


# Your next generation technologies solutions



A Downer Company



**We understand that Smart Cities involve the better management of transportation, utilities and services through continuous and dynamic transformation. We offer the proven capability of supplying, managing, maintaining and keeping current our customers' critical public infrastructure.**

## Smart cities

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### Bringing new ideas and innovative solutions to transform today's urban environment into Smart Cities of the future.

With half the world's population living in cities, the drive towards Smart Cities is gathering pace at a rapid rate.

Enabling the transformation is the Internet of Things (IoT) which, together with the increasing power and automation of platforms, captures and enables the monitoring and processing of data to optimise the use and connection of digital technology and infrastructure.

#### The challenge

This dynamic and increasingly accelerating pace of technological innovation and transformation comes with a mix of opportunity and widespread challenges for infrastructure managers.

We understand this more than most as we manage the daily maintenance and upgrading of critical infrastructure for road and public transportation as well as critical utilities such as water, power, lighting and telecommunications.

As a Downer company, we bring over 83 years' experience in infrastructure projects to plan, create and sustain the modern environment.

#### Transformation

Our Smart Cities solutions transform daily operations while reducing costs, improving operational efficiencies and supporting the environment.

Today, bus and rail travellers in the Australian Capital Territory and Western Australia commute across public transport networks with our smart ticketing solutions; our solar powered CCTV networks help local government authorities deliver safe and environmentally friendly solutions; and the new Smart Busport in Perth's CBD is giving bus passengers a whole new travel experience while helping the Public Transport Authority of Western Australia transform Perth into one of Australia's leading Smart Cities.

#### Smart solutions

To enable the transformation of Smart Cities we deliver intelligent transport solutions which include infrastructure and services for the conditioning of utilities such as platform lighting, public address and information systems at interchanges and platforms.

We also deliver the design, supply, operation and maintenance of smart buildings, facilities (including control centres), interchanges and stops (all modes), as well as public furnishings for transportation and civic spaces. We augment these services with 'first and last kilometre' facilities such as advanced parking and bike solutions for interchanges and stations.

In addition to intelligent transport solutions, we bring new and innovative capabilities including sophisticated communications and network infrastructure, CCTV, security and specialised technologies which deliver energy efficiencies and cost savings to transform the urban environment.

# Intelligent Transport Solutions

**Combining world leading insights and innovation with proven expertise, we bring next generation technologies to successfully deliver tomorrow's transport solutions today.**

One of the key deliverables of Smart Cities is efficient transport infrastructure. This requires Intelligent Transport Solutions that harness innovation and new technologies.

## The challenge

Increasing passenger loads combined with growing demand for improved quality and low-cost services present significant challenges for public transport authorities.

Combined with tight operating budgets and environmental concerns, these factors are forcing authorities to find new ways to deliver efficient transport infrastructure.

## Transformation

Our Intelligent Transport Solutions help public transport authorities meet commuter requirements while reducing costs, improving operational efficiencies and supporting the environment.

Working with many of Australia's public transport authorities, we are at the forefront of innovation and the safe delivery of Intelligent Transport Solutions.

Recognised by industry, our solutions have won prestigious awards including the 2014 Smart Infrastructure Project Award from Infrastructure Partnerships Australia for our delivery of the Sydney 'Opal' Card, and the 2008

Voice/Data – Large Project Award from the National Electrical and Communications Association (NECA) for our delivery of the 'SmartRider' project in Western Australia.

## Core capabilities

- communications infrastructure;
- automatic fare collection;
- public transport scheduling and priority;
- traffic signalling;
- automated fare payment;
- managed motorways;
- smart parking;
- electronic signage;
- fleet management;
- intelligent street lighting; and
- height detection systems.

## Completed projects

- Perth Busport;
- Perth Integrated Smartcard Ticketing System;
- Canberra MyWay Smartcard Ticketing System;
- Sydney Opal System;
- Perth Integrated Ticket Vending Machines;
- PTA Driver Assist Video – WiFi Installation;
- Queensland GoCard Installations (bus, ferry, train, light rail); and
- Perth Real Time Tracking.

## Relationships creating success

Our experience in delivering Intelligent Transport Solutions for public transport authorities ensures we understand what's important to their success. Our ongoing work with the Public Transport Authority of Western Australia demonstrates this commitment.

### Perth Busport

With up to 1,400 bus transfers in and out of the new Perth Busport on a daily basis, our new Dynamic Stand Management System (DSMS) and the soon to be implemented Real Time Tracking System (RTTS) are a key part of the technology infrastructure.

These systems provide a range of services including:

- managing the flow of buses in the new underground Perth Busport;
- directing bus drivers on their journey;
- managing traffic priority at major intersections; and
- enabling passengers to track the real-time movements of their bus via mobile Apps.





**First in Australia – The new Perth Busport is a first for Australia and the new Dynamic Stand Management System (DSMS) is one of the first systems of its kind worldwide. Each bus is allocated to one of sixteen stands on arrival into the Busport and the information is communicated to passengers via large electronic screens in the air-conditioned passenger lounge.**

# Communications, Networks and Audio Visual

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**Delivering scalable communications, network and AV solutions for complex social infrastructure projects through to remote mining and oil and gas operations.**

Data networks and communications infrastructure are essential to the transformation of urban environments into Smart Cities, and the successful operation of businesses worldwide.

## The challenge

Increasing information demands require networks that operate at faster speeds, with greater capacity, in real-time, and with improved reliability.

Combined with anywhere anytime connectivity, these challenges are forcing ICT managers to constantly find new ways to deliver efficient network and communications infrastructure.

## Transformation

Highly regarded for our ability to safely deliver solutions for complex urban and remote networks, our systems are in operation across mining, oil and gas projects, as well as critical transport, energy and social infrastructure operations.

With experience in designing, supplying and installing AV Systems across Australia, we deliver solutions for passenger information systems, retail LCD and digital signage, public address systems as well as interactive whiteboards, networked storage, projection systems and video conferencing.

## Core capabilities

- LAN and WAN system design and implementation;
- tailored design and construct for integrated network VoIP, wireless and intercoms;
- wireless network and broadband installations;
- industrial network design and implementation for control systems;
- radio, wireless, mobile, microwave and digital networks;
- computer room design, installation and maintenance;
- IP networks;
- SCADA systems;
- network auditing and patching management;
- hard wired solutions for networks including fibre and CAT6;
- full factory, site commissioning and testing;
- private LTE networks;
- leaky feeder for confined areas including tunnels; and
- carrier network installations.

## Completed projects

- Public Transport Authority WA fibre, communications, civil, lighting, electrical and CCTV;

- commissioning of communications system for BHP Billiton HV Newman augmentation project; and
- Downer's Canning Vale, WA premises – hard wired and wireless solution, fibre, Cat6, switch gear L2/L3, servers, storage.

## Relationships creating success

With experience in delivering solutions in remote and urban locations for public and private sector customers, we understand what's important to success. Our work with BHP Billiton demonstrates this commitment.

## BHP Billiton

We delivered design and construction of the rail communication infrastructure for the OCRS project at BHP's Iron Ore plant in Western Australia. This included several rail infrastructure and communication components including:

- Fibre Optic Cable (FOC) installation and commissioning works;
- design, construction and commissioning of communications transmission systems at new and existing signalling locations; and
- design, construction and commissioning works for the Voice Mobile Radio System (VMRS) including new voice radio repeaters.





**Our experience in communications, networks and AV extends from initial infrastructure design through to installation and ongoing servicing. With scalability inherent across our systems, we provide flexibility and agility to help ICT managers respond to changing opportunities and requirements.**

# CCTV, Security and Access Control

**Working with customers across Australia, we understand the critical requirements for the protection of people and assets.**

The ongoing functioning of Smart Cities and the successful operations of today's businesses rely on increasingly high levels of security to keep people safe as well as assets secure and operating at optimum performance.

## The challenge

With the onset of the Internet of Things (IoT) and rapid improvements in technology, infrastructure and security managers have access to a wide range of new technologies to help protect people and assets. However, harnessing the value of these innovations requires integrating the technologies to gain cost and operational efficiencies.

## Transformation

Delivering solutions which integrate CCTV, access control, asset tracking, fire detection and alarms, we help infrastructure and security managers to plan, create and sustain operating environments that cost effectively protect people and assets.

Our access control technology protects critical assets including public sector facilities such as water catchments and dams, as well as airports and ports, and remote mining operations.

Our fire detection and alarms identify hazards and help managers comply with statutory requirements.

Our asset tracking systems monitor the movement of people, vehicles and goods, and can operate within a sophisticated radar infrastructure network.

## Core capabilities

- networked security, access control, CCTV design and implementation;
- industrial network design and implementation for control systems;
- mobile and covert solutions for CCTV and wireless communications;
- radar infrastructure; and
- full factory, site commissioning and testing.

## Completed projects

- Town of Port Hedland and City of Kalgoorlie CCTV and Wireless Systems;
- Fiona Stanley Hospital Construction Site Wireless Thermal CCTV;
- Main Roads WA CCTV and Communications;
- Fremantle Port Authority KBT Access Gate Upgrade and North Quay Rail Terminal Extension;
- City of Bayswater Access Control and Intruder Detection;
- Murray Engineering – Byrnecut Mining CCTV, Access Control, and Fire Detection;

- WA Water Corporation – Harding Dam Control, Communication and Security System; and
- Perth Airport Air Services – Advanced Surface Movement Guidance and Control System, and Intrusion Detection System.

## Relationships creating success

Bringing our expertise in CCTV, security and access control to customers in the public and private sector, we help to ensure the safety of people and assets. This is demonstrated by our work with Roy Hill.

## Roy Hill

Engaged to deliver design and construction of the CCTV system for the new Roy Hill mine in Western Australia, the CCTV system monitors all level crossings along the Roy Hill Rail Network. Key components included:

- preliminary through to detailed design of the CCTV system;
- procurement and factory acceptance testing of all active equipment;
- site installation and commissioning of the camera system at key locations in Perth, Port Headland, Roy Hill mine office and along the railway line; and
- system training for operators and service technicians.





**Our CCTV networks use the latest technologies and many deliver additional environmental benefits through the use of solar power, including those located on remote mining sites and our CCTV mobile solution delivered for the City of South Perth which received an industry commendation from NECA for energy efficiency in 2016.**



**Offering an innovative approach to delivering goods and managing remote assets in geographically challenging locations, drone technology is bringing significant advantages to critical infrastructure management.**



## Specialised technology

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**By understanding and predicting our customer's needs we bring world leading ideas to transform possibilities into reality.**

It's the trusted relationships we build with our customers, colleagues and communities which allow us to create and sustain our modern environment.

### The challenge

Staying up to date with new and emerging technologies while managing and transitioning existing infrastructure operations to take advantage of these technologies provides both opportunities and challenges for infrastructure managers.

### Transformation

With a deep understanding of our customers objectives and a focus on research and development, we deliver proven solutions which integrate new technologies to create success for our customers.

### Drone technology

Working with our drone partners, Pulse and Skyline Aviation – recognised for delivering sophisticated solutions to defence forces globally – we are interfacing drone technology with artificial intelligence, asset management programs and the supply chain to support an increasingly safe and efficient work place for customers across Australia.

By way of example, our work is assisting customers to meet their requirements in documenting the condition and operability of equipment on remote

communications and high voltage towers leading to the identification of maintenance actions. By eliminating the need for a rigging team, the drones are providing a safer, more cost effective method of data capture.

### Smart street lighting

Approximately 40 per cent of local government agencies costs are related to the deployment, powering, operations and maintenance of the lighting network. Our strategic partnership with gridComm is transforming street lighting infrastructure into energy-aware, remotely monitored and managed networks, saving on power consumption, labour costs and delivering an improved carbon footprint.

Accommodating multiple lighting technologies including high pressure sodium vapour, mercury vapour, metal halide and new LED luminaire products (which allow for gradual change out of luminaires with LED products as and when capital budgets permit) the system also delivers added benefits by creating an IoT and Smart City backbone which supports sensor connectivity via LoRa.

Installed in numerous locations worldwide, the gridComm system is proving to be a key infrastructure deployment for the transformation of urban environments into Smart Cities.

### Asset tracking

With proven short term payback, our asset tracking systems monitor and manage the movement of people, vehicles and goods, saving time, resources and delivering increasing efficiencies for customers

With our strategic partners, Wayray and Track'Em, we deliver cloud-based asset tracking and telematics solutions delivering a real time, holistic view and understanding of all assets. Data is captured via smart phones, IoT and GPS devices. Using cloud-based predictive analytics, information is communicated via a range of mediums including SMS notifications and 3D status visualisations.

### IoT analytics

Electronic devices such as smartphones constantly emit unique signals assisting in the collection of 'widespread' data which aids in understanding customer patterns and profiles.

Our strategic partner Trendwise is a leader in the area of next generation customer analytics. Trendwise systems are integrated into our project solutions and help with the planning of investment and asset justification in current and new locations.

### More information

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