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Smart Cities Must Utilize Location Intelligent Infrastructure Solutions

UN World Geospatial Information Congress, Deqing, China

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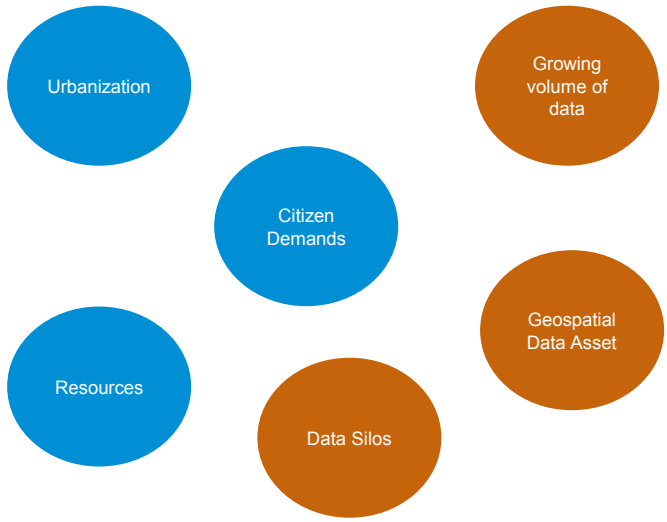
November 20, 2018

Traditional Infrastructure Management Challenges



The value of geographic information to government is … better governance and better citizen engagement

Contribution of GIS to a Country's GDP 0.5% to 1.0 %

Source: Acil Tasman Study

Every city is a collection of assets, creating lots of data.

Bridges
Fiber optic cables
Fire boxes
Fire hydrants

Fleets and vehicles
Kiosks and benches
Manholes
Parking meters

Properties
Roads and highways
Sewer drains
Sidewalks

Street lights
Traffic signals
Trash barrels
Trees

When city leaders can identify, track, monitor and manage the data from these assets, the full value and possibilities of geospatial data & connected technologies result in the **Location Intelligent** city.

Introducing - Location Intelligent City

Better data management can lead to:

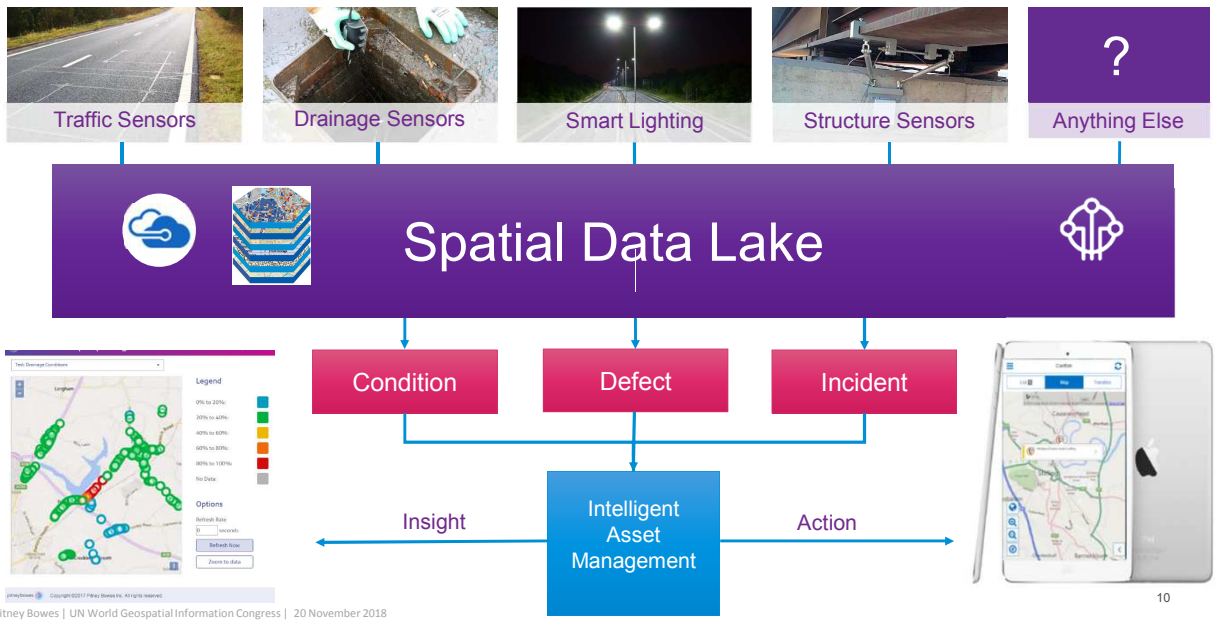
- Keep our citizens safe
- Improve the flow of people across the city.
- Create and maintain accessible public spaces.
- Deliver exceptional city services.
- Make the city a desirable place to live, work and conduct business

- Improved quality of life.
- City economical growth
- A more engaged constituency.
- Attracts new residents and businesses
- Improve the value of the city by optimizing spend.

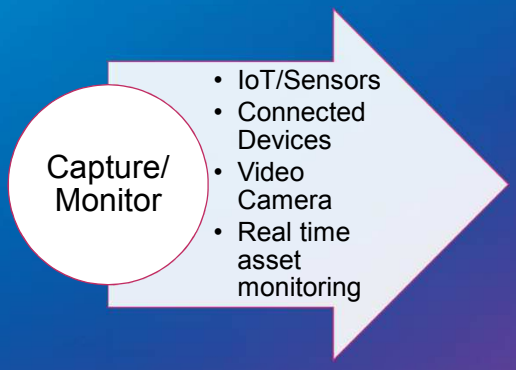
CONCLUSION: Therefore…Every government agency needs to become Location Intelligent and develop…

… Intelligent Infrastructure Management (IIM)

Defining…Intelligent Infrastructure Management Solution



Intelligent Infrastructure Management Solutions



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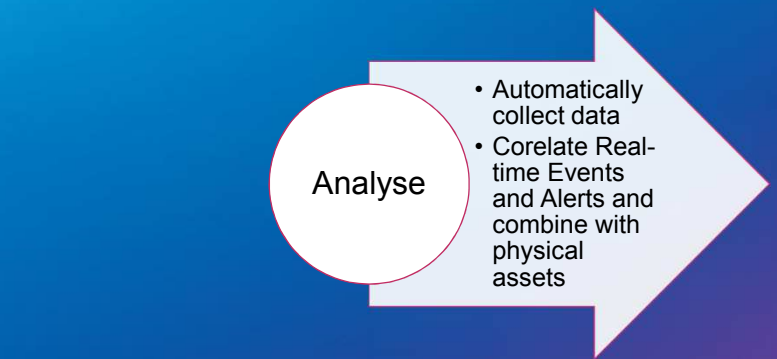

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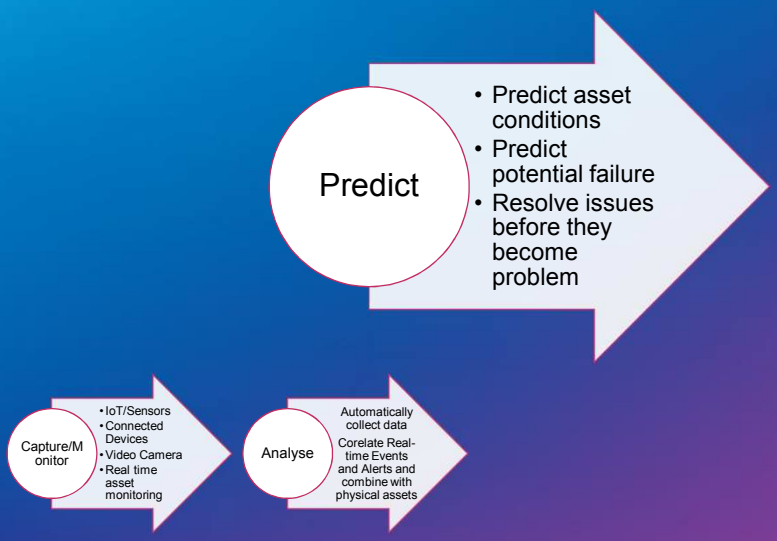
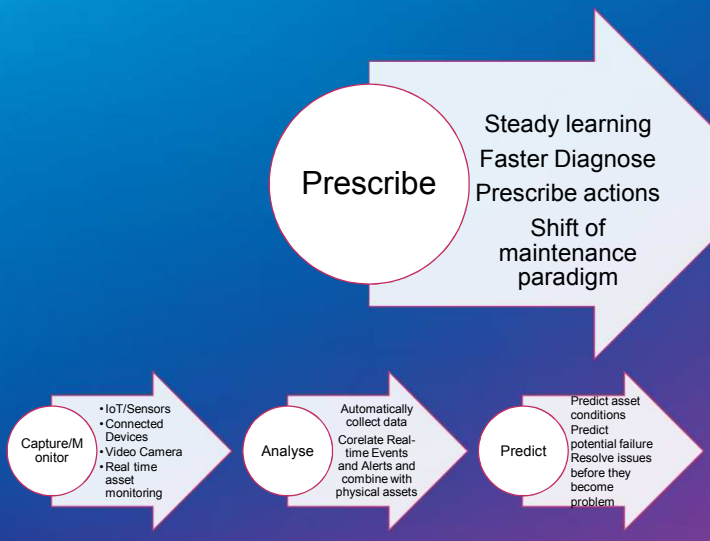
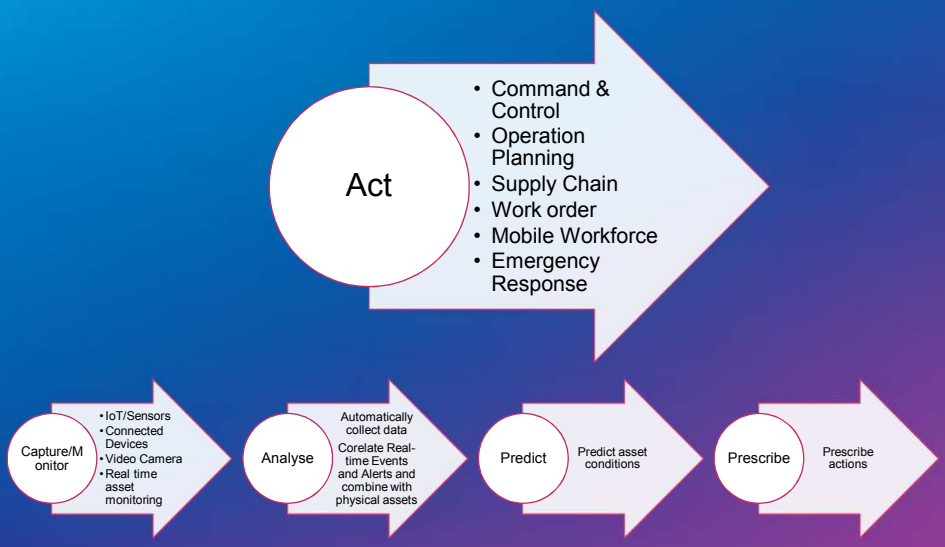


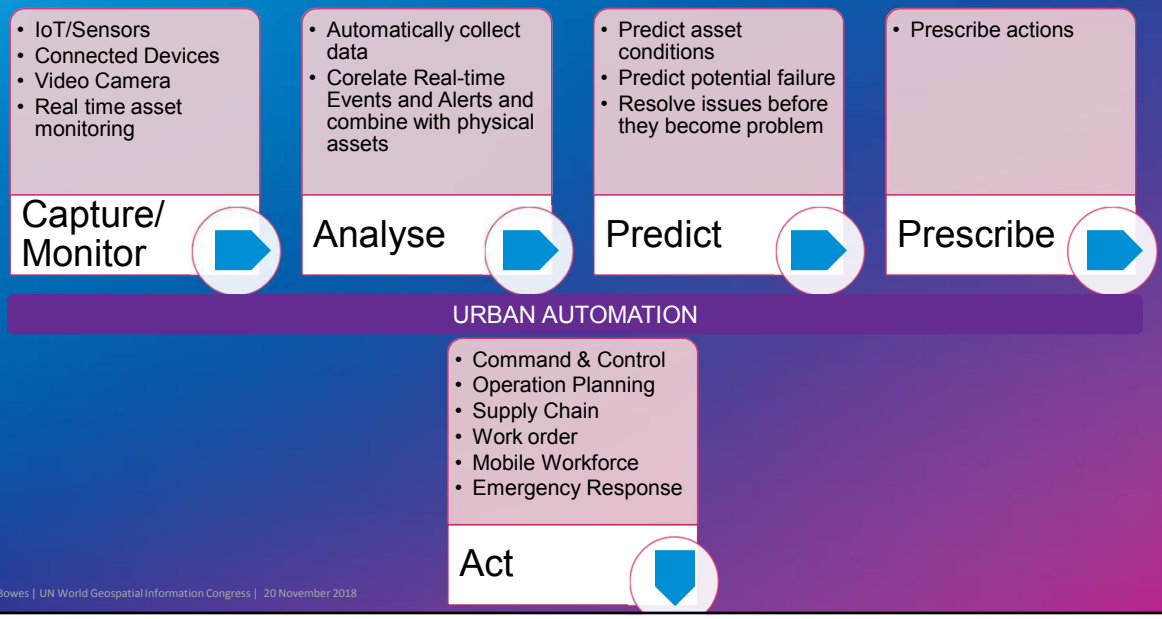
Intelligent Infrastructure Management Solutions



Intelligent Infrastructure Management Solutions

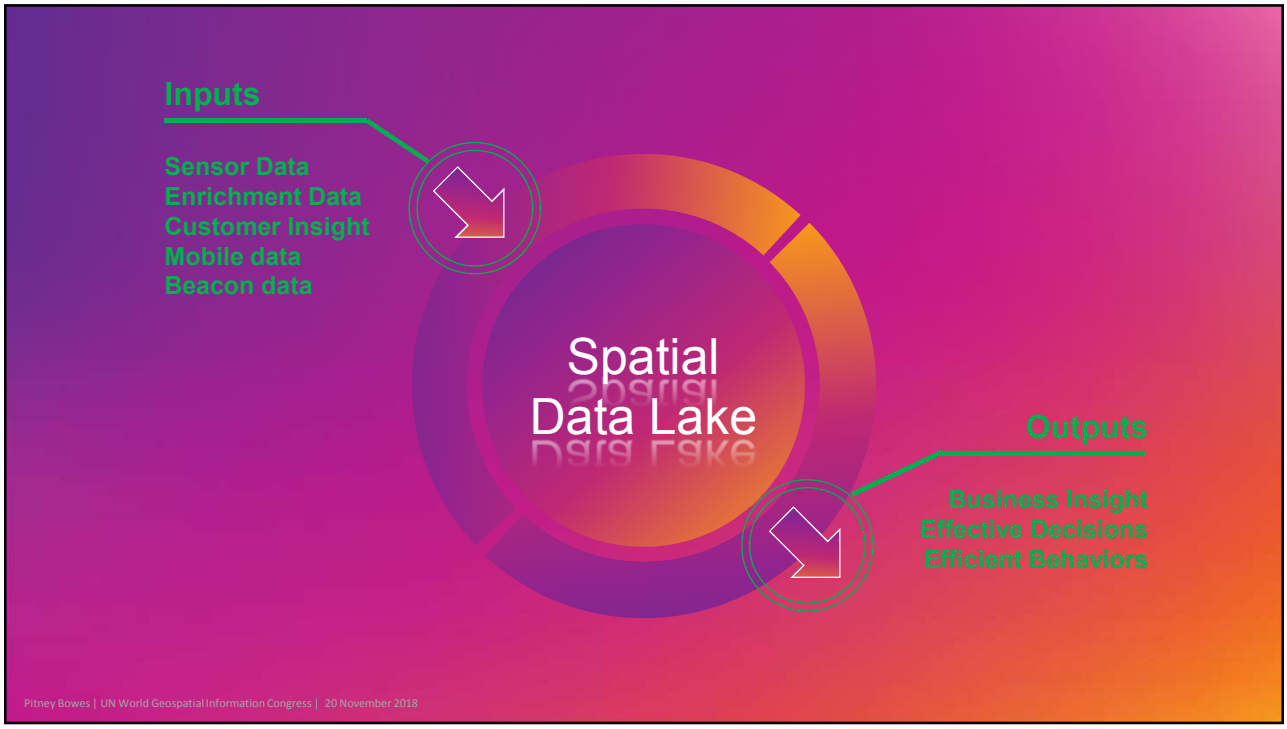


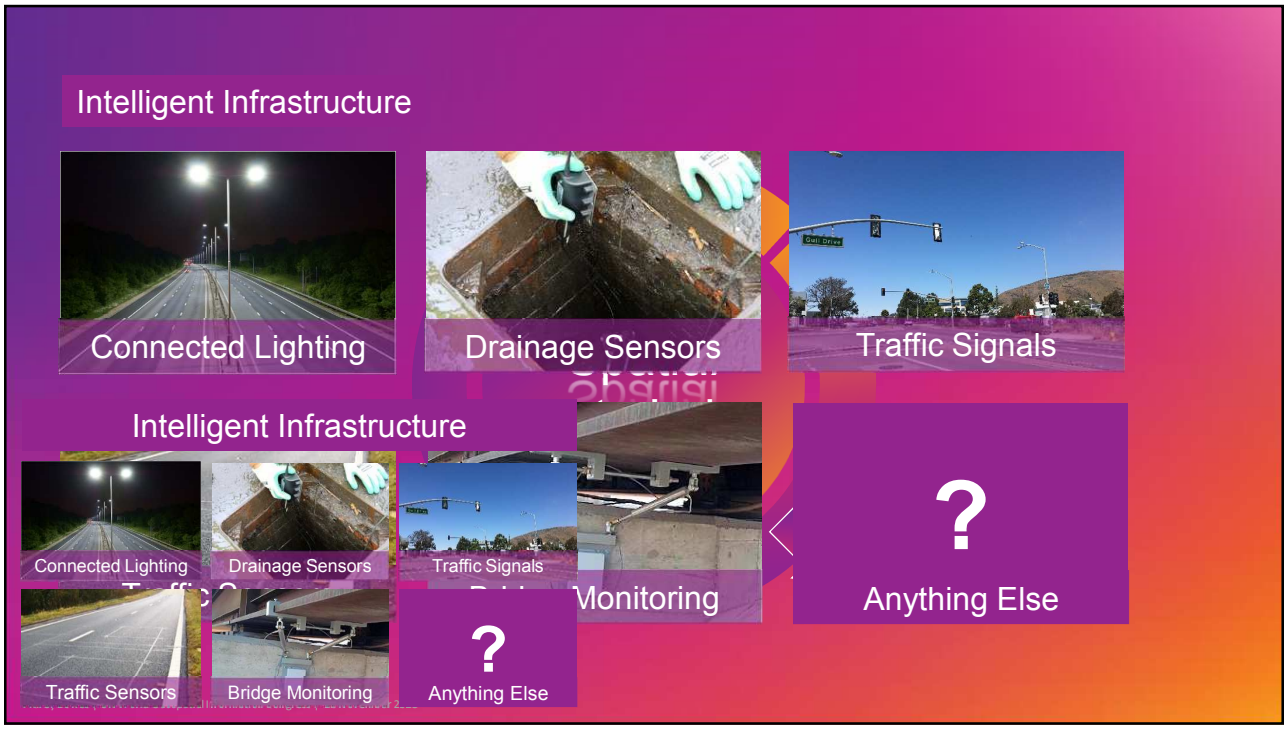
Intelligent Infrastructure Management Solutions



The McKinsey Global Institute estimates that IoT applications for transportation, public health and other municipal settings "could have an economic impact of $930 billion to $1.6 trillion per year in 2025

Source: Acil Tasman Study




Intelligent Infrastructure
Connected Lighting
Drainage Sensors
Traffic Signals
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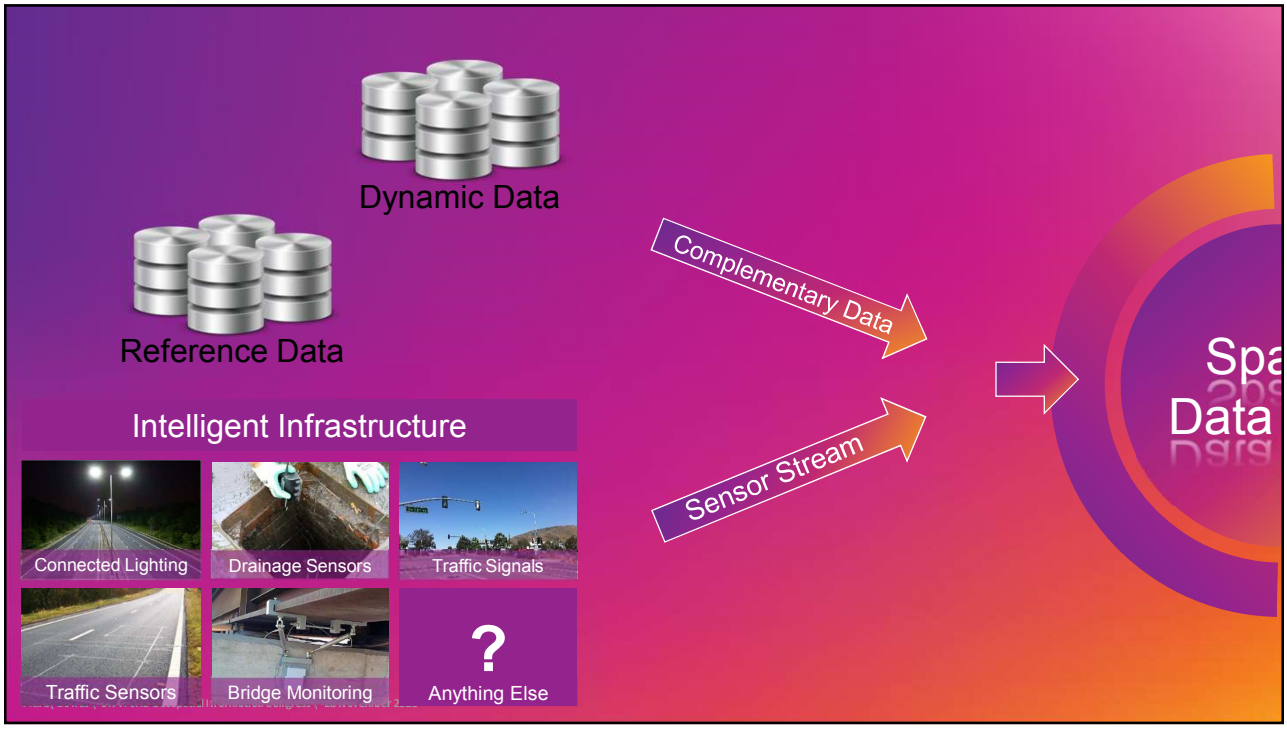
Connected Lighting
Drainage Sensors
Traffic Signals
Monitoring
?
Anything Else
Traffic Sensors
Bridge Monitoring
?
Anything Else


Dynamic Data
Reference Data
Complementary Data
Sensor Stream
Spa
Data
Intelligent Infrastructure
Connected Lighting
Drainage Sensors
Traffic Signals
Traffic Sensors
Bridge Monitoring
?
Anything Else

Examples: Intelligent Infrastructure Management

Keeping the street lights on in London's Borough of Hounslow, UK

When Hounslow replaced its legacy sodium lights with connected LED lights, the city implemented a solution to control commissioning of the assets and receive condition data from the lamps.

✓ **Result: more efficient maintenance, and far fewer citizen complaints.**

Keeping traffic flowing smoothly for a large Australian metropolis

When traffic signals develop faults, an alarm is set so that resources can be allocated to investigate the situation as quickly as possible.

✓ **Result: appropriate traffic management actions can be taken to minimize disruption.**

EXAMPLE

Storm Drain Water Monitoring and Flood Mitigation

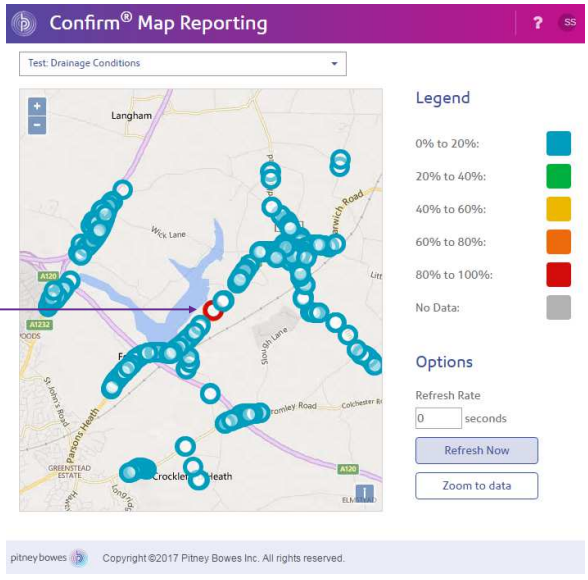
Storm Drain Monitoring – Base State

Active drainage sensors monitor the level of water in the storm drain system and send the current condition back to the asset management system

Weather:
Dry

Status:
Storm Drain system is empty apart from **one location**

Action required:
Investigate single drain

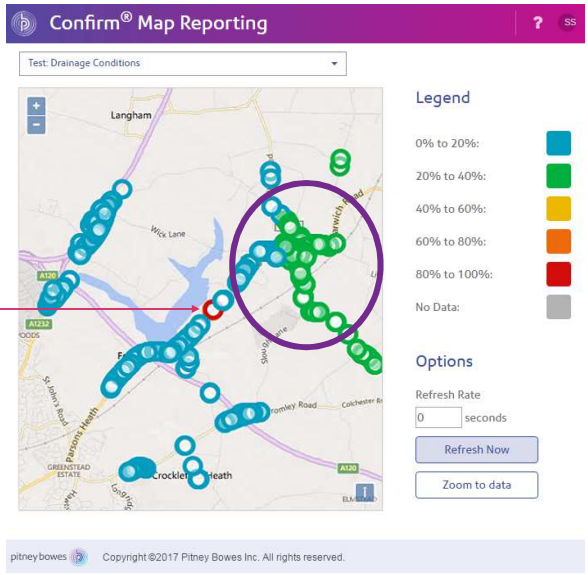


Storm Drain Monitoring – Rain Begins

Weather:
Steady rain, more intense on hills

Status:
Low levels of water in the storm drain system, single blockage still obvious

Action required:
Investigate and clear blockage

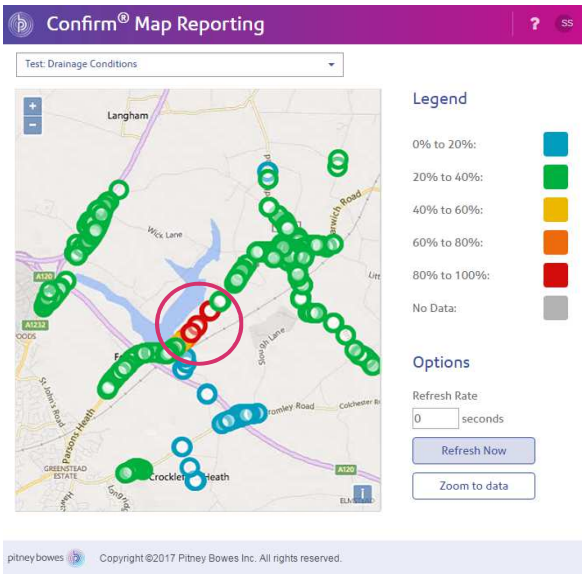


Storm Drain Monitoring – Weather Event

Weather:
Persistent rain

Status:
A pinch point is immediately obvious as a cluster of storm drains are filling towards the bottom of the valley

Action required:
Immediate remedial action, clear the pinch point

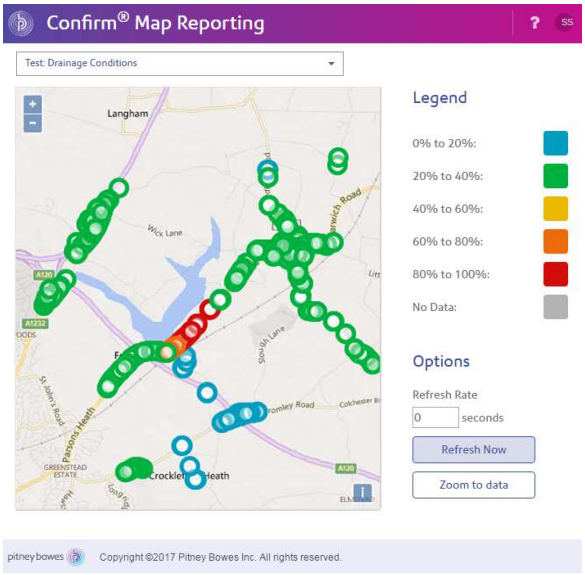


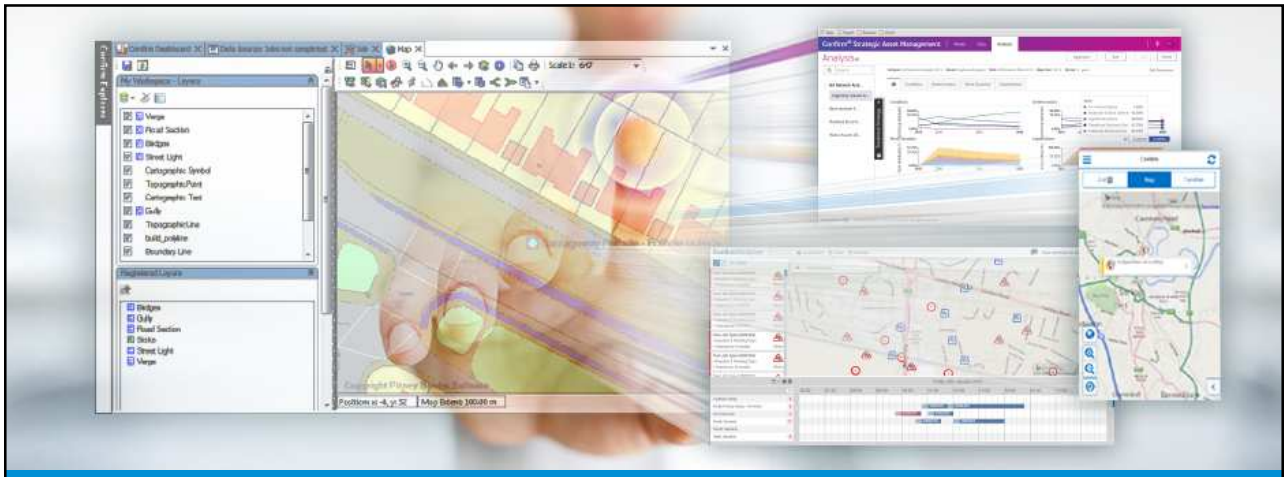
Storm Drain Monitoring – Surface Flooding

Weather:
Continuous rain

Status:
Surface water flooding, long chain of filled storm drains

Action required:
Potential diversion and emergency action





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Thank you