



For Built Environment Consultants



Smart**Cities**Council®
Australia New Zealand

Partners:

February, 2018



EXECUTIVE SUMMARY

The smart city is one that uses technology, data and intelligent design to enhance a city's liveability, workability and sustainability.

This Guide has been developed to support built environment consultants to help their clients and other stakeholders in advancing the smart city agenda. It provides a clear definition for smart cities, articulates the benefits and identifies a suite of principles of practice for consultants.

For the purposes of this Guide, the term 'city' embraces components of a city or region regardless of size and includes the entirety of human activity in that area, including local governments, schools, hospitals, infrastructure, resources, businesses and people.

At the heart of this Guide is a checklist, which serves as a tool for consultants to work with their clients and collaborators to successfully build understanding and capacity to invest in smart cities strategies. The checklist is structured around the following core questions:

- What is the client's level of smart cities awareness?
- What outcomes does the client want to achieve from their project?
- Have you identified the most effective smart cities technology enablers for the project?
- Is there a strategy for investing in smart technology solutions?

Finally, this Guide provides some next steps to help consultants position their clients for early success.



TABLE OF CONTENTS

Introduction	1
Using this Guide	3
What is a smart city?	4
Supporting smart cities action	9
Next steps	16
Acknowledgements	19
References	21

1.0: INTRODUCTION

Urbanisation, population growth and competitiveness are all key opportunities for Australia to have a world class built environment capability. As our economy transitions to a full, knowledge-based economy, the demands upon our cities and built environment grow relentlessly.

To respond to these changes and to take advantage of the emerging digital economy we need to rethink the way our built environment is planned, constructed and managed. We must adopt a new approach – one which harnesses information and communication technology (ICT) to enhance liveability, workability and sustainability.

The development of a smart city embodies this approach, and we simply define the term as:

“

The smart city is one that uses technology, data and intelligent design to enhance the city’s liveability, workability and sustainability.

”

But while the pressing need for this new approach – and the vast possibilities it opens-up through the adoption of technology, data and intelligent design – are clear, so too are the challenges.

Efforts to trial, scale and replicate ICT-enhanced measures for a city, development project or infrastructure investment can be difficult. This is true in markets that are often defined by heightened risk management, entrenched mindsets, complex supply chain and procurement requirements, and a myopic view on cost. The unprecedented rate at which people move to and between cities also creates a challenge in balancing the adequacy of infrastructure to meet demand, with environmental and social constraints, new technological capabilities and economic competition.

This Guide has been developed to support the important work of built environment consultants, to help their clients and other stakeholders overcome these barriers and challenges and take advantage of the smart technologies that allow us to re-imagine our cities and towns.



With the right planning and investment, urban leaders can make cities more liveable, more workable and more sustainable - both economically and environmentally. We aspire that life is better in a smart city - better for people and better for businesses, whilst also ensuring we play our role in being custodians of the environment for future generations.

2.0: USING THIS GUIDE

This Guide has been written for consultants, to support their clients who may be seeking to understand and embrace the opportunities of smart cities. It is intended to provide background information and broad definitions of smart cities and act as a conduit for those seeking further information.

At the heart of this Guide is a checklist. The checklist serves as a tool for consultants to work with their clients and collaborators to successfully build their understanding and capacity to invest in smart cities technologies and data solutions. This is for the purposes of creating better communities, and the underpinning infrastructure.

It should be noted that this checklist is not an exhaustive list, or a detailed 'how to' document, but rather a summary that directs consultants to places of further explanation, understanding, worked examples and case studies.

As with all project work, consultant teams must ensure that the appropriate technical expertise is available to execute the necessary

tasks, and this is no different for the application of smart technologies and data solutions.

This checklist acknowledges that a client may be at different level of smart cities maturity than others, and has therefore used strategic questions and provides supporting guidance to match the necessary smart cities information needs of government and industry clients.

The proceeding sections of this Guide cover some core definitional aspects of smart cities (Section 3), provide the guidance checklist (Section 4) and then present some tips on next steps (Section 5).

Not all relevant smart cities information can be communicated in an introductory guidance document like this. As such, Consult Australia members are encouraged to provide feedback on this Guide and recommend any additional support tools that might be valuable to further advance their own, and their clients' capacity to embrace smart cities opportunities.

3.0: WHAT IS A SMART CITY

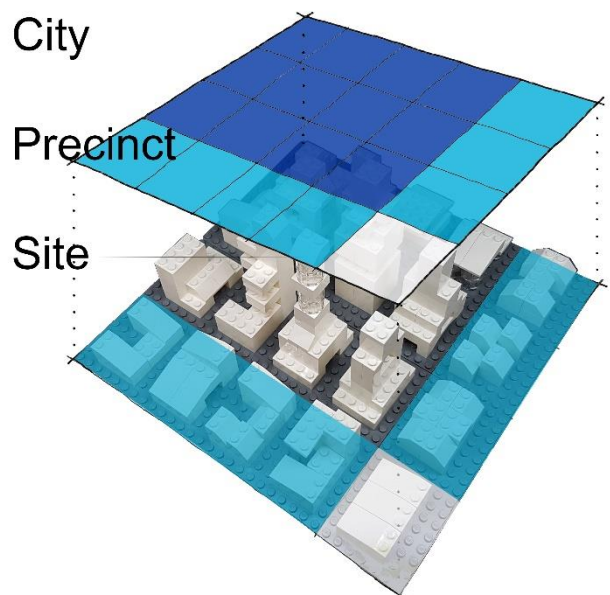
Let's Start with Scale

Before this Guide defines the "smart" piece in more depth, it first deals with the word "city." Around the world, governments, developers and citizens have implemented smart city solutions at various scales.

Many are rarely at a city-wide level in the strictest term. Some are more than a single city, such as a metropolitan region, a cluster of cities, regions and groups of regions, a collection of nearby towns or a regional coalition. Other examples are less than a full-scale city, such as precincts, districts, neighbourhoods, townships, villages, campuses and greenfield communities.

There are also emerging examples of smart buildings, and smart infrastructure assets. The image at the bottom of this page illustrates this concept of scale graphically.

Because it is in common use, this Guide will continue to use "city" throughout. But we use it to mean all relevant examples of project scale, big and small. Regardless of size, we are taking a comprehensive, holistic view that includes the entirety of human activity in an area, including city governments, schools, hospitals, infrastructure, resources, businesses and people.



Keeping the Smart Cities Definition Simple

As articulated in the introduction of this Guide:

The smart city is one that uses technology, data and intelligent design to enhance the city's liveability, workability and sustainability.

This simple, yet effective definition embraces the concept of technology, data and intelligent design being used as enablers, tools and processes for enhancing outcomes. The outcomes we are seeking to enhance are described below.

Enhance liveability - means a better quality of life for all. In the smart city, people have access to a comfortable, clean, engaged, healthy and safe lifestyle. Some of the most highly valued aspects include sustainable energy, convenient mass transit, good schools, faster emergency responses, clean water and air, reduced crime, enhanced security and access to diverse urban amenities ranging from entertainment and cultural options to recreation, healthcare and community facilities.

Enhance workability - means accelerated economic prosperity. Put another way, it means more and better jobs and increased local GDP. In the smart city, people have access to the foundations of prosperity - the fundamental infrastructure services that let them compete in the world economy. Those services include high broadband connectivity; clean, reliable, inexpensive energy; educational opportunities; affordable housing and commercial space, efficient transportation and increased scope for local manufacturing using additive, automated and nano processes.

Enhance sustainability - means giving people access to the resources they need without compromising the ability of future generations to meet their own needs. Smart cities enable the efficient use of natural, human and economic resources and promote cost savings. It isn't necessarily about investing large sums of money into new infrastructure, but at times more about making infrastructure do more and last longer for less, whilst aiming to reduce waste and negative environmental impacts.

Three Core Functions of the Smart City

As this Guide defines, the smart city uses information and communications technology to enhance its liveability, workability and sustainability. But what does this look like in technical terms? There are three parts to this job: collecting, communicating and “crunching”.

First, a smart city or project collects information about itself through sensors, other devices and existing systems. Next, it communicates that data using wired or wireless networks. Third, it “crunches” (analyses) that data to understand what’s happening now and what’s likely to happen next.

1. Collecting data. Smart devices are located throughout the city to measure and monitor conditions. For instance, smart meters can measure electricity, gas and water usage with great accuracy. Smart traffic sensors can report on road conditions and congestion. Smart GPS gear can pinpoint the exact locations of vehicles or the whereabouts of emergency crews.

Automated weather stations can report conditions, and mobile devices can collect the position and speed of people, where they cluster at different times of the day and the environmental conditions around them.

2. Communicating data. Once you’ve collected the data, you need to send it along. Smart cities typically mix and match a variety of wired and wireless communications pathways, from fibre-optic to cellular to cable.

The ultimate goal is to have connectivity everywhere, to every person and every device. Interoperability is a key enabler to allow this to happen.

3. Crunching data. After collecting and communicating the data, you analyse it for one of three purposes: 1) presenting, 2) perfecting or 3) predicting. If you’ve read about “analytics” or “Big Data,” then you may already know about the astonishing things that become possible by analysing large amounts of data.

Importantly, analysing data turns information into intelligence that helps people and machines to act and make better decisions. This begins a virtual cycle wherein data is made useful, people make use of that data to improve decisions and behaviour, which in turn means more and better data is collected, further improving decisions, behaviour and project performance.

The Benefits of Smart Cities

One way of further explaining what ‘smart’ cities (or components of it) look like, is to highlight the core benefits. The table below presents some information describing the benefits of the smart city.



Example Activities	Traditional Project Challenges	Smart Cities Outcomes and Benefits
Project Planning	<ul style="list-style-type: none">• Ad hoc and decentralised• Cost savings aren't realised• Limited potential for scalability of investment	<ul style="list-style-type: none">• Coordinated and holistic• Resources are shared• Cost savings are fully realised• Investments are scalable• Improved project planning and forecasting
Infrastructure Performance	<ul style="list-style-type: none">• Runs inefficiently• Costs more money and resources to run	<ul style="list-style-type: none">• Optimised with appropriate technology• Saves money and resources• Improved service-level agreements• Built on open standards
System Operation	<ul style="list-style-type: none">• Unknown condition of infrastructure• React to problems• Can't deploy resources efficiently to address problems	<ul style="list-style-type: none">• Enjoy real-time reporting on infrastructure conditions• Predict and prevent problems• Deploy resources more efficiently• Automate maintenance• Save money

Example Activities	Traditional Project Challenges	Smart Cities Outcomes and Benefits
ICT Investment	<ul style="list-style-type: none"> • Piecemeal and siloed • Deliver sub-optimal benefits • Don't realise economies of scale 	<ul style="list-style-type: none"> • Centrally planned • Deployed across city departments and projects • Deliver optimal benefit • Provide maximum value and savings
Community Engagement	<ul style="list-style-type: none"> • Limited, scattered, one-way online connection to the community • Community can't make optimal use of available services/resources (or easily find them) 	<ul style="list-style-type: none"> • Complete and singular online presence • Community can easily find and use services/resources • Community can participate in smart city initiatives • Two-way communication between government, the community and other relevant stakeholders • Specialised services focused on the individual citizen • Community can both contribute to and access real-time intelligent project data and offer apps that use the data
Data management	<ul style="list-style-type: none"> • Departments and functions are siloed • Departments and other entities rarely share data and collaborate on initiatives 	<ul style="list-style-type: none"> • Departments and functions are integrated and/or shared • Data is shared between departments and better correlated with other data services through open standards • Results are improved • Costs savings are realised

So now that you have an understanding of what smart cities and projects are, their core functions and the potential benefits, how do you support a client in their understanding and its application on a project? The following section provides guidance on this key step in activating smart cities action on your project.

4.0: SUPPORTING SMART CITIES ACTION



This Guide is clear in its message - smart cities action in isolation is a wasted opportunity. Rather, any smart cities action plan (or similar) should be linked to a projects vision document, master plan or reference design.

This Guide, at its heart, promotes the use of technology. But that technology should be an enabler, and accelerator, to a project's overarching goals.

But technology on its own won't necessarily deliver the outcomes your client is seeking. As a minimum, successful projects require strong leadership, effective governance, deep collaboration and an overall holistic, integrated and considered approach.

These topics are not the subject of this Guide, however further resources on these topics are available through Consult Australia and the Smart Cities Council Australia New Zealand.

Smart Cities Principles of Practice

Before providing advice to a client on embedding smart cities solutions into their project, this Guide presents a set of principles for consultants to embrace, ensuring there is an appreciation of the development of smart cities and smart infrastructure programs for maximum positive outcomes.

Whilst many of the principles presented below may be familiar to some consultants, they do provide an adjunct to common practice principles that consultants would be familiar with. They are:

- Ensure the application of technology and data solutions is in service to a societal or business opportunity, need or problem, and that it is meaningful and impactful, and will support the advancement of a solution.
- Ensure a sustainability lens is applied to the evaluation of any technology solution, and that a triple bottom line assessment of the environmental, social and economic impacts in the short, medium and long term is considered.
- Ensure the solution is considered from an ethical and equitable perspective as to who the outcome benefits and whether there are stakeholders who may carry the burden/costs.
- Consider the level of reliance and resilience of the solution should it's operation be interrupted or compromised.
- Ensure the integrity of the data to the quality and quantity appropriate for the decision/goal. If decision making becomes increasingly reliant on data, then data integrity becomes critical.
- Ensure transparency in the decisions made to adopt technology solutions, or if using key performance indicators that the logic is robust, and limitations understood.

And a final important point to note relates to a consultant's technical capability. Assessing the benefits of using smart cities technology enablers means that a project team will need to include someone with knowledge and expertise in the planning, design and deployment of smart technologies.

Finding the right experts to support this is an important task. Not only do smart cities consultants need to have a holistic, big-picture outlook to help your team find cross-topic synergies, they must also have access to specialised knowledge to assess the available technology options and produce detailed technical specifications for the application and performance.

The Guidance Checklist

The checklist below provides a structured way to help you work with a client or partner on embedding smart cities opportunities in a project. It is made up of four strategic questions that consultants can use to help structure their support to clients. These questions are not considered as exhaustive, but are introductory, and represent the fundamentals.

The ordering of the questions is not meant to imply a linear process, so this checklist should be treated as a tool that can prompt further enquiry and point to additional support resources.



Prompting Question	Available Resources
<p><i>What is the level of smart cities awareness of your client and the local market?</i></p> <p>This question provides an important starting point, assessing your client's level of smart cities awareness and maturity.</p> <p>Here are some initial questions to ask yourself:</p> <ul style="list-style-type: none"> • What does your client think smart cities are? • What language are they using to describe smart cities? • How do they interpret the idea of smart cities for their project? • What are the conditions of the local market (eg. smart cities policy, supply chain capability, general awareness)? <p>How do the answers to these questions compare to the information provided in Section 3 of this Guide – “What is a Smart City?”</p> <p>To further determine your clients level of knowledge, and their interpretation of smart cities, identify your client against one of the following levels of maturity?</p> <ul style="list-style-type: none"> • Smart Cities 1.0 – the client is predominantly technology focussed, and not necessarily clear on the outcomes of the project, but wants to invest in smart cities solutions because it seems to be the right thing to do, or because others are doing it. • Smart Cities 2.0 – the client has a clear project vision, and quantitative targets, and views technology and data as a key enabler and accelerator of those outcomes. • Smart Cities 3.0 – the client is seeking deep collaboration with the community and other stakeholders to build technology and data-based project solutions. They are exploring new models of governance, funding and action, and seeking to build social equity in the local community and achieve meaningful and advanced sustainability outcomes. <p>Depending on your assessment of the client's ability to embrace technology as a core enabler to sustainability, the subsequent steps and level of support will vary.</p> <p>What Next?</p> <ul style="list-style-type: none"> • For more support on helping advance your clients smart cities awareness, refer to the 'Available Resources'. • If there is a high level of smart cities awareness, move to the next question. 	<p>The author Boyd Cohen has developed a model of smart cities maturity, which is a valuable starting point. It can help to identify the level of maturity and mindset with respect to smart cities. A description of the three generations of smart cities is available here.</p> <p>For a more detailed breakdown of smart cities definitions, benefits and barriers, consult the Smart Cities Readiness Guide from the Smart Cities Council, which is freely available here.</p> <p>Additional introductory resources to support broad smart cities awareness include the following document from the British Standards Institution:</p> <ul style="list-style-type: none"> • PAS 180:2014: Smart cities. Vocabulary • PD 8100:2015: Smart cities overview - Guide

Prompting Question	Available Resources
<p><i>What outcomes does the client want to achieve from their project?</i></p> <p>This question focuses on ensuring the project has clearly defined outcomes, whether it be a set of project goals or targets, or other articulated objectives.</p> <p>Sustainability is often a robust framework used to establish and measure the performance of a project, whether it be infrastructure project, urban development or other investment for advancing the sustainable growth of a precinct, city or region.</p> <p>It is important that project targets align with an organisation's vision and objectives, relevant mission statements, roadmaps and planning and delivery documents.</p> <p>To help provide a robust context for smart cities technology investment, clear measurable targets are preferred, across core development and infrastructure topics such as, but not limited to:</p> <ul style="list-style-type: none"> • Mobility • Heritage • Citizen engagement • Environmental management and enhancement • Resource consumption • Economic prosperity • Community services • Health and wellness • Efficiency of asset management • Resilience to the impacts of climate change <p>Targets for these core topics also provide guidance in identifying the appropriate technology and data enablers that can help drive performance.</p> <p>What Next?</p> <ul style="list-style-type: none"> • For more support on helping your client create a set of meaningful targets that are project specific, refer to the 'Available Resources'. • If the project has a comprehensive suite of quantifiable targets, move to the next question 	<p>Setting goals and targets can be kept simple through the adoption of third party industry endorsed standards and frameworks, including:</p> <p>For horizontal infrastructure: The Infrastructure Sustainability rating system by ISCA.</p> <p>For vertical infrastructure and communities: The Green Star rating system by the GBCA</p> <p>For sustainable project implementation: The EcoDistricts Protocol by EcoDistricts.</p> <p>Additional systems available for consideration include the Living Building Challenge, One Planet Living and bespoke frameworks and indicator sets.</p> <p>For general sustainability metrics: ISO 37120: Sustainable Development of Communities: Indicators for City Services and Quality of Life.</p>

Prompting Question

Available Resources

Have you identified the most effective smart cities technology enablers for the project?

It is important that the project team understands and prioritises those technology enablers that will most effectively support the projects performance targets.

There are seven core technology enablers this Guide identifies as being at the heart of smart cities projects:

1. Instrumentation and control - is how a smart city monitors and controls conditions. Instrumentation provides the eyes and ears of a smart project. Examples include smart meters for electricity, water and gas; air quality sensors; closed circuit TV and video monitors.
2. Connectivity - is how the smart city's devices communicate with each other and with a control centre. Connectivity ensures that data gets from where it is collected to where it is analysed and used. Examples include citywide WiFi networks, RF mesh networks and cellular networks.
3. Interoperability - ensures that products and services from disparate providers can exchange information and work together seamlessly. Interoperability has many benefits, such as providing more choice, since it can buy from any company that supports the chosen standards.
4. Security and privacy - are technologies, policies and practices that safeguard data, privacy and physical assets. Examples include the publishing of clear privacy rules and the implementation of a cybersecurity system. Security and privacy play a critical role in enabling smart cities because they build trust with people.
5. Data management - is the process of storing, protecting and processing data while guaranteeing its accuracy, accessibility, reliability and timeliness. Data is king in a smart city/project. Proper management is essential to maintain data integrity and value.
6. Computing resources - include the 1) billions of computer "brains" of all sizes, from wrist watch components to server farms, 2) in those computers, a similar range of simple to very complex software systems, and 3) data, which has little value until it is communicated.
7. Analytics - creates value from data. Examples include: forecasting crime the way we already forecast weather; analysing electric power usage to know when and where to expand or adjust to accommodate demand; and creating personalised portals for every citizen by analysing what they value most.

What Next?

- For more support on helping your client and the team understand the potential technology enablers that could help achieve the project outcomes, refer to the 'Available Resources'.
- If the project has a clear understanding of the preferred technology enablers, move to the next question.

The Smart Cities Readiness Guide provides a detailed overview of each of the core technology enablers, which can help determine your clients level of advancement with each. The Readiness guide is freely available [here](#).

It is important to draw upon the numerous case studies for how smart cities solutions are being deployed on built environment projects. Additional resources (for example Smart Lighting Guide, Big Data Guide) are also available [here](#).

For more technical reference documents on items such as interoperability, security and privacy and data platforms, the following organisations offer best in class materials:

- [Internet of Things Alliance Australia](#)
- [Data 61](#)
- [Standards Australia](#)

Prompting Question	Available Resources
<p><i>Is there a strategy for investing in smart technology solutions?</i></p> <p>Whilst not necessary, it can be beneficial to have a smart cities strategy for the project, which brings much of the guidance in this checklist into a single place for adoption and commitment.</p> <p>The Strategy may include information about the following items:</p> <ul style="list-style-type: none"> • The outcomes, principles and targets for the project • Operational model of the project • Leadership & governance requirements • Collaborative engagement processes • Reporting requirements • Procurement methods • Interoperability needs <p>A key part of the Strategy should include the investments, actions and/or initiatives to implement the key technology and data enablers.</p> <p>Below is framework for structuring these enabling investments:</p> <ul style="list-style-type: none"> • <u>Connect</u> – digital and physical connectivity is the backbone of the smart city, along with the necessary computing resources, instrumentation and controls. • <u>Aware</u> – data management and analytics facilitates building situational awareness, and security and privacy are critical attributes of unlocking the value of the technology. • <u>Responsive</u> – embracing a data-driven culture to project planning and operation, enabling more direct and impactful action to achieve sustainability outcomes. • <u>Evolve</u> – ensuring that smart cities investment is replicated and scaled, in a more rapid and efficient way, and that lessons learned are used to evolve investment actions in the future. <p>What Next?</p> <ul style="list-style-type: none"> • For more support on helping your client and the team understand the potential technology enablers that could help achieve the project outcomes, refer to the ‘Available Resources’. • If the project has a clear strategy for investing in smart cities solutions, it's time to invest, deploy and scale. 	<p>Whilst there are no international or national standards for smart cities or infrastructure strategies available at present, the International Standards Organisation is in the process of developing ISO 37106: Sustainable cities and communities – Guide to establishing strategies for smart cities and communities.</p> <p>However, supporting guidance on smart cities strategy frameworks is available from the British Standards Institution: PAS 181:2014 Smart city framework – Guide to establishing strategies for smart cities and communities</p>

Using this checklist should have helped in preparing for smart cities action. Now it's time to advance by specifying, investing, deploying and scaling. Here are some next steps to help move things along.

5.0: NEXT STEPS



There is no “standard” starting point for creating a smart cities project, however we suggest the following as options for potential next steps.

1. Find a champion

The best smart cities approach is to involve all the important stakeholder groups. Even so, the effort is unlikely to succeed without a champion. Typically, this is a senior representative with leadership skills and influence over process. The champion’s job is to communicate the overall smart cities vision for the project to the team, collaborating stakeholders and the broader community. The job requires energy and focus throughout the life of the project. Most successful smart cities projects include a strong external leader – typically an elected official in the case of government projects – teamed with a strong internal advocate – typically someone in the project team who can lead the day-to-day activities.

2. Seek out quick paybacks

Although every project is different, here are seven areas that have proved to be excellent places to look for quick payback when advancing smart cities development. And this reference to payback doesn't necessarily mean from a financial perspective. Sometimes it comes in other forms, such as job creation, business start-up opportunities or civic enthusiasm:

- Smart street lights – are an excellent first project, as they embrace the latest generation LED lighting to save costs and maintenance requirements and can be fitted with controllers and communications to enable remote diagnosis, provision of public wi-fi and serve to capture a vast array of data for smarter decision making.
- Public safety – can be enhanced through a range of applications and platforms operated by cameras, laptops, tablets and smartphones.
- Digital services – can be a quick win by converting from manual operation to a more convenient online or smartphone version that saves money for government, and improves community satisfaction.
- Smart transportation – is often one of the most common starting points for smart cities investment, as there are multiple smart cities approaches to reducing congestion, providing active transportation options, reducing travel time and enhancing payment systems.
- Energy efficiency – is an area of investment that doesn't need a lot of expenditure to get underway, and produce significant gains through simple behaviour change, enhancing lighting efficiency, and tuning building management systems.
- Smart grids – are becoming more attractive as communities seek to build greater resiliency and reliability against storms and natural disasters.
- Smart water networks – can help pinpoint leaks in a system, and gain quick paybacks in regions where water is scarce and costly.

3. Think big, but start small

And finally, don't hold back when setting those long-term goals. Be bold. Aim high. With the help of digital technology and willing stakeholders, virtually any project can achieve a greater level of liveability, workability and sustainability. Yes, it will take longer for some projects. But the beauty of the digital revolution is that it offers hope to all projects, regardless of location, size or scale.

6.0: ACKNOWLEDGEMENTS



Consult Australia and the Smart Cities Council Australia New Zealand would like to acknowledge the contribution of the Guide’s Working Group.

Jafar Abdi	The University of Sydney
Natalie Allen	The Urban Advisory
Adam Beck	Smart Cities Council Australia and New Zealand
Craig Burrell	Mott MacDonald
Jillian Carney	Consult Australia
Ben Cooper-Woolley	Arup
Phillip Daffara	PlaceSense
Michael Di Matteo	Australia Water Environments
Rebecca Dracup	Wood & Grieve
Dorte Ekelund	SMEC
Alex Ferguson	BECA
Jody Finsen	Arup

Amir Girgis	Northrop
Lee Gnezdiloff	Bamser
Michael Haines	Vanzi
Andrew Hansen	Westpac
Emily Hatfield	Planning Institute of Australia
Susan Hecker	FutureLocal
Colin Henson	SMEC
Rikki-Lea James	WSP
Matt Johnson	Turner & Townsend Thinc
Ben Jones	Steensen Varming
Anne Kovachevich	Arup
Craig Lamont	BECA
James Leiper	Pritchard Francis
Rose Mosley	Arcadis
Claire Nunez	GML Heritage
Todd Paterson	KPA Architects
Susie Pearson	WSP
William Rule	HK Advisory
Kate Summers	Robert Bird Group
Roger Swinbourne	AECOM
Neil Temperley	CSIRO
Cindy Varnier	GHD
Michael White	AECOM
Mike Willson	TDG

7.0: REFERENCES

Users of this Guide may also find additional guidance from the following references and resources.

- British Standards Institution - <https://www.bsigroup.com/en-GB/smart-cities/Smart-Cities-Standards-and-Publication/>
- Data 61 - <https://www.data61.csiro.au/en/Our-Work/Safety-and-Security>
- EcoDistricts - <https://ecodistricts.org/get-started/the-ecodistricts-protocol/>
- Future Cities Catapult - <http://futurecities.catapult.org.uk/project/global-review-smart-city-strategies/>
- Green Building Council of Australia - <https://new.gbca.org.au/green-star/>
- GSMA - <https://www.gsma.com/iot/wp-content/uploads/2017/05/Smart-Cities-Report-web.pdf>
- The Australian Urban Design Protocol - <http://infrastructureaustralia.gov.au/policy-publications/publications/Creating-Places-for-People-an-urban-design-protocol-for-Australian-cities-2011.aspx>
- Infrastructure Sustainability Council of Australia - <https://isca.org.au/is-rating-scheme/about-is>
- International Standards Organisation - <https://www.iso.org/publication/PUB100423.html>
- Internet of Things Alliance Australia – <http://www.iot.org.au/resources/>
- Smart Cities Council - <https://smartcitiescouncil.com/article/resources>
- Standards Australia - <http://sdpp.standards.org.au/Committee.aspx?sector=Communications,%20Information%20Technology%20and%20e-Commerce%20Services>