and council can use that data for immediate, time-series, or trend analysis to support evidence-based planning, decision-making, and emergency management.

Alignment with Smart Places Principles

Capacity Building	Social Experience	Environmental Monitoring	Asset Management
✓		✓	✓

Key Benefits

- Provide local governments with near real-time, time series, and trend data.
- Support operational and strategic planning, decision-making, and emergency management with evidence-based, local data.
- Count people, vehicles, and IP addresses.
- Monitor environmental conditions (e.g., air, water, and soil quality; weather, road, and beach conditions; and flood or fire status).
- Manage large-scale assets (e.g., water, power, waste, and public safety systems).
- Manage micro-infrastructure assets (e.g., smart street furniture components in public open spaces).

Project	Sensors for Counting People or Things
About	Sensors are low-cost, standalone, micro-electronic devices attached to a radio transceiver. Sensors connect to the Internet and transmit data, which is stored and processed in the Cloud. The analysed data is presented on a dashboard in an easy-to-understand format. Sensors can be used to count a variety of things including pedestrian footfalls, traffic congestion, vehicle flow, available parking spots, and IP addresses. For example, the Broken Hill City Council installed sensors that monitor parking bays. The data is displayed on a public-facing dashboard, which allows drivers to determine how many available parking spaces are in the car park. Cameras using artificial intelligence can also quickly count people in crowded public places (e.g., airports, beaches) or during festivals or other public events. The use of this technology increased significantly during Covid-19, when crowd control became part of an overall public health response.
Alignment with Smart Places Principles	Capacity Building ✓ · Social Experience ✓ · Environmental Monitoring · Asset Management ✓
Key Benefits	• Use sensor data for immediate, time-series, or trend analysis to support evidence-based planning, decision-making, and emergency management by asset managers and council. • Count pedestrian footfalls at various times of the day and week. • Analyse traffic patterns by counting vehicles. • Display the location of empty parking spots to help drivers quickly find parking to access local businesses and amenities. • Use people counters to monitor for overcrowding in public gathering places and during festivals or other large public events.

Project	Sensors for Environmental Monitoring
About	Sensors can be used for environmental monitoring by tracking features like temperature, humidity, ground moisture levels, soil pH levels, airflow, air pressure, ground vibration, and water levels. For example, moisture sensors in agricultural settings or public parks can activate irrigation systems when the soil becomes excessively dry. Sensors can be embedded in infrastructure, added to the natural environment, integrated with street furniture, or situated independently. For example, the use of air quality sensors to identify carbon dioxide and nitrogen dioxide levels can help to identify health risks.
Alignment with Smart Places Principles	Capacity Building ✓ · Social Experience ✓ · Environmental Monitoring ✓ · Asset Management

Project	Sensors for Environmental Monitoring, continued
Key Benefits	• Use sensor data for immediate, time-series, or trend analysis to support evidence-based planning, decision-making, and emergency management by asset managers and council. • Monitor weather indicators such as temperature, precipitation, wind, or beach conditions at specific sites across the region. • Monitor air quality to determine accurate local health risks. • Monitor local water quality. • Evaluate soil moisture levels in public open spaces to determine appropriate irrigation needs. • Automate site-specific watering when used with Smart (Automated) Irrigation Controllers.

Project	Sensors for Large-scale Asset Management
About	Sensors are low-cost, standalone, micro-electronic devices attached to a radio transceiver. Sensors can collect and transmit data about large-scale assets such as water, power, waste, and public safety systems. For example, they can monitor: • Power usage • Water and sewage use and flow • Heat and fill levels in waste management systems, and • Dam levels and leaks. Sensors can be embedded in infrastructure, added to the natural environment, integrated with street furniture, or situated independently. Sensor data is uploaded through wireless networks to Cloud platforms, where it is filtered and aggregated. It is displayed in easy-to-understand formats where it is monitored by asset managers and used by the council for planning and decision-making.
Alignment with Smart Places Principles	Capacity Building ✓ · Social Experience ✓ · Environmental Monitoring ✓ · Asset Management ✓
Key Benefits	• Collect data in near real-time to enable ongoing monitoring and immediate responses to urgent situations. • Analyse data collected over a prolonged period to provide time-series or trend data without having to make costly and recurrent on-site observations. • Compile data on public infrastructure assets to support operational decisions about routine and long-term infrastructure maintenance. • Calculate the return on investment of existing assets to inform decisions on future investments in additional assets or the removal of existing ones. • Improve public safety and user experiences by reducing public nuisances from excessive noise and noxious odours. • Close public places during disruptions or emergencies (e.g., close roads affected by floods).

Project	Sensors for Micro-infrastructure Asset Management
About	Micro-infrastructure generally refers to smaller assets located within the public domain. Examples include street furniture such as multi-use poles, seating, lighting, picnic tables, barbeques, rubbish bins, lighting, and water fountains. Networked sensors can be added to existing micro-infrastructure or built into customised smart micro-infrastructure. Sensor data can be analysed to show how and when each asset is being used, assisting with routine cleaning and maintenance, and the documentation of overall performance. Data can be displayed as a digital twin of the asset on a local government dashboard. Smart bins, for example, use sensors to detect fill levels to enable efficient scheduling for bin emptying rather than using fixed routes or schedules. They can also record the internal bin temperature to monitor for heat and fire hazards. Similarly, electric barbeques can record the date and time of power consumption to determine usage levels and patterns.
Alignment with Smart Places Principles	Capacity Building ✓ · Social Experience ✓ · Environmental Monitoring · Asset Management ✓
Key Benefits	• Track the use of micro-infrastructure to understand when and how it is used, plan ways to encourage greater use, and determine when to add or remove assets. • Optimise resource management with self-diagnostic features that indicate when an asset needs repairs or maintenance. For example, schedule waste removal only when bins are nearly full to save money on unnecessary collection and improve aesthetics by not having bins spill over if they become too full. • Improve public safety. • Enable automation of some functions. (e.g., misters are only activated by high ambient air temperature readings).

Project	Smart (Automated) Irrigation Controllers
About	About half of the water used for landscape irrigation is wasted. This is because traditional irrigation controllers operate on a pre-set schedule using programmed timers to start and stop watering. In contrast, smart irrigation controllers automatically adjust the use of sprinklers and subsurface irrigation systems to reflect actual weather or soil conditions. Ground sensors can measure the amount of moisture in the soil and determine how much watering is required based on soil type, vegetation, topography, and other conditions. Alternatively, weather sensors can measure air temperature, wind, solar radiation, humidity, and rainfall to determine how much watering is needed. Based on the information transmitted by the sensors, smart irrigation controllers can activate sprinklers and subsurface irrigation systems. Controllers can use solar power and multiple controllers can be digitally linked to a central control system. Controllers can manage multiple zones with different vegetation types and water needs.

Project	Smart (Automated) Irrigation Controllers, continued
About	Government staff can use mobile apps or internet-based software to turn watering systems on and off. Studies have shown significant cost savings when either ground or weather sensor systems are used to feed data into smart irrigation controllers.
Alignment with Smart Places Principles	Capacity Building ✓ · Social Experience ✓ · Environmental Monitoring ✓ · Asset Management ✓
Key Benefits	• Reduce water waste. • Save on irrigation costs. • Allow remote-controlled watering based on actual site conditions rather than watering at pre-set fixed intervals. • Adopt more sustainable municipal practices.

Project	Smart Lighting
About	Smart lighting can be used in public open spaces to turn on lights after dark or when activity is taking place. Smart lighting is suitable for parks, pathways, playing fields, parking lots, and near public buildings or other infrastructure, where intermittent use or use at certain periods during the day or week is anticipated. Smart lighting can include motion sensors, solar power, and remote operation capabilities (e.g., turning lights on via text message controls or automated programming). Motion-activated sensors installed on light poles can detect movement using microwave or ultrasonic energy, which activates a response. A visual response to a motion sensor can turn on a light, whereas an auditory response can sound an alarm and a mechanical response can engage a door opener. The sensitivity of new smart motion sensor technology can be adjusted to improve accuracy, resulting in better performance that meets local needs.
Alignment with Smart Places Principles	Capacity Building ✓ · Social Experience ✓ · Environmental Monitoring ✓ · Asset Management ✓
Key Benefits	• Reduce energy consumption. • Decrease light pollution. • Improve public safety. • Manage lights remotely or through fully automated controls, streamlining maintenance and resource management. • Adopt more sustainable municipal practices.

Project	Smart Micro-Infrastructure

About

Micro-infrastructure generally refers to smaller assets located within the public domain. Examples include street furniture such as multi-use poles, seating, lighting, picnic tables, barbeques, rubbish bins, lighting, and water fountains. The addition of 'smart' refers to the incorporation of technology and digital capabilities, including power (mains or solar), automation and remote access features, Wi-Fi, emergency call button, and sensors.

Smart street furniture can include:

- Smart seats, benches, and tables with Wi-Fi, charging ports, and solar power
- Smart drinking fountains
- Smart rubbish bins
- Smart barbeques
- Smart poles
- Smart lighting
- Solar tiles, and
- An emergency call button.

The addition of networked sensors provides data on how and when each asset is being used, assisting with routine cleaning and maintenance, and overall performance. Smart bins, for example, use sensors to detect fill levels to enable efficient scheduling for bin emptying rather than using fixed routes or schedules. They can also record the internal bin temperature to monitor for heat and fire hazards. Similarly, electric barbeques can record the date and time of power consumption to determine usage levels and patterns.

Smart street furniture can be implemented as standalone projects or combined with other smart projects such as Smart Poles.

Alignment with Smart Places Principles

Capacity Building	Social Experience	Environmental Monitoring	Asset Management
✓	✓	✓	✓

Key Benefits

- Adopt more sustainable municipal practices, such as using solar power.
- Reduce energy consumption through automation and remote control of amenities.
- Improve public safety by using smart lighting, emergency call button, and monitor and address safety hazards such as heat or fire in bins.
- Reduce the digital divide with the provision of charging points and free Wi-Fi.
- Optimise maintenance, costs, and resource management. For example, smart bins can help schedule waste removal only when bins are nearly full to save money on unnecessary collection and improve aesthetics by not having bins spill over if they become too full.
- Track micro-infrastructure to understand when and how it is used, identify ways to encourage greater use, and determine when to add or remove assets.
- Enable automation by, for example, installing misters that are triggered by high ambient air temperature readings.

Project	Smart Parking
About	Smart parking uses technology to achieve faster, easier, and denser parking while minimising the time and fuel used to find a place to park. Ground sensors using radar technology can be installed into the concrete under each parking space. When a vehicle enters the stall, the sensor will identify the presence of an object and register that parking space as occupied. Sensors transmit this information, which is displayed in real-time on a public-facing dashboard. The display shows the number of available stalls and where vacant stalls exist. As drivers travel through the car park to find a vacant space, overhead or in-ground lights remain green when a stall is empty, and sensors turn them red when a stall is occupied. Other systems use Artificial Intelligence (AI) to recognise vehicles. By registering your name, vehicle information, and credit card to a specific parking app, the AI system recognises the car and automatically signs it in when it is parked, signs it out when it leaves, and charges the credit card for the parking time used.
Alignment with Smart Places Principles	Capacity Building ✓ | Social Experience ✓ | Environmental Monitoring ✓ | Asset Management ✓
Key Benefits	• Optimise parking. • Reduce traffic congestion. • Decrease pollution emitted when searching for a parking spot. • Enhance the user experience for drivers. • Integrate payments with a point-of-sale system at the car park. • Promote the patronage of other area businesses. • Collect real-time data to display to drivers and to use for trend analysis.

Project	Smart Poles
About	Smart poles are typically traditional light standards with the ability to provide other mechanisms inside or attached to the poles. They can be regular street lighting or strategically placed in public open space. Because of their power supply, smart poles can integrate other devices and technology, including motion-activated sensors that detect movement and turn lights on after dark when visitors are present. Onboard storage capacity can collect data from IoT-enabled devices that can be analysed to understand maintenance needs. The addition of power outlets, USB chargers, and free Wi-Fi signals that provide high-speed Internet access can improve digital connectivity. Sensors can be added to record power use, mobile device charging, and weather conditions. Cameras can be added to provide closed-circuit television (CCTV), while artificial intelligence (AI) can be used for facial recognition, vehicle recognition, or reading license plates.

Project	Smart Poles, continued
About	Smart poles can also incorporate components that mitigate heat effects such as shade structures that may be automated to block direct sun, or misting stations that are activated at certain temperatures. Sensors can be added to count the presence of smartphones as a proxy for people, and analysing Media Access Control (MAC) addresses can estimate their length of stay. Data collected can be used by council for operational and strategic planning and decision-making.
Alignment with Smart Places Principles	Capacity Building ✓ · Social Experience ✓ · Environmental Monitoring ✓ · Asset Management ✓
Key Benefits	• Reduce electricity consumption from lighting public open spaces. • Save on operating costs. • Reduce the digital divide with free Wi-Fi and high-speed Internet access. • Provide charging stations, USB ports, and power outlets. • Increase public safety and deter crime with lighting and CCTV. • Count traffic, people, license plates, and so on. • Collect data from nearby or integrated sensors, IoT devices, and CCTV to inform government planning and decision-making.

Project	Smart Water Meters
About	Standard water meters are typically read in person. This is a labour-intensive activity that only provides customers and utility providers with information on changes in water consumption after the fact. In contrast, smart water meters continuously measure water flow and wirelessly transmit that data to the utility provider or user at regular intervals. A continuous flow or leak alarm on each smart meter enables the utility provider to identify potential leaks, which helps customers quickly address the issue and save money. Smart water meters facilitate accurate billing and improve water conservation through early and accurate leak detection and repair. Customers can monitor water use online, where a sudden increase in consumption may indicate a leak. They may also receive an email or text alert from the utility provider if a change in flow volume reveals a suspected leak at their home or business. The data collected can help users and council identify patterns in hourly, weekly, monthly, and yearly water use. This facilitates evidence-based planning and decision-making, as well as infrastructure maintenance and upgrades. Smart water meters can be used to measure the flow of potable water, recycled water, treated water, or raw sewage. Utility providers also use smart meters to monitor large-scale water systems, water reservoirs, motorised valves, sewer networks, pumping stations, and water treatment plants. This provides real-time alerts about system issues or failures.

Project	Smart Water Meters, continued

Alignment with Smart Places Principles

Capacity Building	Social Experience	Environmental Monitoring	Asset Management
✓	✓	✓	✓

Key Benefits

- Read meters without accessing private properties.
- Report water usage at regular intervals or in near real-time.
- Enable customers to track personal or business water use online.
- Generate e-mail or text alerts to notify customers of potential leaks.
- Identify usage patterns to plan and allocate resources for infrastructure maintenance and upgrades.

Project	Virtual Reality and Augmented Reality Technology

About

Virtual reality (VR) refers to technology experienced through the use of a headset connected to a 3-D simulation on a computer or gaming console or projected within the headset itself. The user puts on a VR headset or goggles, which are designed to make the wearer feel as though they are immersed in a place. VR is increasingly being used in classroom education; staff training; virtual sports, culture, or entertainment events; and healthcare diagnostics and treatment. It is also being used to create virtual spaces where people interact with each other for work or socially.

Augmented reality (AR) refers to an interactive experience in which a real-world environment is enhanced with computer-generated visual elements or sounds. Some AR applications require the use of a headset, while others can be accessed on a mobile device. AR is also being used to recreate the appearance of actual historic sites using computer-generated 3-D models. There are many examples globally of AR being used in public space.

Alignment with Smart Places Principles

Capacity Building	Social Experience	Environmental Monitoring	Asset Management
✓	✓		

Key Benefits

Virtual Reality tools can be used for:

- Education and training,
- Entertainment,
- Retail sales, and
- Work and social spaces.

Augmented Reality can be used for:

- Healthcare, and
- Tourism.

Smart Glossary

3G, 4G, and 5G refer to the generations of cellular, meaning mobile technology networks. The difference in networks is determined by data capacity, the speed of data transfer, and features such as voice calling, video calling, text messaging and mobile internet.

Artificial Intelligence refers to actions and movements that normally require human intelligence, which are now done by machines such as computers and robots.

Physical Asset refers to a physical piece of infrastructure, such as a building, a piece of land, equipment, machinery or other architectural structures (e.g., sheds, toilet blocks).

Augmented Reality (AR) refers to an interactive experience in which a real-world environment is enhanced with computer-generated visual elements or sounds. Some AR applications require the use of a headset, while others can be accessed on a mobile device.

Automated technology refers to machines and equipment that run using minimal human intervention.

Big data describes large volumes of data from many sources. It can include structured data, sensor data, audio, and video. Its management requires a distributed approach, with parallel software running on a large number of computer servers (Kitchen, Lauriault and McArdle 2015).

Cloud computing refers to the use of remote services, including servers, software programs and databases hosted on the Internet to store, manage, and transfer information to and from an electronic device.

Dashboards are a visual display of data or information, which can take many forms. They are meant to show data in a way that makes it easy to see the status of various assets, projects, or situations "at a glance" (Kitchin, Lauriault and McArdle 2015).

Data is a broad term that generally refers to facts and figures that can be represented as numbers, text, graphics, sound, or video, as well as how these are interpreted. Data can also take different forms, can pertain to a range of topics and can be broken down by type or purpose, (NSW Government 2021).

Digital connectivity describes the ability to connect an electronic device such as a mobile phone or computer to a broadband or mobile Internet network.

Digital divides refer to the gap between different individuals, communities, or areas based on their ability to access and use digital technology, such as a mobile phone (smartphone) or computer, broadband or mobile Internet, and online services. Discussions about urban versus rural divides are common.

Digital inclusion refers to "whether a person can access, afford and have the digital ability to connect and use online technologies effectively" (Thomas et al. 2020: 8).

Digital twins are digital models of a physical object, process, or system (Batty 2018).

Geographic Information Systems (GIS) use "digital software to capture, store, manipulate, analyse, manage, and present geographical data" (Loukaitou-Sideris 2018: 208). Each layer of information is overlaid on top of a two- or three-dimensional digital map.

Global Positioning System (GPS) is a satellite-based radio navigation system that uses positioning, navigation, and timing (PNT) services between satellites and electronic devices (equipped with GPS technology) to determine an exact location.

Hardware refers to the physical components of an electronic device or system, including wiring, conduits, poles, and sensors.

Information and Communications Technology (ICT) is a "diverse set of technological tools and resources used to transmit, store, create, share, or exchange information" such as computers, and the internet (UNESCO Institute for Statistics 2009: 120).

Internet of Things (IoT) refers to the "physical devices that are connected to the internet, collecting and sharing data. It is the global network of infrastructure, vehicles, wearable devices, home appliances, medical technologies, and other objects that are embedded with electronics, software, sensors, and actuators, enabling these 'things' to share and exchange data to perform their functions more efficiently and effectively" (NSW Government 2019:1).

Internet Protocol (IP) addresses have a unique numerical number that identifies an electronic device on a local network or Internet network, which allows information to be sent between devices.

LoRaWAN is a Long-Range Low-Power Wide-Area Network that uses the Cloud to transmit data collected from its sensors (LoRaWAN® 2023).

LPWAN is a Low-Power Wide-Area Network designed for devices that require wide-range transmission and long battery life with minimal power consumption. LPWAN uses existing public radio spectrums to transmit Machine-to-Machine or Internet of Things data in locations where the use of other networks or types of connectivity may be too expensive or unavailable (AV System 2020; M2M Connectivity 2022).

Machine-to-machine is a broad term referring to direct communication between electronic devices (or machines) to exchange information or perform tasks.

Micro-infrastructure generally refers to smaller assets located within the public domain. Examples include street furniture such as multi-use poles, seating, lighting, picnic tables, barbeques, rubbish bins, lighting, and water fountains. Micro-infrastructure becomes 'smart' through the addition of technology and digital capabilities, including power (main or solar), automation or remote access features, Wi-Fi, emergency call buttons, and sensors.

Open data can be accessed, used, and shared by anyone. It must be accessible – posted online and downloadable from the internet, provided in a machine-readable file format (e.g., Excel or CSV files) that can be easily processed by a computer without losing its meaning, and has a license that permits people to access it, use it, and share it (Kitchin 2016; Landry et al. 2016).

Platform "a system or group of technologies" (NSW Government 2021).

Remote access is the ability to access a digital device or network from any location.

Smart places are local areas where 'smart' technologies (e.g., sensors, data, and dashboards) are used to improve local economies, environments, and the delivery of services while providing a better quality of life for residents.

Sensor is defined as "a low-cost, standalone, micro-electronic component with limited computational ability, built-in sensing components, and a radio transceiver. When a large number of sensors are deployed over a site for monitoring purposes, they form what is called a wireless sensor network (Difallah, Cudré-Mauroux and McKenna 2013: 40).

Virtual Reality (VR) refers to technology experienced through the use of a headset connected to a 3-D simulation on a computer or gaming console or projected within the headset itself.

Wi-Fi is a wireless technology that allows electronic devices such as computers and mobile phones to connect to the Internet. Wi-Fi uses radio waves to send information between the device and the internet using a router or modem.

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Appendix

Smart Places RoadMAP - The Template

SMART REGIONAL SPACES
READY...SET...GO!

About This Template

Introduction

This *Smart Places RoadMAP – The Template* (hereafter called The Template) is a tool developed to support a regional council prepare its own strategic Smart Places RoadMAP (hereafter called a RoadMAP). Developing a Smart Places RoadMAP can be resource intensive, and knowing where to start can be a challenge.

The Template consists of a predefined structure but requires a council to fill in several sections to the strategy their own. This task may fall to a council Place Manager, Strategic Planner, Asset Manager, Information and Communications Technology Manager, or other staff. Each section contains sample text, prompts and guidance to assist the writer.

In broad terms, The Template:

1) Establishes the CONTEXT where you describe your region, your relevant opportunities and constraints, and existing plans and policies
2) Provides a clear FRAMEWORK—comprised of a vision, principles, and goals—to guide the implementation of smart projects that respond to your existing context, and
3) Identifies SMART PROJECTS—past, present, and future—that can be leveraged or implemented in response to the region's opportunities and challenges, and to help achieve the region's vision and goals.

The look and feel of a RoadMAP will vary depending on whether a council is just starting out, has completed some smart projects, or has a well-developed council-wide approach to designing and delivering smart places. Importantly, The Template, is just that—a template. Please feel free to use any or all of it as you see fit. It is provided to help 'speed you up' with summary information, and is to be used in conjunction with *Smart Places RoadMAP – The Guide*. This will help a council prepare a RoadMAP and not have to outsource that to external consultants (although that may be an option, in which case The Template could inform a consultant brief).

How to Use This Template

The Template includes various components, such as headings, sample text, and prompts to guide the writer. A summary of these is provided in the following table. You are welcome to use The Template as provided; however, there is no obligation to do so. You can amend The Template to reflect your council's smart journey, motivations, aims, and stakeholder messaging. Your council may want a simplified RoadMAP to avoid disproportionately overburdening the region or it may want a very comprehensive one if council will be adopting extensive smart policies and initiatives.

There is no pre-defined length for the RoadMAP. However, the very comprehensive ones prepared for the Smart Regional Spaces partner councils were each approximately 60 pages in length, including images and references.

Smart Places RoadMAP – The Guide

A document called *Smart Places RoadMAP – The Guide* (hereafter called The Guide) has been prepared to assist regional councils develop their own, context-specific Smart Places RoadMAP. Throughout this Template, you will see references to numbered or alphanumeric sections of The Guide that offer tips on the content to be included the corresponding section of The Template. Writers are encouraged to refer The Guide while using The Template to prepare their own Smart Places RoadMAP. You are encouraged to read The Guide before completing The Template.

Table – Quick Reference Notes for Completing The Template

Component	Guidance
1 .Heading Heading Heading	▪ Headings are signposts that help to structure and navigate The Template. ▪ Heading formats can be applied using preset Styles. ▪ From the Home screen, click on the arrow in the bottom right corner of the Styles panel to see the preset options.
Sample text	▪ Sections of The Template contain sample text prepared by the Smart Regional Spaces project team, which can be amended to suit your council's aims, motivations, and stakeholder messaging.
<*Insert*> Prompts:	▪ Prompts—shown as *<text in italics between arrows>*—guide writers to insert their council's name, project titles, explanatory text, or images relevant to each section of The Template. ▪ Delete **all** the prompts from the final RoadMAP.
<***Formatting:***>	▪ These prompt writers to make a formatting decision. ▪ Delete **all** the prompts from the final RoadMAP.
<***Graphics:***>	▪ These prompt writers to make a decision about graphics. ▪ Delete **all** the prompts from the final RoadMAP.
GENERAL GUIDANCE	▪ General Guidance boxes explain the intent of the section and suggest things writers should consider. ▪ Delete **all** of the General Guidance boxes from the final RoadMAP.
3 **D.2** **A.2**	▪ Some General Guidance boxes include numeric or alphanumeric boxes, which direct writers to relevant sections of The Guide. ▪ Review them before writing that section of the Template. ▪ The prompts read: Refer to **Section XX** of The Guide for further information.
General Formatting Note for Writers:	▪ It is recommended that **paragraph marks (¶)** are turned on whilst editing The Template. This will allow writers to easily see where line breaks, section breaks, and page breaks have been inserted.

*<**Formatting:** The title page for The Template begins on the next page. When finalising your Smart Places RoadMAP, delete all previous pages, as well as this one.>*

<**Formatting**: This is your RoadMAP's Front Cover. Insert a full-page image or solid colour, and relevant text where prompted.>

<Council>

Smart Places RoadMAP

<Year>

<Insert Council Logo(s)>

Foreword *[Optional]*

<[Optional] Insert foreword text.>

GENERAL GUIDANCE – FOREWORD

The Foreword is an optional component of the Smart Places RoadMAP. It can be prepared by or on behalf of the Mayor, General Manager, or project leader. The Foreword helps to establish the context for the RoadMAP.
It could outline council's smart journey to date, as well as current or planned smart commitments and actions. The Foreword should be approximately one page in length.

*<**Graphics**: [Optional] Insert images or graphics.>*

Executive Summary

<Insert Executive Summary text.>

GENERAL GUIDANCE – EXECUTIVE SUMMARY

The Executive Summary provides an overview of the Smart Places RoadMAP. It should be approximately one to two pages in length. A strong executive summary could:

- State the purpose of the RoadMAP and why has it been prepared.
- Consider including why your council needs this plan or wants to become smarter.
- Outline the major components of the RoadMAP, such as the regional or local context, council's smart places framework, key smart projects, and so on.
- Include enough information so the reader can understand key elements of what is included in the RoadMAP without having to read it in full.

*<**Graphics**: [Optional] Insert images or graphics.>*

Table of Contents

<Update the headings and page numbers once the RoadMAP is completed.>

*<**Formatting**: [Optional] Insert a full-page image or solid colour.>*

<Council>

Vision

<Insert council's overall vision>

*<**Formatting**: Adjust size of text box and coloured shape to suit the length of the text.>*

<*Council*> at a Glance *[Optional]*

<[Optional] Insert text>

GENERAL GUIDANCE – COUNCIL AT A GLANCE

This optional section provides a description of the key characteristics of the region and its community. It could be located **here** or in **Section 2**.

- The description could include text, infographics, maps, or images that provide a general overview of your region.
- Examples include demographics, economic drivers, number of public open spaces, unique features or attributes, and so on.
- Suggested sub-headings include: Our Community, Our Geography, Our Public Spaces, Our Economy, Our Top Industries.

A.1 Refer to **Section A.1** of The Guide for further information.

1 Introduction

About This RoadMAP

<Insert text>

GENERAL GUIDANCE – ABOUT THIS ROADMAP

A Smart Places RoadMAP comes before any implementation plans are created. It is designed to be the bridge between council's existing overarching plans or policies and its future detailed implementation plans for specific smart public open space projects.

This section provides an **overview** of the Smart Places RoadMAP and helps to establish its context. The overview could:

- State the purpose of the RoadMAP and what it aims to do.
- Refer to existing plans and policies that informed the development of the RoadMAP.
- Outline the major components of the RoadMAP, including the smart places framework and potential smart projects (by place and by type).
- Summarise council's smart journey, noting what was done in the past and what will likely be done in the next three to five years.
- Identify the role of technology and data, and the impact they will have in the region over the coming decades (e.g., monitoring environmental assets, promoting internet accessibility, encouraging capacity building, and so on).

1 Refer to **Section 1** of The Guide for further information.

Preparing a RoadMAP

<Insert text>

GENERAL GUIDANCE – PREPARING A ROADMAP

This section describes how you prepared your RoadMAP. It could:

- Identify which council department was responsible for preparing the RoadMAP.
- Describe key tasks undertaken to inform the preparation of the RoadMAP. For example, council may want to conduct stakeholder engagement, create asset inventories, and decide on a specific process for developing the RoadMAP.

2 Refer to **Section 2** of The Guide for further information.

Implementing the RoadMAP

<Insert text>

GENERAL GUIDANCE – IMPLEMENTING THE ROADMAP

This section describes how council will implement the Smart Places RoadMAP. It could:

- Identify ways the RoadMAP can or will be used.
  Hint: Refer to **Section 1** of The Guide for further information.
- Identify who will be responsible for implementing the RoadMAP for your council. This might be a specific role, team, or internal division, or it may be a partnership with external collaborators. Project collaborators could include other regional councils, the state government, community members, industry, academia, and association networks (e.g., Joint Organisations).
- Identify how the RoadMAP aligns with and responds to the NSW Integrated Planning and Reporting (IP&R) Framework.
- Outline the process for RoadMAP implementation and monitoring.
- Outline how regularly the RoadMAP will be reviewed and updated.

*<**Graphics:** [Recommended] Insert a diagram of your council's Integrated Planning and Reporting (IP&R) Framework.>*

2 A Smart <*Council*>

Why become a Smart Regional LGA? *[Optional]*

Like all other Local Government Area (LGA) councils, <*Council*> is increasingly looking for ways to make better decisions. Council wants to increase positive impacts that improve the liveability and resilience of its towns and regional spaces.

The 'smart places movement' addresses these goals but, so far, has largely focused on urban areas and the challenges experienced by growing cities. These include high-density living, traffic congestion, and different types and uses of public spaces.

This is in contrast to the regional challenges associated with low population density, depopulation, population aging, and the persistent digital divide. The smart places conversation needs to turn to the bush. Regional and rural councils and their communities also want to realise the benefits of new smart initiatives for governance, evidence-based decision-making, community asset management, public infrastructure, place experience, and place resilience. Smart people, processes, plans, and places are all parts of the RoadMAP needed to achieve these results.

To benefit from the smart places movement, regional councils need context-sensitive thinking and actions that reflect what the smart movement can offer its LGA and residents. Unique local challenges require digital information and smart initiatives that are customised. The Smart Places RoadMAP aims to deliver this in <*Council*>.

GENERAL GUIDANCE – WHY BECOME A SMART REGIONAL LGA?

This optional section briefly explains why council aims to become a smarter region. The sample text included above can be used as is or amended to suit your council's unique aims, motivations, and stakeholder messaging. This section could also reflect on the facilities and assets mentioned in the optional Council at a Glance section if it was included in the RoadMAP.

Hint: Refer to the *Smart Regional Spaces: Ready Set Go!* project website – www.smartregionalspaces.net.au – for further information on the smart cities and regions movement.

Smart Opportunities and Challenges

<Insert text>

GENERAL GUIDANCE – SMART OPPORTUNITIES AND CHALLENGES

This section describes the smart opportunities and challenges in your region that are relevant to the LGA. They are not opportunities or challenges associated with a previous plan, policy, or smart project. This section could:

- Identify past, present, and future smart projects and policies.
- List the key challenges your region is currently facing.
- Determine which smart opportunities your region could take advantage of in the future.
- Suggest potential stakeholder partnerships (e.g., with other regional councils, state government, community, industry, or academia), which could be leveraged as your region further engages with smart technology and infrastructure.
- Use text, infographics, maps, and images to communicate the council's opportunities and challenges. Sample tables for this are provided below.

A.2 Refer to **Section A.2** of The Guide for further information.

<***Formatting***: *[Optional] The tables below can be used to identify smart opportunities and challenges that are relevant to your region. Add or delete rows as needed.*>

Smart Opportunities	
<Insert Opportunity>	*<Insert text>*
<Insert Opportunity>	*<Insert text>*
<Insert Opportunity>	*<Insert text>*
<Insert Opportunity>	*<Insert text>*

Smart Challenges	
<Insert Challenge>	*<Insert text>*
<Insert Challenge>	*<Insert text>*
<Insert Challenge>	*<Insert text>*
<Insert Challenge>	*<Insert text>*

Plans and Policy Context

Australia has a series of strategies, plans, and policies that establish smart visions, goals, and priorities at the federal, state, territory, and regional levels. In response, many councils have prepared their own strategies, plans, and policies to identify smart local visions and priorities. How this Smart Places RoadMAP relates to some of these existing documents is outlined below.

Australia

The *Smart Cities Plan* (Australian Government 2016) outlines the Federal Government's vision for a 'smarter' Australia. It prioritises the development of smart policies and the investment in smart infrastructure and technology across all levels of government. The *Smart Cities Standards Roadmap* (Standards Australia 2020) highlights key actions, including improved knowledge sharing and collaboration, that will support the growth of smart places across Australia.

New South Wales

<Edit the text below as needed.>
The *Smart Places Strategy* (NSW Department of Planning, Industry and Environment 2020) aimed to support the digital transformation of NSW. The *SmartNSW Roadmap 2022-2027* (Transport for New South Wales 2022) provides 14 actions to support the consistent planning and delivery of connected infrastructure and smart solutions across the state. These actions include the delivery of digital infrastructure, skill development, and capacity uplift.

Regional

<Insert Title of Regional Plan or Policy then add text. Highlight the relevant Regional Plan, Regional Economic Development Plan (RED), Joint Organisation charters, and Renewable Energy Zone (REZ) project documents.>

Local

<Insert Title of Local Plan or Policy then add text. Highlight your council's Community Strategic Plan (CSP), Local Strategic Planning Statement (LSPS), Integrated Planning and Reporting (IP&R) Framework, and so on.>

GENERAL GUIDANCE – PLANS AND POLICY CONTEXT

This section provides a brief description of *existing* federal, state, and other local plans and policies that are relevant to this RoadMAP. It could:

- Identify which parts of these plans are relevant to your RoadMAP.
- Summarise which parts of these plans align with your RoadMAP.
- Use text, infographics, maps, and images to communicate your content.

Add as many relevant plans and policies as needed to each section.

A.3 Refer to **Section A.3** of The Guide for further information and an infographic which explains the hierarchy of plans and policies.

3 <*Council's*> Smart Places Framework

<*Council's*> Smart Places Vision

Being smart can take many forms. Smart plans need a clear vision and a set of guiding principles to support decision-making on the provision, use, and management of public open spaces across the LGA. This Smart Places RoadMAP builds on council's commitment to becoming smarter. It also builds on the <*Community Strategic Plan Title*> and <*Titles of Relevant Plans or Policies*> to set a vision and principles that will ensure the best outcomes for our public open spaces.

<Insert smart places vision>

GENERAL GUIDANCE – SMART PLACES VISION

This section identifies council's smart places vision. It should be a single aspirational sentence, with images if desired.
This is **not** the overall council vision presented immediately following the Table of Contents.

B.1 Refer to **Section B.1** of The Guide for further information.

<*Council's*> Smart Places Principles and Goals

Based on extensive research and best practice in Australia, four guiding principles for smart places are presented:

- **Capacity Building** within council and its community partners.
- **Social Experience** of a public open space.
- **Environmental Monitoring** of key components in a localised area.
- **Asset Management** of public infrastructure and facilities.

These principles are intended to guide the design, provision, use, and management of enhanced public open space. They will support council as it embraces digital change and technology, and becomes a smarter region. Each principle is defined below, along with its alignment with plans or policies, the goals council wishes to achieve, and the benefits for the LGA.

*<**Formatting:** Adjust size and placement of the graphic to suit your RoadMAP's layout.>*

GENERAL GUIDANCE – SMART PLACES PRINCIPLES

This section describes four guiding principles for smart places and identifies the strategic alignment, goals, and benefits of each principle.
Hint: As discussed in **Section 2** of The Guide, the principles have been developed by the Smart Regional Spaces project team. They establish a framework to guide the implementation of smart projects in your region. The graphic above and the following descriptions are one way of presenting this information. Your council may wish to use an alternative framework and layout.

B.2 Refer to **Section B.2** of The Guide for further information.

GENERAL GUIDANCE – SMART PLACES GOALS

Each Smart Places principle is accompanied by related goals that council wishes to achieve. The goals may be taken from an existing plan or policy, or they can be developed specifically for the RoadMAP.

B.3 Refer to **Section B.3** of The Guide for further information.

Capacity Building

Definition

Capacity-building refers to improving an organisation's capacity and expertise to lead and manage the change needed to leverage smart technologies. Capacity-building projects include knowledge and skill development, and upgrading systems and services to the latest technology standards. These projects are aimed at preparing the foundation for council's operations and services to become smart, as well as empowering the community to access and use these services. Capacity-building runs as a through-line across all other guiding principles.

Alignment with Plans/Policies

This principle supports *<Insert references to existing strategic plans and policies identified in the section on Plans and Policy Context.>*

Goals

- *<Insert your smart capacity building goals – ideally there should only be 2-4 goals. Bullet points work well here.>*

Benefits

Smart capacity building projects can:

- *<Insert benefits relevant to your region.>*

*<**Formatting**: [Optional] insert page break so each principle stands alone.>*

Social Experience

Definition

The **social experience** of a place is a uniquely personal understanding emerging from a person's physical, social, and emotional interactions within different places. Smart social experience projects provide digital technology in public places to support equitable access. They introduce an innovative new layer of amenity into public space, which enhances social use and connection. Social experience can be improved through digital placemaking projects, the provision of innovative sensory experiences, enabling people to connect to digital information services, or by capturing and learning from user data.

Alignment with Plans/Policies

This principle supports *<Insert references to existing strategic plans and policies identified in the section on Plans and Policy Context.>*

Goals

- *<Insert the goals you want to achieve by overlaying smart technology onto your open spaces – ideally there should only be 2-4 goals. Bullet points work well here.>*

Benefits

Smart social experience projects can:

- *<Insert benefits relevant to your region.>*

*<**Formatting**: [Optional] insert page break so each principle stands alone.>*

Environmental Monitoring

Definition

Environmental monitoring is the system of using digital technology to collect and convert raw data into useful information that can be used to protect or enhance the environment. Smart environmental monitoring projects use technology to capture data in near real time about air, water, soil quality, natural assets, weather changes, and wildlife.

Alignment with Plans/Policies

This principle supports *<Insert references to existing strategic plans and policies identified in the section on Plans and Policy Context.>*

Goals

- *<Insert your environmental goals here (e.g., monitoring of certain places and the impact that could have) – ideally there should only be 2-4 goals. Bullet points work well here.>*

Benefits

Environmental monitoring projects can:

- *<Insert benefits relevant to your region.>*

*<**Formatting**: [Optional] insert page break so each principle stands alone.*

Asset Management

Definition

Asset management is the use of digital technology for predictive maintenance, infrastructure performance assessment, and lifecycle estimation. Smart asset management projects can involve attaching sensors to physical infrastructure to collect performance data. They can also include installing 'already smart' infrastructure like smart water meters, smart rubbish bins, or smart water fountains. Data is collated from these devices through an Internet of Things (IoT) network. It is often displayed on a dashboard, which can be internally facing or publicly displayed. Asset management extends the concept of automated monitoring to assess the condition of assets and manage operations remotely, making it easier to track and manage assets in real time.

Alignment with Plans/Policies

This principle supports *<Insert references to existing strategic plans and policies identified in the section on Plans and Policy Context.>*

Goals

- *<Insert your asset management goals here – ideally there should only be 2-4 goals. Bullet points work well here.>*

Benefits

Smart asset management projects can:

- *<Insert benefits relevant to your region.>*

4 Smart in Practice

<*Council*> believes in the benefits of becoming 'smarter' and has begun implementing smart projects across many of its internal operations, citizen-based services, and infrastructure, independently or in collaboration with external stakeholders.

There is no 'right' approach to becoming a smarter region, and knowing where to start can be challenging. This Smart Places RoadMAP offers three approaches:

- **Leveraging Existing Smart Projects** – This approach identifies where *existing* smart projects or infrastructure can be leveraged by building on what is already there, extending the project, or adopting the technology in other locations or on a larger scale. This approach also provides an opportunity for **Quick Wins** by using easy to adopt technology that will have a positive impact on a place or the community.
- **Smart Projects by Place** – A place-based approach prompts council to strategically select one particular *open space* for the implementation of one or more smart projects. This responds to opportunities or offers a solution to a challenge in that location.
- **Smart Projects by Type** – A type-based approach prompts council to select a specific type of *smart technology* to implement in key open spaces or across the entire LGA. This responds to broader strategic opportunities or challenges faced by the council or community.

GENERAL GUIDANCE – IMPLEMENTING SMART IN PRACTICE

This section describes three approaches to the implementation of smart projects. As discussed in **Section 2, Part D** of The Guide, these approaches have been developed by the Smart Regional Spaces project team. Your council may wish to use one, two, or all three of these approaches or adopt a different approach altogether.

Council will need to justify (to itself and the community) why it chose the initiatives and locations it did on its journey to become smarter. This will depend on how far council has travelled on its smart trajectory and how far it wishes to go at this point. The sample text included above and below can be amended to suit your council's approach, motivations, aims, and stakeholder messaging.

Refer to **Section D.2** of The Guide for further information.

GENERAL GUIDANCE – SMART PROJECTS

The **Smart Projects Glossary** in **Section 3** of The Guide profiles many different project types that are relevant for regional councils. Any or all of the text from those projects can be 'copied and pasted' from The Guide directly into your Template.

At the end of the Smart Projects Glossary, **Section 3** of The Guide also includes a **Smart Glossary** that describes key terms used in the smart places movement.

3 Refer to **Section 3** of The Guide for further information.

<*Council's*> Existing Smart Projects

1 *<Existing Project Name>*

<Briefly describe your existing smart project. Insert text that describes the project, its timing, benefits, and progress to date. Add as many projects here as you have operating in your region, which begins to act as an inventory and reminder of your smart projects.>

<***Graphics***: *[Optional] Insert images of existing smart projects – this will help people recognise or understand the project more readily.>*

QUICK WINS

<[Optional] Insert text here about how this project or initiative will be quickly expanded. You can relocate or duplicate this text box as required for other projects that are listed.>

GENERAL GUIDANCE – EXISTING PROJECTS AND QUICK WINS

This section describes existing smart projects that have been undertaken within the LGA. These may have been led by council, in partnership with other collaborators, or by external organisations.

A **Quick Wins** pop-out box can be used with some existing projects to identify how they can be leveraged relatively quickly at a reasonable cost for further impact.

D.1 D.2 Refer to **Sections D.1** and **D.2** of The Guide for further information.

2 *<Existing Project Name>*

<Add as many smart projects as you have operating in the LGA.>

Potential Smart Projects by Place

There are multiple approaches to becoming 'smarter.' A place-based approach involves implementing smart projects at a particular *location*.

Why a Place-based Approach?

A place-based approach uses the social, environmental, and economic characteristics and functions of a particular place as the starting point for adding smart functions there. In doing so, a place-based approach encourages targeted smart projects that respond to the current and future needs of a place and its users. Smart technologies can help address local concerns about a place, such as accessibility or operational issues, or they can collect data for environmental monitoring. Place-based smart projects may also provide an opportunity to be 'living labs' or 'testbeds' to pilot new technology at a manageable scale. This is often a cost-effective approach that can help gauge a project's success prior to wider-scale implementation, thus reducing overall risk. A place-based approach can also encourage local community participation and collaborative decision-making by helping to tailor smart projects to their end-users.

Priority Locations for Place-based Smart Projects

<Council> has identified *<Insert number of>* locations with the potential for smart activation. The locations identified for potential place-based smart projects are:

1. *<Insert name of priority location>*
2. *<Insert name of priority location>*
3. *<Add more priority locations as needed.>*

The potential projects identified for each Priority Location are described in detail below.

GENERAL GUIDANCE – PRIORITY LOCATIONS

This section introduces the priority locations identified by your council for smart place-based projects, infrastructure, or initiatives. It could:

- List the locations.
- Describe how the locations were chosen (e.g., council decision, community participation, specific methodology used).
- Explain why the locations were chosen. For example, are they well-used, well-loved, and highly rated in terms of already having social attributes and physical amenity? Does the site have a particular problem that smart technology can solve? Is there grant funding available for that particular open space?

C.1 C.2 C.3 Refer to **Sections C.1, C.2, and C.3** of The Guide for further information.

<***Graphics***: *[Optional] Insert map showing where the priority locations are in the LGA.*>

1 *<Insert name from Priority Locations list.>*

Description

<Insert a short description of the place here.>

<***Graphics***: *[Optional] Insert images of the priority location selected.*>

GENERAL GUIDANCE – DESCRIPTION

This section briefly describes the priority location. It may include:

- Key physical characteristics of the site (e.g., playground, war memorial).
- Key social characteristics of the site (e.g., events held at the location, historical information, typical user populations).
- Key contextual characteristics (e.g., proximity to local shops or attractions, significant adjacent land uses such as a railway).

Add the same level of information for each priority location selected. For a 3-5-year plan, 3-6 locations will likely be enough to work on.

C.3 Refer to **Section C.3** of The Guide for further information.

As shown in the following table, all of the potential projects identified for this priority location support one or more of the four guiding principles described in the section on <*Council's*> Smart Places Principles and Goals. Each project's timeframe is identified as short-term (green), medium-term (yellow), or long-term (orange) to inform planning, finance, and delivery. Short-term projects have a timeframe of less than 1 year, medium-term projects would take 1-3 years, and long-term projects would take more than 3 years to complete. Where a project already exists, it is identified accordingly.

Table – Alignment with Guiding Principles and Delivery Timeframe

Potential Smart Projects at this Priority Location	**Alignment with Smart Places Principles**				**Estimated Timeframe**
	Capacity Building	**Social Experience**	**Environmental Monitoring**	**Asset Management**	
<Insert potential project>	✓	✓	✓	✓	● ● ●
<Insert potential project>	✓	✓	✓	✓	● ● ●
<Insert potential project>	✓	✓	✓	✓	● ● ●
<Insert potential project>	✓	✓	✓	✓	*Existing*
Timeframe Legend:	● ● ● Short-term		● ● ● Medium-term		● ● ● Long-term

*<**Delete** the "checkmarks" for principles that **do not** apply to each potential place-based project.>*
*<**Copy** the relevant icon from the "Timeframe Legend" and **paste** it into the "Estimated Timeframe" for each potential project at this Priority Location.>*

GENERAL GUIDANCE – ALIGNMENT AND DELIVERY TIMELINE

The table above is one way to list existing and potential smart projects at a Priority Location, identify their alignment with the smart places guiding principles, and indicate their estimated timeframe for completion.

Delete the checkmarks for any of the four guiding principles that **do not apply** to each potential project at this location.

Copy the appropriate timeframe icon from the legend (the green, yellow, or orange dot) and paste it under the estimated timeframe for each project listed or add the term 'Existing.'

One table should be used for each Priority Location, which may have the potential to have more than one smart initiative within it. Your council may want to include a more detailed implementation plan for each location.

D.3 Refer to **Section D.3** of The Guide for further information.

*<**Formatting:** Duplicate this section and its summary table for each Priority Location identified.>*

Potential Smart Projects by Type

As mentioned, there are multiple approaches to becoming 'smarter.' A type-based approach involves implementing a particular type of smart *technology* across several locations or the entire LGA.

Why a Type-based Approach?

A type-based approach focuses on the implementation of a specific type of smart technology. This offers the opportunity to build expertise in a specific type of technology such as drones or smart water meter systems. It is particularly useful for achieving economies of scale through an LGA-wide rollout of a particular type of smart technology. With IoT technology, data collection from LGA-wide smart projects can be used to improve planning decisions and raise awareness within the community on the use and benefits of various kinds of smart technology.

Priority Technologies for Type-based Smart Projects

<Council> has identified *<Insert number of>* types of technology with potential for smart activation. The technologies identified for type-based smart projects are:

1. *<Insert name of priority technology>*
2. *<Insert name of priority technology >*
3. *<Add more priority technologies as needed.>*

The Priority Technologies identified, and their potential scope, are described in detail below.

GENERAL GUIDANCE – PRIORITY TECHNOLOGIES

This section introduces the Priority Technologies identified by your council that can be used for smart place-based projects, infrastructure, or initiatives. It could:

- Describe the smart technology.
- Indicate why it would be good choice for the area and how the region would benefit from having it or increasing its current scope.
- Identify the potential locations for activation of the smart technology, which may include one or more sites or be implemented across the entire LGA.

D.2 Refer to **Section D.2** of The Guide for further information.

1 *<Insert name from Priority Technologies list.>*

Description

<Insert a short description of the technology here and explain its benefits for the region.>

*<**Graphics**: [Optional] Insert images of the priority technology selected.>*

Scope

<Indicate where the technology would be installed (e.g., specific locations, across the entire LGA) and explain why those locations were selected.>

QUICK WINS

<[Optional] Insert text here about how this Priority Technology will be quickly implemented or expanded at one or more locations. You can relocate or duplicate this text box as required.>

GENERAL GUIDANCE – DESCRIPTION

This section briefly describes the benefits of the Priority Technology selected and identifies the places it could be installed.

- Include any **Quick Wins** that might be possible by adding or expanding the technology at a particular location.
- Add the same level of information for each priority technology. For a 3-5-year plan, 3-6 locations will likely be enough to work on.

D.2 Refer to **Section D.2** of The Guide for further information.

As shown in the following table, this Priority Technology supports one or more of the four guiding principles outlined in the section on <*Council's*> Smart Places Principles and Goals. For each potential location where the technology could be activated, the project timeframe is identified as short-term (green), medium-term (yellow), or long-term (orange) to inform planning, finance, and delivery. Short-term projects have a timeframe of less than 1 year, medium-term projects would take 1 to 3 years, and long-term projects would take more than 3 years to complete. Where a project already exists, it is identified accordingly.

Table – Alignment with Guiding Principles and Delivery Timeframe

Potential Locations for this Priority Technology	Alignment of this Technology with Smart Places Principles				Estimated Timeframe
	Capacity Building	Social Experience	Environmental Monitoring	Asset Management	
	✓	✓	✓	✓	
<Insert potential project location>					
<Insert potential project location>					
<Insert potential project location>					
<Insert potential project location>					*Existing*
Timeframe Legend:	 Short-term		 Medium-term		 Long-term

*<**Delete** the "checkmarks" for principles that **do not** apply to this type of technology.>*
*<**Copy** the relevant icon from the "Timeframe Legend" and **paste** it into the "Estimated Timeframe" for each potential location proposed for this technology.>*

*<**Formatting:** Duplicate this section and its summary table for each Priority Technology identified.>*

GENERAL GUIDANCE – ALIGNMENT AND DELIVERY TIMELINE

The table above is one way to list the existing and potential smart technologies and identify their alignment with the smart places guiding principles. Delete the checkmarks for any of the four guiding principles that **do not apply** to the Priority Technology.

For each potential location identified for this Priority Technology, the estimated timeframe for implementation is indicated. Copy the appropriate timeframe icon from the legend (the green, yellow, or orange dot) and paste it under the estimated timeframe for each potential location or add the term 'Existing.'

One table should be used for each Priority Technology, which may have the potential to be activated at more than one location. Your council may want to include a more detailed implementation plan for each technology and its potential sites.

D.3 Refer to **Section D.3** of The Guide for further information.

Smart Projects Summary *[optional]*

<Optional: Insert a summary table or list of all smart projects listed in your RoadMAP—existing and proposed.>

5 Final Thoughts

<Insert text>

GENERAL GUIDANCE – FINAL THOUGHTS

This section concludes the RoadMAP. It provides the opportunity to:

- Identify key considerations for the successful implementation of smart places and projects, including partners who can drive smart transformation, as well as ways of measuring progress.
- Identify what happens next. This may involve the preparation of detailed concept plans or implementation plans for smart places and projects.
- Reiterate council's commitment to becoming a smarter region.

6 Glossary

<Insert text>

GENERAL GUIDANCE – GLOSSARY

The section defines key terms used throughout the Smart Places RoadMAP.

Hint: Refer to **Section 3** of The Guide for a range of terms that you are welcome to 'copy and paste' into your Template.

7 References

<Insert text>

GENERAL GUIDANCE – REFERENCES

The section provides references for the documents you used in this Smart Places RoadMAP. References can be added in the style used by your Council.

Hint: The final section of The Guide provides a list of **References and Key Government Publications** that may be helpful.

*<**Formatting**: Insert full-page image or solid colour.>*

<Insert Council Logo(s)>

SMART REGIONAL SPACES
READY...SET...GO!

Get in touch

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