Stantec

SMARTER CITIES FOR TOMORROW

A community of experts

Stantec's global network of designers, engineers, scientists and project managers work together at the intersection of community, creativity and client relationships. Careful balancing of these priorities results in Smart Cities that advance the quality of life, address climate change and maximises communities across the globe.

But wherever Stantec is located it is our local teams who have the skills, experience and knowledge to drive Smart City designs in their own back yards. In Australia and New Zealand (ANZ), our local offices of award-winning multi-disciplinary engineers have been helping both private and government clients build communities for over 60 years.

Smart Cities position people and experiences first. We believe Smart Cities are a forward-looking investment and that using human-centred design strategies is at the core of the future. By taking a holistic approach to enhancing employee wellbeing and productivity, we can also create real time control, opportunities for increased operational efficiencies and lifecycle cost savings.

Our team's methodology & approach means we can insert any application or technology essential for your building's design, giving you comfort from start to finish in fulfilling your project goals. So, whether you're designing a commercial, residential or industrial building, the technological revolution of connected technologies helps improve our day-to-day working lives while maximising architectural spaces.

Our global business

30K+	450+	6
Employees	Locations	Continents

#01

From start to finish. Our team leaders continue to manage the projects they tender, right through to completion. Change in team management causes delays and undermines a project's stability and design direction. From our core building disciplines to delivering innovative technology, your project's continuity is more conducive to achieving your goals within programme and budget.

#02

Value-adding innovation. Stantec's Creativity & Innovation program encourages our global network of engineers to develop tools, processes and technology. These creative ideas might save time at the early design stages of a project, reducing client costs and allowing you to focus on your asset.

#03

The right experience. As a Smart Cities practice focused on the Centre of Excellence, our mission is to provide best practices for the modern horizontal architecture to bring you more. From audio visual, connectivity layer, network layer, device layers, independent data layer, application layer, ICT and telecommunications.

#04

Focus on buildability. Engaging with engineers in the early stages can save time and money in the long-term. Pragmatic spatial considerations, site-appropriate construction methods, informed materials selection, compliance with legislation and consideration of the operational environment. Our advice gives reassurance to stakeholders, boards and financiers that all factors have been fully considered.

#05

We're at the right tables. Our people are active proponents within Australia's property industry, seeking positive change on behalf of their communities. The influential tables at which we sit include the Urban Development Institute of Australia, the Property Council of Australia, Consult Australia and Green Building Council of Australia.

We don’t just say we deliver outstanding solutions and client service. We prove it.

Stantec has been recognised numerous times at the independently assessed Beaton Client Choice Awards in Australia and New Zealand.

2022 Beaton Client Choice Awards Winner:

- Best Provider to Property

2019 Beaton Client Choice Awards Winner:

- Most Client Focused Consulting Engineer

2017 Beaton Client Choice Awards Winner:

- Best Consulting Engineering Firm (revenue $50m-$200m)

2016 Beaton Client Choice Awards Winner:

- Best Provider to Property Sector

#1

Ranked most sustainable corporation among industry peers

2022 Corporate Knights Global 100

Net Zero

Carbon neutral and then net zero

Our Operational Pledge

World’s Best Employers

2021 Forbes – World’s Top Female Friendly Companies

Gender Equality Index

2021 Bloomberg

Supplier Engagement on Climate

2021 Global Supply Chain Report – CDP Supplier Engagement

65+

Years

in the ANZ Region

Preparing for the future

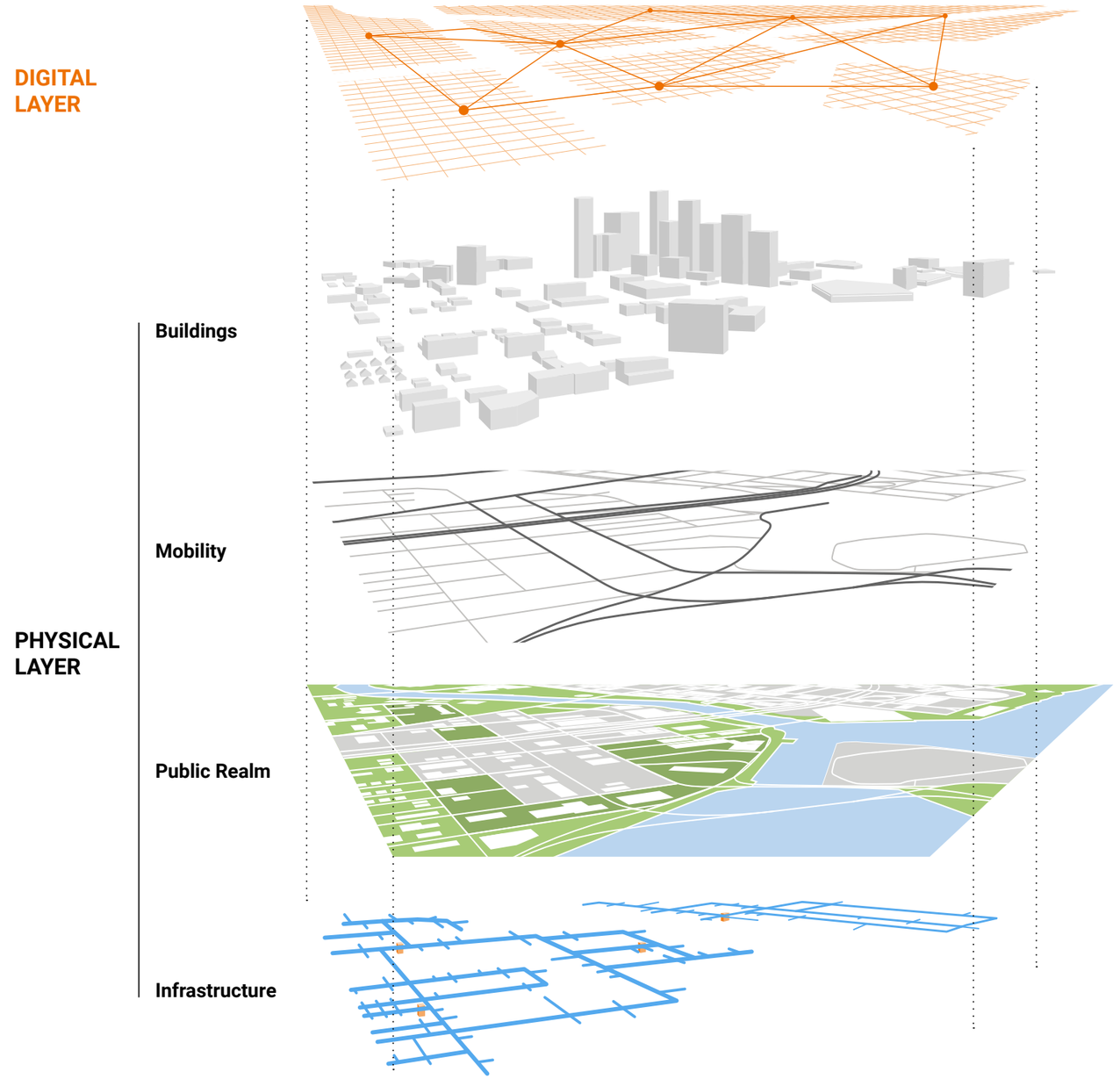
Our cities and communities are evolving. The global population is growing and urbanising, and with more demand on the full community ecosystem, every aspect will need to operate with greater efficiency. From government services like public safety and transit, to restaurants, retail, and manufacturing, all industries are adjusting to the new reality. That same sentiment is driven by our changing climate, so we're not just looking to do more, but to use the resources we have wisely to protect our future. Integrating technology into our built environment can be a tool to solve these challenges, but it still needs to be planned and designed with community in mind.

What makes a community smart?

The smartest cities put people first

Internet of Things (IoT) devices and sensors, big data, artificial intelligence, and 5G are key components of a smart city, but it's not the technology alone that makes a community more intelligent—but how it's used to improve the lives of people. Whether seen or unseen, these applications are making communities safe, inclusive, sustainable, and resilient, while developing a smarter economy.

Intelligence is also measured through integration. Smart solutions can enhance performance within a singular system—like utility infrastructure, mobility, or wireless communications—but the ultimate goal is when those systems are planned and designed to work together.



NEARLY ONE THIRD OF CITIES SURVEYED* REPORTED ATTRACTING AND RETAINING BUSINESS AS A TOP GOAL OF THEIR SMART CITY INITIATIVES, POINTING TO THE FAR-REACHING BENEFITS OF ADVANCED INFRASTRUCTURE AND SYSTEMS.

*Source: Building a Hyperconnected City by ESI Thoughtlab, sponsored by Stantec

Benefits for communities of all shapes and sizes

Smart planning, technology, and design can be leveraged at any scale. Whether urban or rural, new construction or renovation, “smart cities” solutions can benefit:

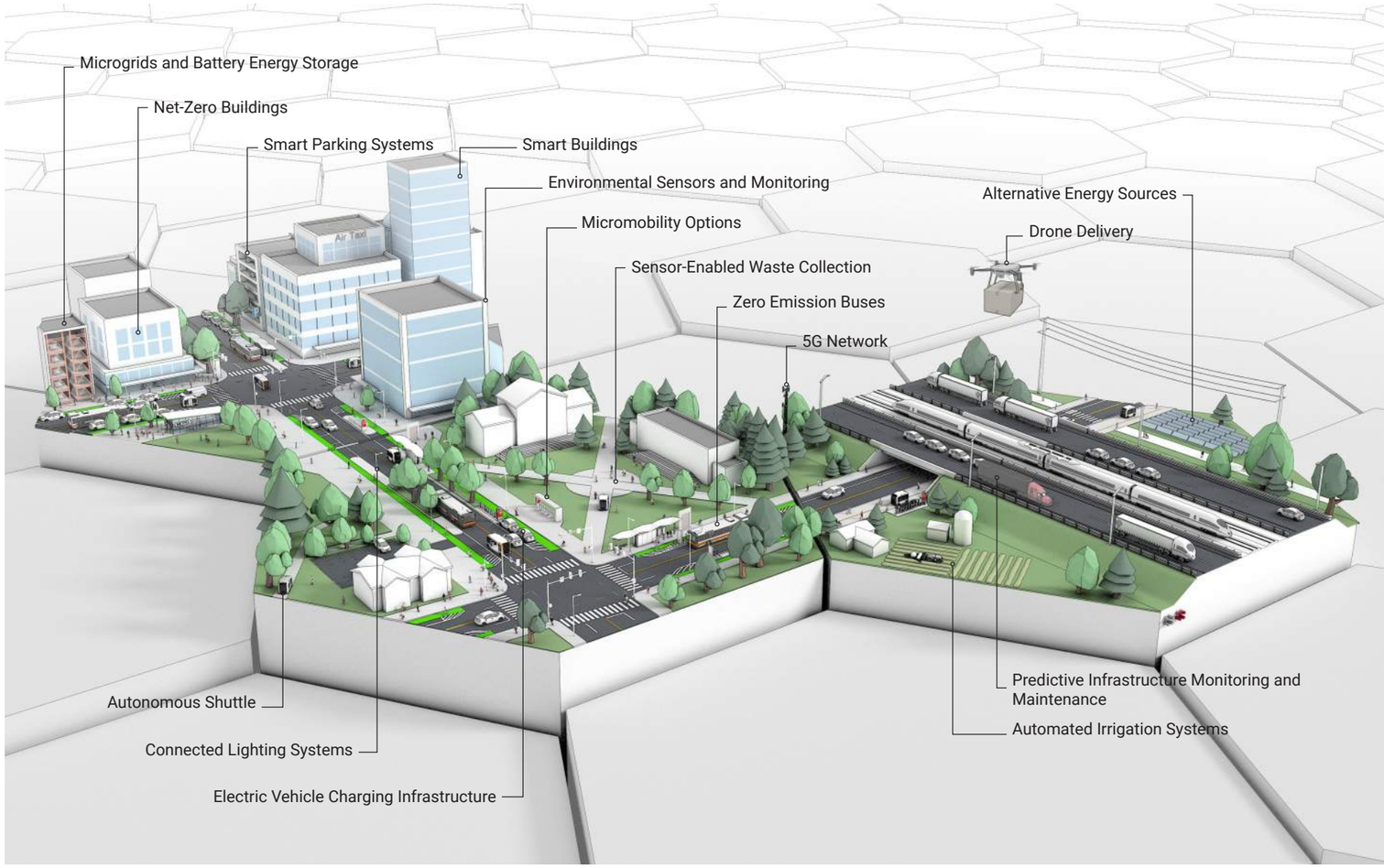
Government organisations: From municipal governments, local area organisations, and transportation and transit agencies to federal departments, data and technology can improve services and citizen outreach.

Private development: Looking to attract tenants, residents, and customers and differentiate your project in the marketplace? Brand your development as convenient and forward thinking.

Healthcare institutions: Improving patient experience and care is always top of mind, and smart solutions can optimise their full visit—from arrival to discharge.

Educational institutions: Your campus can serve as more than a knowledge hub—it can be its own living lab to pilot new technology and provide opportunities to students and researchers.

Everything in-between: Military bases, airports, redevelopment and infill projects, or corporate complexes, no matter the context or constraints, we can help you gain efficiencies and achieve your operational goals.



CAMPUSES OF ALL TYPES ARE ESSENTIALLY “MINI-CITIES” THAT CAN BENEFIT FROM INTEGRATED SYSTEMS AND WELL MANAGED DATA.

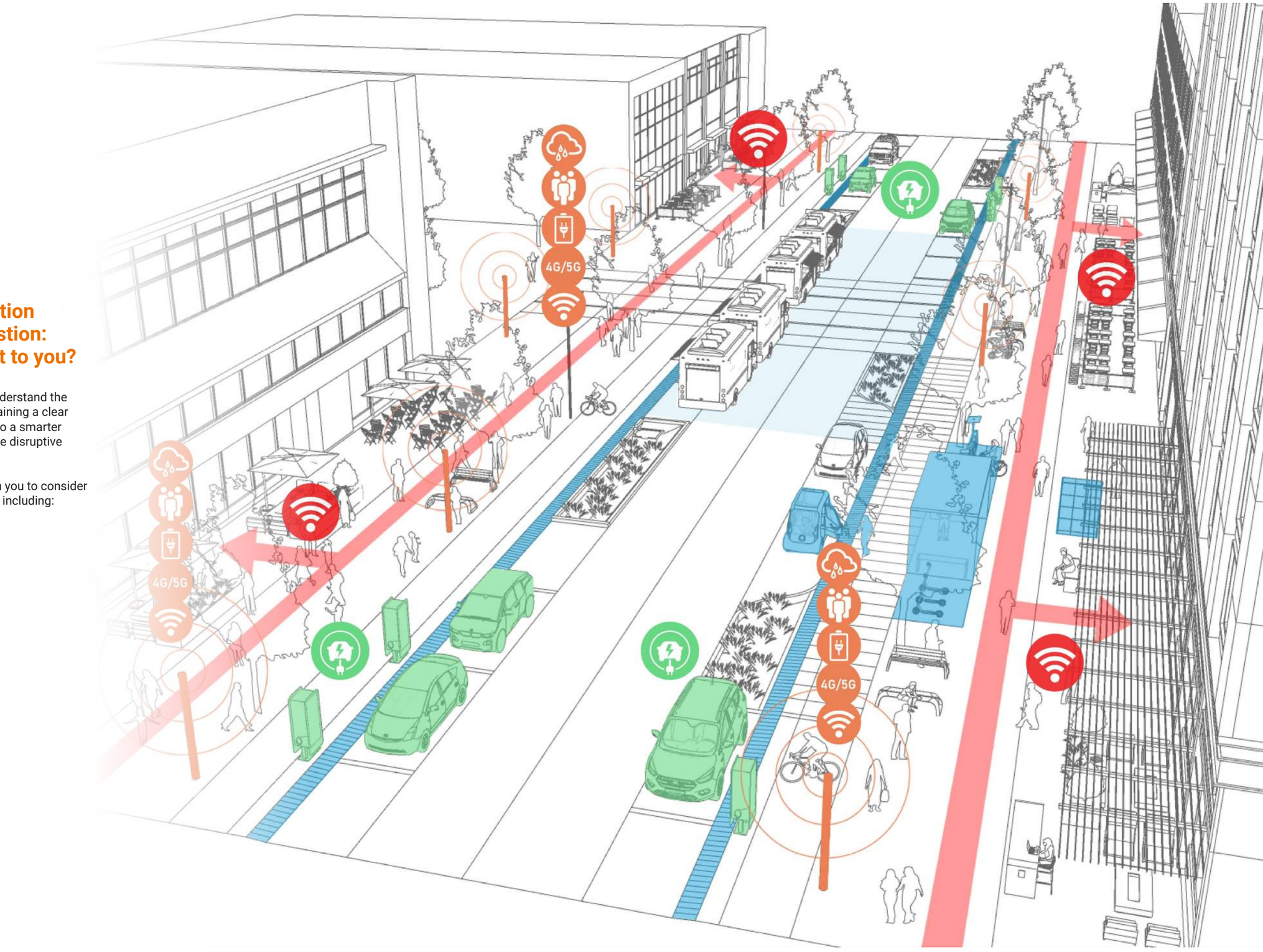
Setting a smarter vision

Planning for your digital evolution starts with one important question: what goals are most important to you?

We'll work with you to answer that question and understand the challenges you face in achieving those goals. By gaining a clear picture of today, we can build the steps to get you to a smarter tomorrow. It's also important to consider how future disruptive technologies will shift community ecosystems.

In building your smart city roadmap, we'll work with you to consider which factors are going to have the biggest impact including:

- Climate change effects
- Equity and inclusivity
- Energy resiliency
- Public health
- Privacy protection
- Mobility options
- Data security
- Economic development
- Operational efficiency
- Urbanisation and changing demographics



What makes us unique?

We believe that the main measure of value from technology is the extent to which it advances broader industry vision and sustainability, creating vibrant communities that promote health and well-being. To us, this means creating welcoming, inclusive, diverse, innovative, sustainable, and equitable buildings in a thriving neighborhood, ensuring a high quality of experience and life for all.

We approach everything we do with:

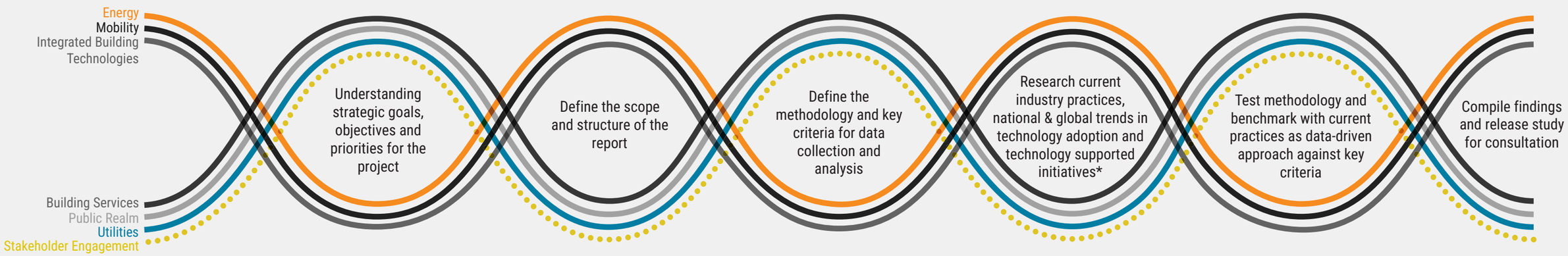
- A robust technology design methodology, workflow and actions required, based on our experience and expertise in similar projects to deliver an integrated Smart & Sustainable Technology design. We bring to the table our local, national, and international capabilities on technology, specialist services and engagement.
- A unified, cohesive framework and concept planning strategy for building services and technology interventions, able to carry forward our ambitious vision for Smart Cities.
- A solid team and coherent set of in-house specialist knowledge and services targeting up-front key principles and criteria for a robust roadmap into the later stages of technology engineering design. We have a strong team of specialist services in Smart Cities design and pathways for technology support in achieving the ambitious sustainability targets.
- A structured program with a stepwise, consultative and collaborative approach. We seek to place significant emphasis on the front end of the project, relying on ideas and evidence that converts existing analysis into insights, allowing for ideation and benchmarking.

Our approach is tailored and personalised to your project. We seek to identify and establish a consultative process and a stepwise methodology whereby we continuously assess an idea's cost-benefit impact. For example, optimising the design development during planning and construction can minimise future retrofit costs, help attract tenants early and enhance a property's reputation.

Ultimately, we aim to retain a clear line of sight on the overall process and provide an end-to-end analysis of performance and added value in end-user/tenant experience and owners' return on investment. Additionally, we seek to benchmark with similar properties and advise on possible scenarios that can lead to high-performance operations, improved space utilisation, better sustainability gains, and enhanced tenant attractiveness. We compile technology development briefs, technical reports and design documents in a range of areas relevant to Smart Cities.

Our expertise extends to:

- Smart Cities strategy, technology masterplan and roadmap for implementation
- Precinct-wide digital strategy workshops and technical sessions
- Digital building technology design development
- Building technologies integration and interoperability
- Digital user journeys mapping, user stories and scenario analysis
- Smart Cities Digital Technology market scan.



* User experience; enhanced building performance; flexibility; scalability; impact and cost benefit criteria

Master Innovation Development Plan, Quayside Development, Sidewalk Labs
Toronto, Ontario

Image courtesy of Sidewalk Labs

Places for people

As cities and suburbs grow denser, public spaces—like parks, plazas, and streets—have become critical components in building community. The result? Emerging public realm tech applications. Smart sensors help us understand popular uses and prioritise maintenance. Solar panels collect energy while providing shade. Smartphones become paintbrushes for interactive public art. With each application creating an opportunity for engagement and social impact, making public spaces smart may be one of the smartest moves a community can make.

Another approach to maximising public space is to reimagine how infrastructure systems integrate with the urban fabric. The people-focused design on the proposed Quayside Development in Toronto, developed in partnership by Sidewalk Labs and Stantec, provided a framework that allows the public realm to flourish. For example, our team designed the utility systems to be adaptable and resilient, with the ability to adjust to technological change. A network of underground tunnels for residential and commercial package deliveries, utilities, gas lines, and solid waste collection frees up more public space for people and allows maintenance and upgrades to occur without major disruptions on the street.

Key benefits of Smart Cities

Indirect benefits

Improved safety and reduced casualties/incidents—Smart Cities employ a variety of innovative solutions to protect their tenants and those who work to maintain the facilities. In addition, Smart Cities facilitate safer working conditions and more effective first responder responses, including high-performance access control systems, advanced fire management systems and sensors, and predictive algorithms of real-time data and conditions, all before arrival on the scene.

Community benefits

Effective community engagement channels—with advanced digital and communications infrastructure, Smart Cities provide additional mechanisms for engaging the community. For example, digital signage systems can be used to provide news, events information, public transportation information, and other critical messaging to tenants, employees and visitors in real-time. In addition, the Smart Cities' digital infrastructure may also deliver personalised content directly to the user through their smart mobile device. The ability of the Smart Cities to engage more now and provide timely and vital information to the community is a critical outcome.

Smart processes

Smart Cities enable precinct planners and inspectors to perform more accurate inspections with fewer resources in less time. Additionally, initial reviews to annual safety checks, Smart Cities sensors, systems, and algorithms can visualise, facilitate and automate (to the extent permitted by local regulations) inspections and compliance reviews and audits.

Increased citizen, community accessibility & inclusion

The ability to digitally connect citizens of all ages, genders, sociodemographics and cultures is a crucial outcome. Smart Cities can contribute indirectly to inclusion by leveraging their robust communications capabilities to provide public wi-fi in open public spaces. They may indirectly bring a fibre infrastructure into a nearby neighbourhood or community when planning a fibre infrastructure to support the building needs. They may leverage their building and digital infrastructure to host a variety of telecommunications systems.

Increased precinct infrastructure resilience

Smart Cities are equipped with robust power, digital and telecommunications infrastructure. Smart Cities bring a resilient communications infrastructure from in-building small cell networks, to satellite, wi-fi and IoT connectivity technologies. Smart Cities may be equipped with various power generation capabilities (solar, batteries, generators), reducing dependence on external sources, and may act as a microgrid. Smart Cities leverage data, algorithms, and sensors to inform, augment and support human responses in critical situations (e.g. location of an incident, wayfinding). From a resilient precinct perspective, Smart Cities provide communications and operational functionality during unplanned emergencies and incidents.

Increased city & community vibrancy

Smart Cities attract new businesses and digital workforce talent creates demand for new jobs. This unique and growing economic vitality creates optimism, drives further growth in the surrounding communities, and brings new supporting businesses and a continuous influx of new residents to the civic ecosystem.

SOUTHERN OCEAN LODGE

Kangaroo Island, South Australia

Kangaroo Island was severely impacted by bushfires that started in December 2019, affecting approximately 49 per cent of the island. Sadly, one of the casualties of this catastrophic event was Southern Ocean Lodge, located on the southwestern side of the island between Cape Bouguer Wilderness Protection Area and Flinders Chase National Park.

Following these devastating fires, Stantec was appointed to assist with rebuilding the resort. We were asked to perform a feasibility study on different sized systems and technologies, as well as running the performance specification and tender for the client – ensuring they received the best value for their project.

A key part of the scope was to design a system which was as resilient to fire as possible. This involved using red flow batteries rather than lithium-ion batteries amongst other measures.

The original lodge was run off only diesel generated power. For the new lodge, the client wanted to aim for a minimum of 50% of energy to be generated by renewables and our team managed to achieve a 55% renewables target. This was achieved by a hybrid system of solar photovoltaic batteries and diesel generators, including 600 kilowatts of solar photovoltaic and 560 kilowatt hours of battery storage.

We also worked through a JV3 performance solution for the client, identifying a high-performance glazing as well as maximising efficiency of insulation to help the client reduce energy consumption.

In the second half of 2023 the newly rebuilt resort will open. The globally celebrated luxury resort, by Baillie Lodges, has been designed with 25 guest suites, private dining, a walk-in cellar, edgeless pool, and a spa retreat, and will provide visitors with sweeping views of the ocean and coastal wilderness.

The Southern Ocean Lodge is a rare source of luxury accommodation for Kangaroo Island that's been missing since the fires. The client has been ecstatic with the renewables targets that we have helped them to achieve, making Southern Ocean Lodge 2.0 even better than the original.

Project value:
Confidential

Disciplines:
Sustainability

BROMPTON GASWORKS

Adelaide, South Australia

The redevelopment of the 5.81-hectare Brompton Gasworks site was completed, delivering significant benefits to South Australia.

The project introduced 880 new residential units, including 120 Nightingale Housing zero-carbon apartments, and a commercial area of approximately 11,500 square meters. A hotel with 120-150 keys was also built, along with 1.5 hectares of public spaces for community activities.

The infrastructure was revamped to promote less car dependency and eliminate fossil fuel use, with the precinct targeting a 6 Star Green Star Community rating and all buildings achieving at least a 5 Star rating. The site was remediated to the highest EPA standards.

Stantec's smart precinct infrastructure included improved traffic and parking management, public safety enhancements, data collection sensors, utilities management, increased connectivity, a Precinct Management Platform & Digital Twin, and smart building technology, making the area a state-of-the-art sustainable community.

Project value:

$459 million

Disciplines:

Land Development, Smart Buildings & Sustainability

Image courtesy of DevelopmentWA

OCEAN REEF MARINA

Perth, Western Australia

DevelopmentWA engaged Stantec to finalise a concept and schematic design report for the proposed Ocean Reef Marina, envisioned to transform into a top-tier tourism waterfront hub that would incorporate residential, recreational, educational, and commercial opportunities. This project was financed by the state government and delivered through a partnership between LandCorp, the City of Joondalup, and the Department of Transport.

The development aimed to provide a multitude of benefits, including:

- Addressing the previously existing shortage of boat pens and boat-stacking facilities in the Perth metropolitan area;
- Offering an increase in housing density and diversity within a high-amenity location;
- Creating a lively waterfront commercial area and public spaces, enhancing recreational amenities and establishing a new tourist destination; and
- Generating sustainable job opportunities for the local community in various sectors including food and beverage, retail, service, commercial, tourism, and marine industries.

The project requirements entailed the further development of initial concepts and brief requirements for Smart Cities services, in coordination with DevelopmentWA and their advisors. Stantec was responsible for producing both schematic and detailed design documentation, and for providing construction phase services related to the Smart City initiatives and any impacted services.

Project value:

$200 million

Disciplines:

Smart Cities

SUBIACO REDEVELOPMENT - E-MOBILITY RESEARCH

Perth, Western Australia

Stantec carried out a detailed review of the electrical capacity allocations for suitability with a goal of 50% future uptake in electric vehicles at the Subiaco Oval Precinct site, including costing implications associated with increased electrical capacity where required.

In related engagements, we carried out network augmentation designs for electrical and civil works required to prepare for future connection of DC fast charging infrastructure at DevelopmentWA sites, both on private lots, and on street road reserves.

Disciplines:

Smart Cities

Innovating for our communities

Innovation has a rich history at Stantec, from our early R&D efforts to the launch of our Creativity & Innovation program in 2016. In 2020, we evolved our program by establishing the Innovation Office, tasked with putting our creativity to work to make our communities better for everyone.

Our innovation strategy combines proven ideas with curiosity and digital-forward approaches to find new ways to meet client and community challenges:

Ideate: Anyone in Stantec can share their idea through our Idea Machine, an online portal managed by our Innovation Office.

Support: Ideas are supported by experts who are leading our digital transformation efforts.

Explore and develop: We develop promising ideas with technical expertise, coaching, and progressive levels of funding.

Commercialise: The best ideas are expanded to serve more communities through strategy workshops and our Innovative Business Opportunity program.

Automated Shuttle Feasibility Study and Concept Plan
Chamblee, Georgia

$10M+
invested in developing ideas through our innovation programs

Innovation benefits

Extending the technology ecosystem to a smart city or precinct

Effective new city services
Smart Cities will leverage their digital and communications infrastructure and the data collected to create new insights and services that are invaluable to a precinct. An example is a Smart Building that can host various sensors. These sensors may monitor weather conditions, vehicle and pedestrian traffic patterns, and building conditions and contribute to the value of data collected in a precinct or a city wide smart technology initiative.

A digital twin can be used by planners to model and simulate various initiatives, for example, to see how changing traffic signals may impact accident rates, air quality levels, pedestrian foot traffic and impact on surrounding businesses. Information from the digital twin can then be used to design a program, where it can be tested and evaluated. We can develop many services using the data collected from inside and outside the Smart City.

A new digital innovation ecosystem
Over the next few years, it's predicted that Smart Cities will require a unique ecosystem of services and skills to design, build, support and operate. Equally important, the Smart City is a place for future innovation, with many of these future services not yet discovered or enabled. These future innovations and services, built on top of the existing Smart Cities infrastructure, capabilities and skills, will be even more transformational. These innovations will attract new talent, skills and businesses, accelerating the expansion of the ecosystem of companies needed to support Smart Cities and a smart city.

Enhanced precinct of Smart City reputation
Smart Cities enhance the reputation of a city as innovative and forward-thinking. By supporting lasting economic value, technology in buildings attract a new ecosystem of tenants and businesses, helping businesses align to the 21st century needs.

Smart City Technologies

Primary Functions
- Smart City Operations
- Tenant Business Operations

Supporting Functions
- Building Infrastructure
- Building Technologies
- 3rd Party Commercial Services
- 3rd Party Digital Services
- Precinct provided Services
- Telecommunication Services
- Utilities and Essential Services

Benefits

Direct
- Lower operating cost
- Decreased greenhouse emissions
- Increased tax revenues
- Attraction & retention of new and targeted tenants/business

Indirect
- New digital jobs to servce, support, maintain and operate Smart Buildings
- Improved safety, reduced casualties and accidents
- Enhanced precinct management of Smart Cities planning, permits, audits
- Increased precinct infrastructure resilience (power, comms, etc)
- More effective community engagement channels
- Increased citizen, community acceddibility and inclusion
- Increased precinct vibrancy

New & Innovative
- More effective deployment of precinct level services using Smart Cities as a platform for growth
- New digital innovation ecosystem supporting and leveraging Smart Cities data
- Enhanced precinct reputation

Working together

Communities are fundamental. Whether around the corner or across the globe, they provide a foundation, a sense of place and of belonging. That's why at Stantec, we always design with community in mind.

We care about the communities we serve—because they're our communities too. We're designers, engineers, scientists, and project managers, innovating together at the intersection of community, creativity, and client relationships. Balancing these priorities results in projects that advance the quality of life in communities across the globe.

Connect with us

stantec.com/australia