



# A cloud-based scheduling tool to reduce traffic congestion

Sydney Water

Causing angst and frustration for commuters and ratepayers of Sydney, poorly planned underground maintenance projects can result in traffic congestion – only for separate maintenance works to dig up the same location within weeks or months.

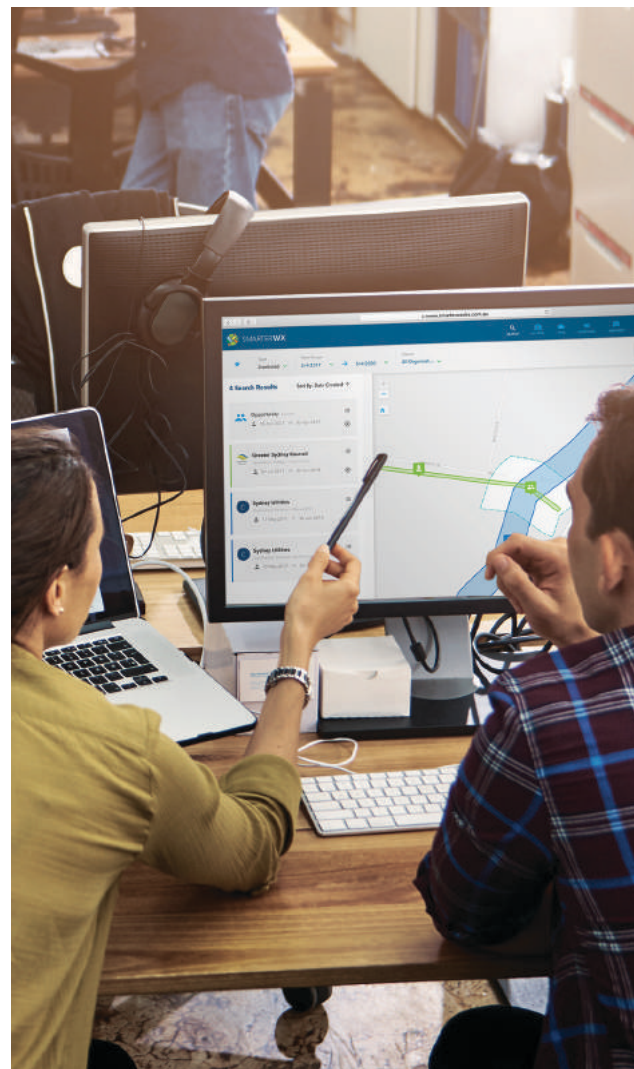


## Project overview

With Sydney Water citing an annual water main renewal program of over \$50 million, there is a need to better collaborate with the New South Wales (NSW) councils, utilities and agencies, working smarter to plan and share proposed works and coordinate costs, resources and schedules.



Image courtesy of Sydney Water



## Sydney Water in focus:

Australia's largest water and wastewater service provider, Sydney Water delivers water, wastewater and some recycled water services to over 5 million people across Sydney, the Blue Mountains and Illawara, spanning over twelve thousand square kilometres.

The Sydney Water network is made up of 21,000 kilometres of water mains, 24,500 kilometres in sewer mains and 450 kilometres of stormwater channels and pipes.

Sydney Water identified the need to take a new approach to planned works across the region, using unprecedented technology.

“Too often when utilities and councils work independently, projects aren't aligned, causing re-work, customer frustration and waste.”

**Stuart McDonald**, Network Asset Programs Team Leader, Sydney Water.

## The challenge:

Currently councils provide their planned works in an excel or PDF format which makes it hard to overlay Sydney Water's planned works and requires significant resources to manually check each location for opportunities. Utilities, road and transport authorities only share their planned works early when they are state significant projects such as CBD Light Rail or North West Rail Link.

In some situations, roads are resurfaced before the renewal of underground assets can be identified or planned for construction.

It is not uncommon for Sydney Water to have planned and designed a new asset to find another utility has recently laid their asset in Sydney Water's planned alignment, resulting in project delays, further potholing, a new design, increased project costs and increased community disruption.

Sydney Water felt there had to be a better way to use technology to 'cut to the chase' and find opportunities to collaborate with other infrastructure providers.

### Specifically, they required:

- + A shared tool for capital works management among councils, utilities and agencies to save time, cut costs and reduce inconvenience to the community and staff.
- + A solution to prevent unnecessary repeat roadworks, underground maintenance or repairs made in the same location.
- + A central platform of information to visualise planned works across multiple organisations in real-time.

## The solution:

To achieve a large-scale adaption of a capital works tool, Sydney Water worked closely with NSW Streets Opening Coordination Council (SOCC), a voluntary association of utilities dedicated to achieving cooperative and efficient practices associated with street services, to champion a ground-breaking intelligent mapping platform.

Sharing Sydney Water's vision, SOCC coordinated the development of iWORCS™, a collective platform to inform and manage capital works, using Esri Australia's SmarterWX platform.

A pilot online platform was tested. From June 2015 to September 2016, Sydney Water and nine Sydney councils uploaded their work programs to create a central live display of planned works.

During this period, several opportunities were identified and savings were recorded through sharing the cost of road surfacing and better timing of works. The current iWORCS™ collaboration tool was then custom built in January - February 2017, delivered through a Software as a Service (SaaS) scalable cloud platform powered by SmarterWX.

### Councils, utilities and agencies utilise iWORCS™ using simple steps:

- + Each organisation manages their capital works by uploading their project data into iWORCS™.
- + Data is published within the application and instantly becomes viewable by all participating organisations.
- + Users can upload data and set exclusion zones - areas where projects cannot occur during a certain period, for example during public events such as a fun run, parade, or community festival.
- + The system intuitively identifies works programs occupying the same space and time range as other scheduled projects.

The system identifies scheduled conflicts and notifies all relevant project owners via an alert, allowing for smoother communication and collaboration between stakeholders.

“Using iWORCS™ we forecast savings of up to \$1 million are achievable in the first two years when more than 50 NSW councils, utilities and agencies are expected to join, the money saved will increase significantly.”

**Stuart McDonald**, Network Asset Programs Team Leader, Sydney Water.

## The innovation:

iWORCS™ provides a central record of planned works to assist in the future planning, scheduling, and coordination of activities between participating organisations. Its purpose is to improve collaboration and to minimise the cost and disruption of roadworks, while addressing community concerns over multiple excavations of a road by different project teams.

In a typical scenario for Sydney Water, such as replacing a water main, iWORCS™ may prevent situations where previously large costs were spent to excavate and reinstate a road, soon after the road had been resurfaced for maintenance. It can also highlight design conflicts of other planned underground works early in the planning process - leading to cost savings.

## The outcomes:

iWORCS™ presents an opportunity to adopt a best practice approach to capital works management – which puts community stakeholders first.

### Key outcomes from the platform include:

- + Better coordination between underground utility works, avoiding damage to other underground services.
- + Minimised impacts of underground utility works on both natural and built environments.
- + Minimised interference to traffic and pedestrian flow caused by road openings for the installation, operation and maintenance of utility services.
- + Reduced disruption to local communities.
- + Minimised duplication of remediation efforts resulting in reduced cost of roadworks.
- + Better quality roads through reduced impact of roadworks on the lifecycle of the road network.

### Stakeholders from across NSW who have already joined the collaborative platform include:

- + SOCC
- + Sydney Water
- + Roads and Maritime Services
- + City of Sydney
- + Wollongong City Council
- + Lane Cove Council
- + Jemena Gas
- + Randwick City Council
- + Georges River Council
- + Canterbury-Bankstown Council
- + Northern Beaches Council
- + Camden Council

## Solution mix:

- + The current iWORCS™ collaboration tool is delivered through a Software as a Service (SaaS) scalable cloud platform powered by SmarterWX.

“For current footpath improvement work on Bourke Street, Surry Hills, iWORCS™ has delivered immediate benefits for the community by improving coordination and avoiding the cost and disruption of any unnecessary duplicated work.”

**Clover Moore**, Lord Mayor, City of Sydney.

For information on how to apply SmarterWX GIS technology in your business visit [esriaustralia.com.au](https://esriaustralia.com.au)

**For more information on iWORCS visit**  
**[streetsopening.com.au/iworcs/](https://streetsopening.com.au/iworcs/)**

 1300 635 196

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