

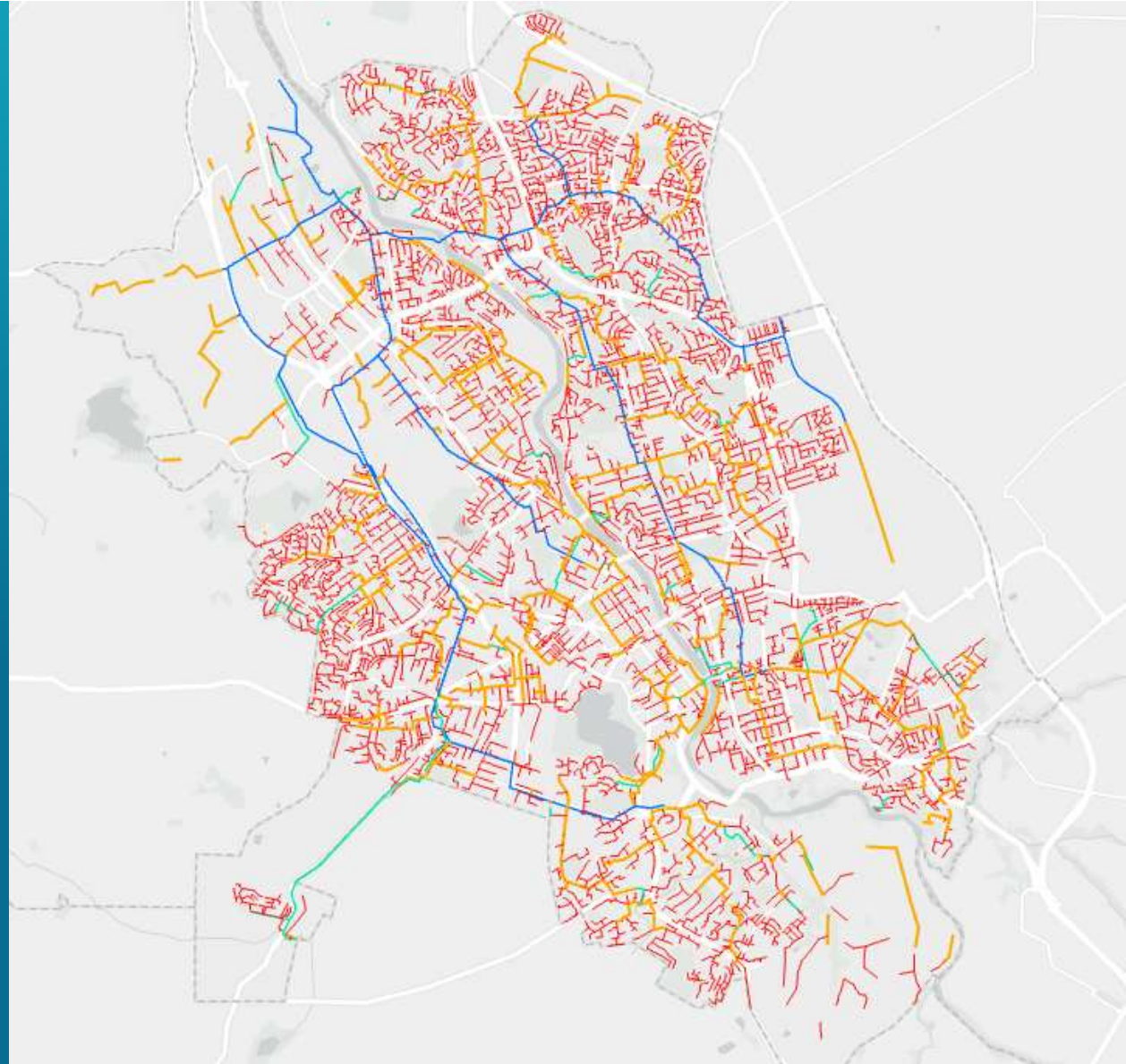
# Network Capacity Assessment Tool (NCAT)

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 Tonkin+Taylor

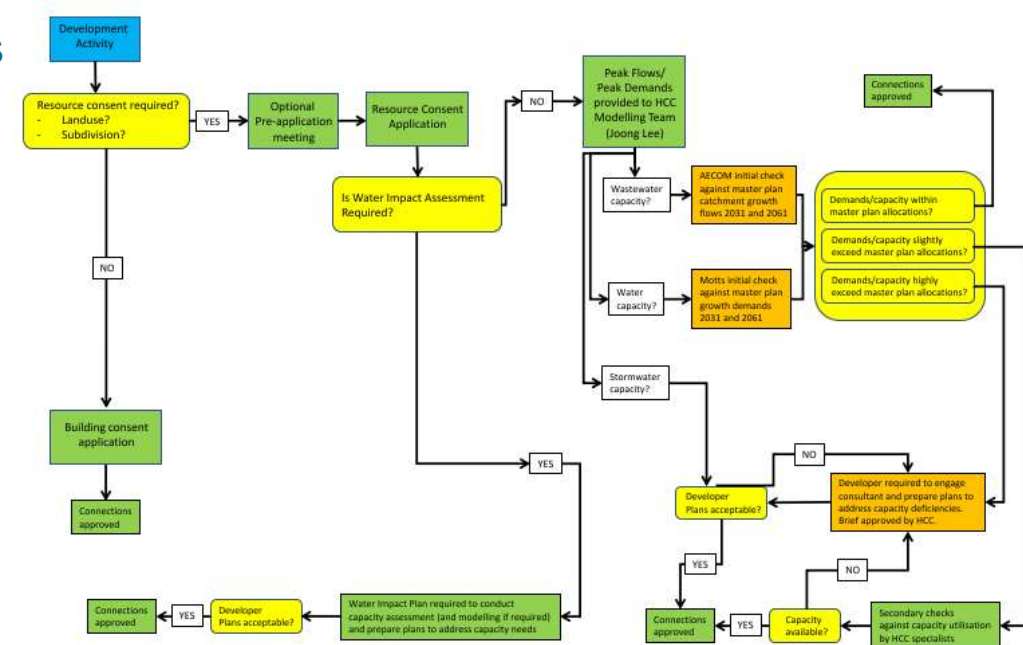


In the beginning....



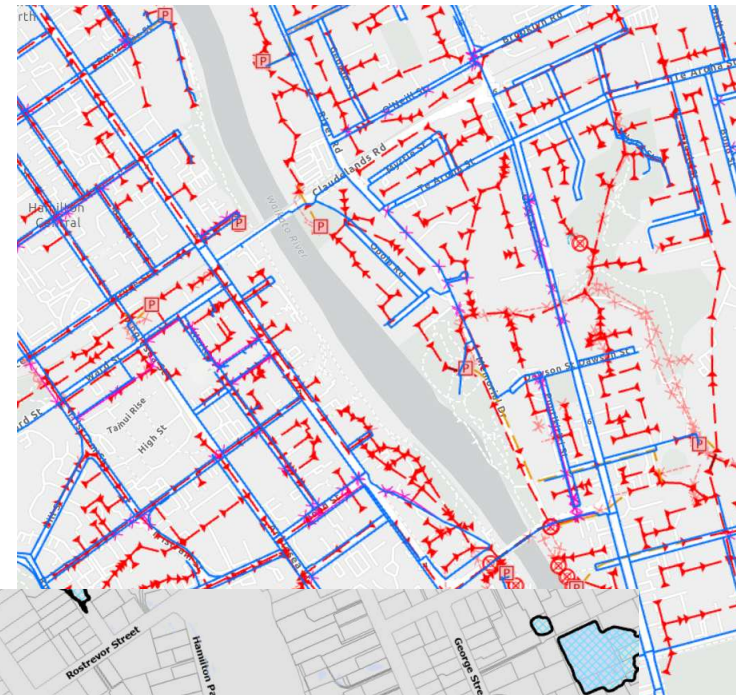
# The WHY

- Complex development application process
- Large volume of development enquiries and applications
- Difficulties tracking the available capacity within the water and wastewater networks
- Hydraulic models updated periodically every few years
- No in-house hydraulic modelling capabilities



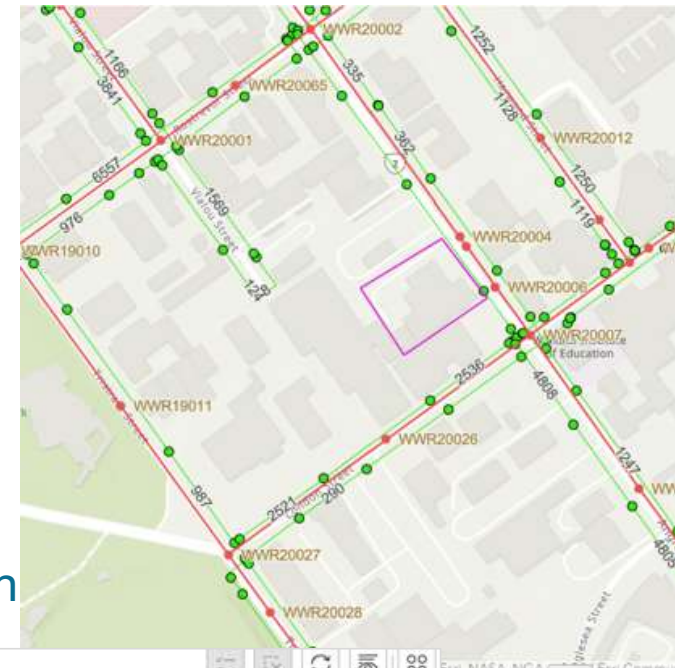
# The WHAT

- Easy-to-use tool
- Spatial interface
- Displaying available remaining capacity – ‘first look’ rapid and early assessment of available capacity to assess where additional analysis is required
- Tracking development enquiries
- Not replacement for hydraulic modelling
- Bridge the gap between hydraulic models and development engineers
- Internal and external capacity view



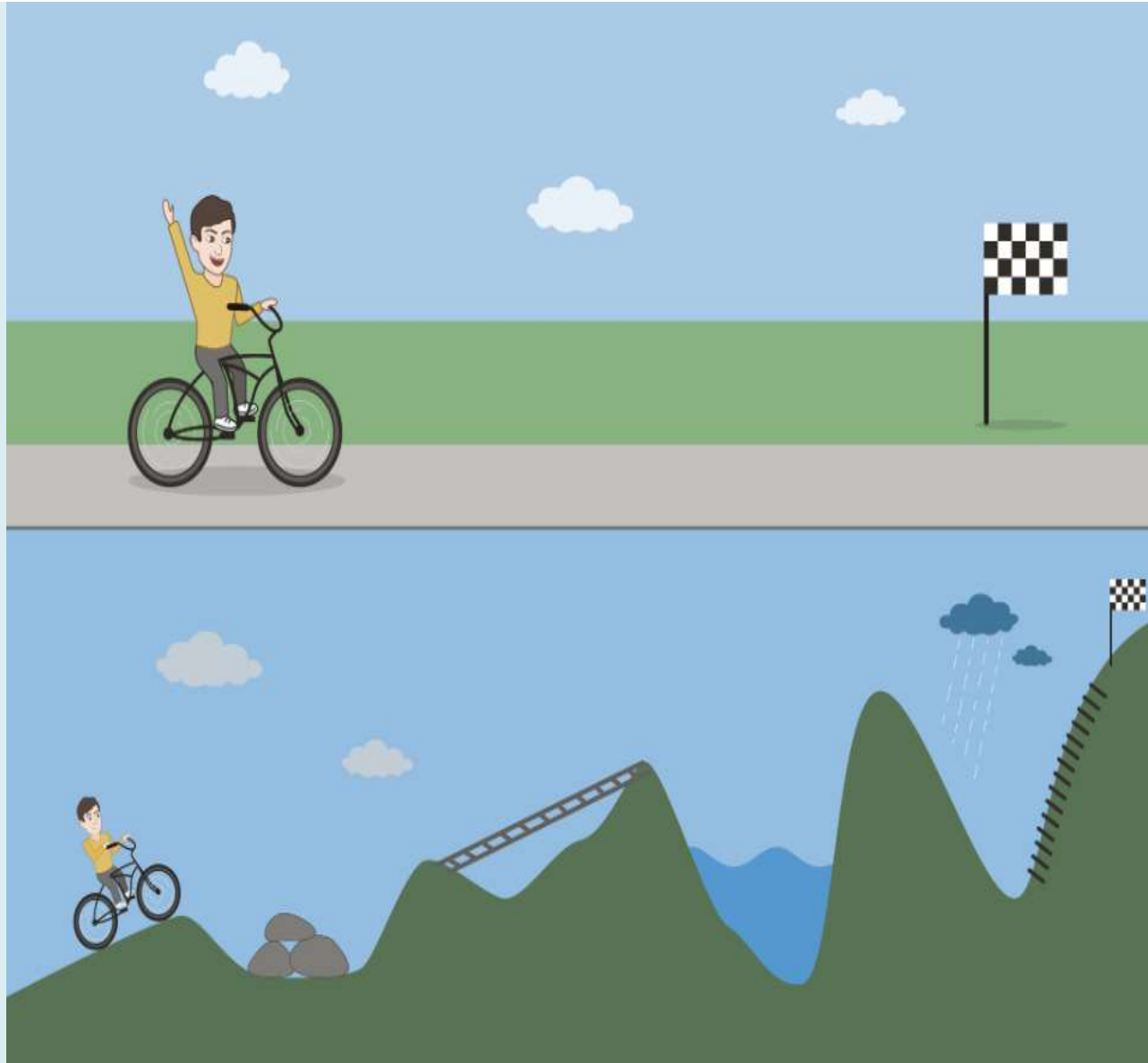
# The HOW

- Talk to T+T
- Easy-to-use tool
- Use latest hydraulic model results
- Spatial interface
- Display available remaining capacity (external and internal)
- **Track, manage and store the development queries in a single place, linking to the capacity and modelling information**

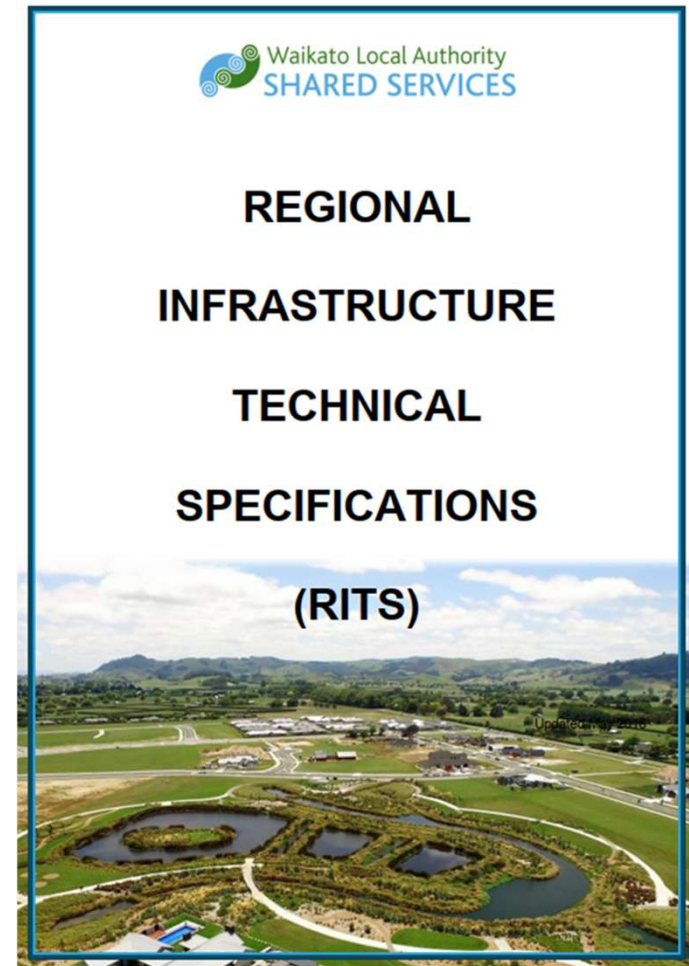


Proposed Popula...	Phase	Reference	Comments	Developer Name	Wastewater Nod...	Water Node ID
25	Enquired	abc	none	Bob the Builder	WWO25054	HYPOWL0038
4	Enquired	aaa		aaa	WWQ11078	POINT_173867_1_WI
4	Enquired	122353535		ABC Construction	WWO25034	HYSTKL0004
4	Enquired	qwqwqwqwq		ABC Construction	WWO24068	POINT_109368_1_Hy

# Plan vs reality



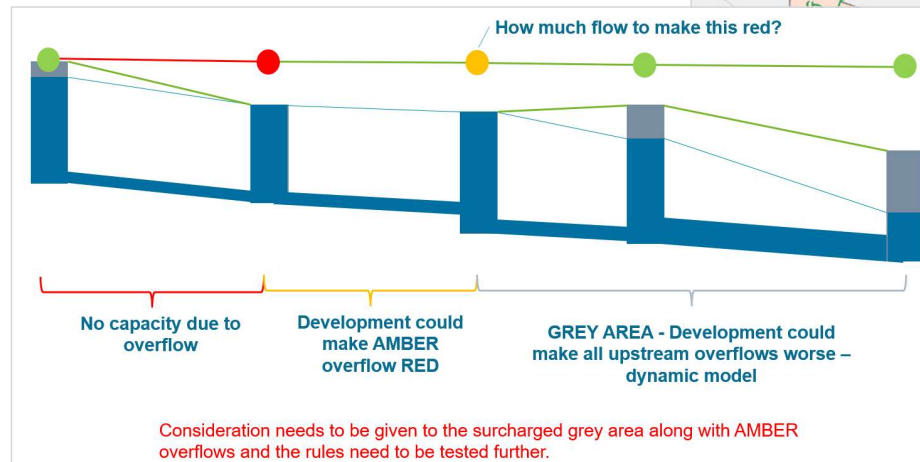
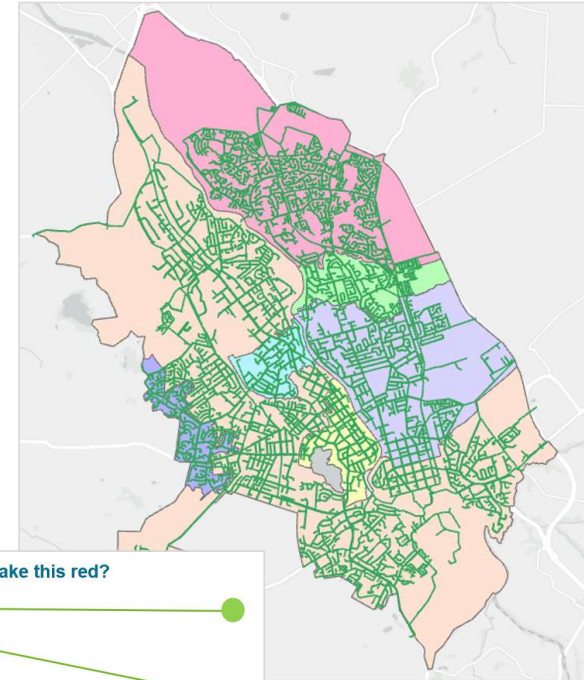
- The required ability of the tool:
  - Use model outputs to estimate remaining capacity (using RITS) as total equivalent population at each modelled node and pipe
  - Test a development
  - ‘Lock’ capacity when a development is approved
  - Output tracked development data
  - Publish capacity maps (to the public)
  - Apply traffic light system to display the available capacity results
  - Consider ‘special’ areas within city extents and strategic vs local network



# The REALITY

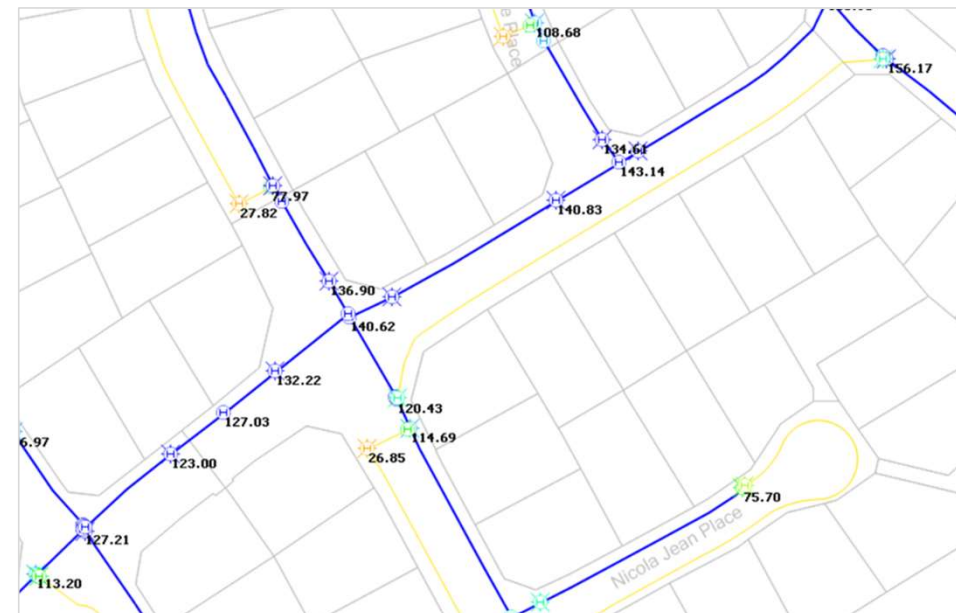
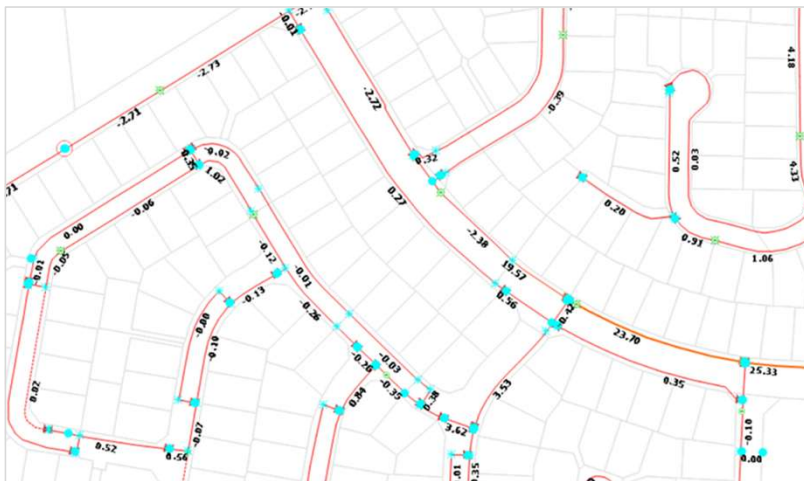
- Example issues encountered:

- Models in a process of updating
- Results reflective of latest asset data but not operational regime
- Limited data and data with gaps (pipe trace broken by gaps in model results)
- Understanding of 'network breaks' locations
- Application of RITS (assumptions to replace / supplement rules which are not appropriate for remaining capacity assessment, such as infiltration allowances)
- Adjusting initial results display rules

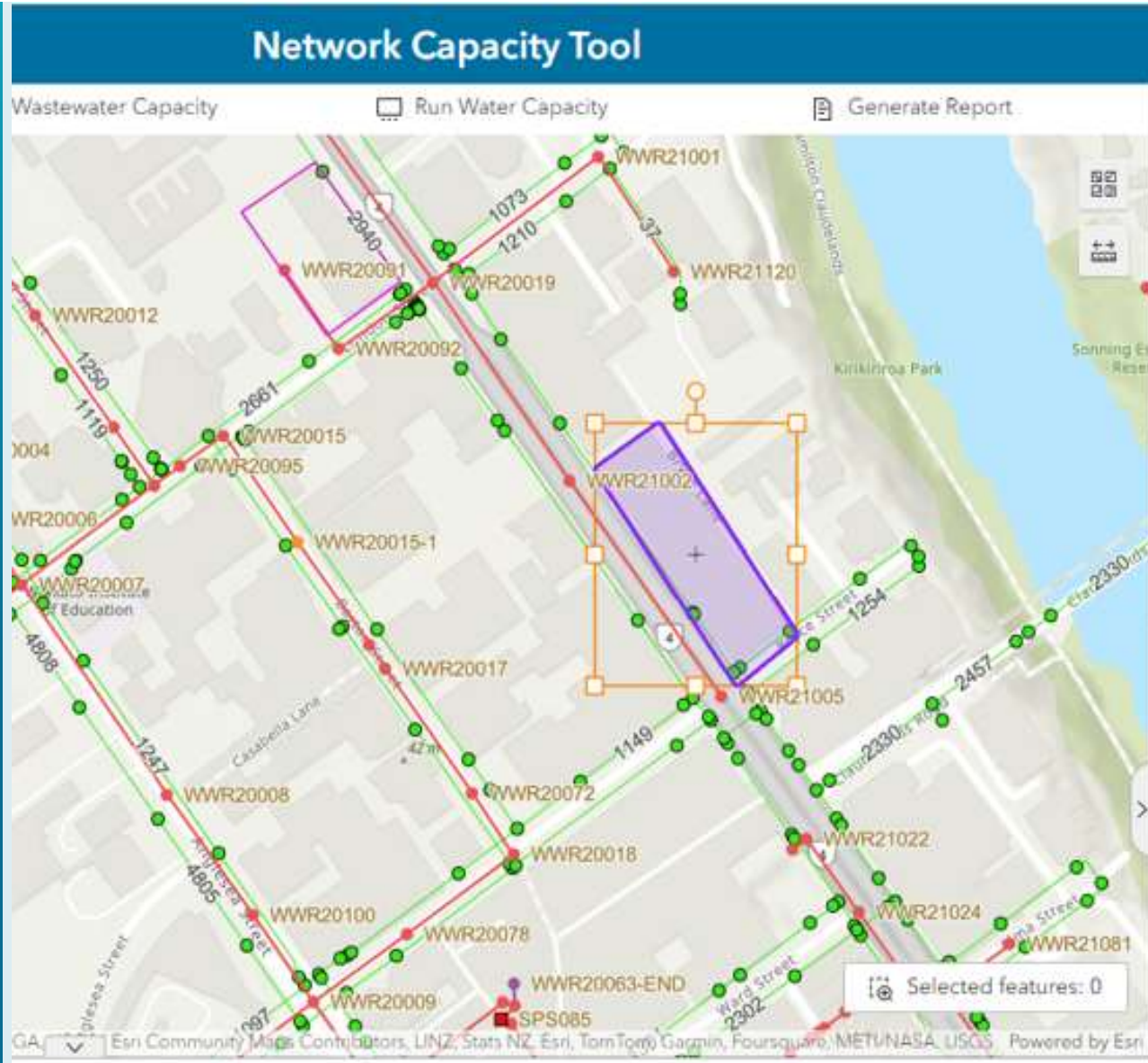


# The SOLUTION

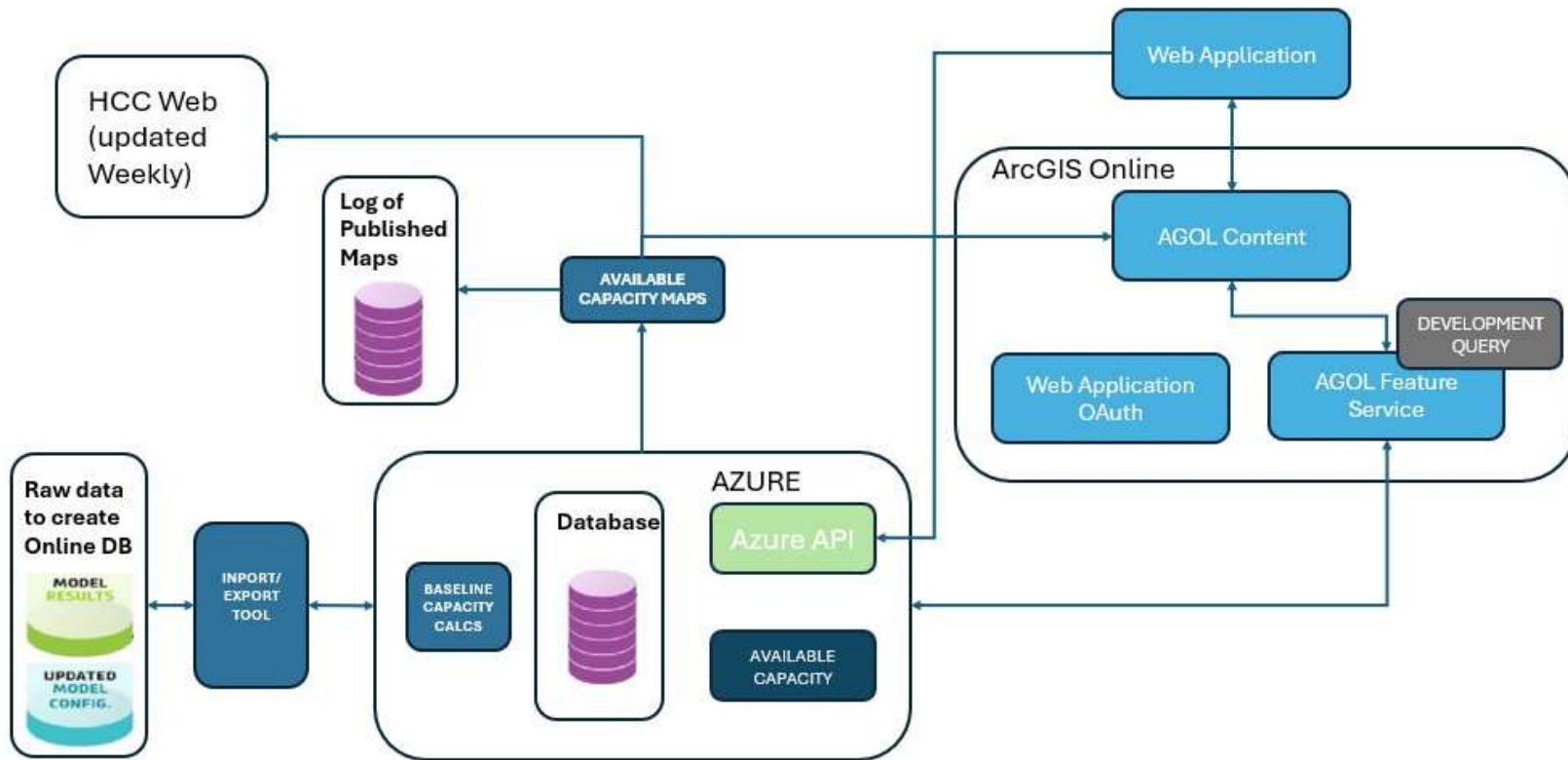
- Obtained hydraulic models and extracted required data in appropriate format
- Frequent regular technical team discussions
- Multiple GIS rule tests and engineering calculations to confirm and lock in the rules
- Estimating the remaining available capacity using appropriate engineering methods



# Tool Demo



# The SOLUTION - Architecture



# The Tool

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Find address or place

Overview
Edit Development
Run Wastewater Capacity
Run Water Capacity
Generate Report

Selected features: 0

Development Areas    Network Capacity Analysis Output - WW output view    Network Capacity Analysis Output - WS output view

Proposed Popula...	Phase	Reference	Comments	Developer Name	Wastewater Nod...	Water Node ID
25	Enquired	abc	none	Bob the Builder	WWO25054	HYPOWL0038
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4	Enquired	qwqwqwqwq		ABC Construction	WWO24068	POINT_109368_1_Hy

### Layer Control

- Network Capacity Analysis Output - WS
- Network Capacity Analysis Output - WW
- Development Areas
- WW Capacity Maps
- WS Capacity Maps

### Overview

**Layer Control**

This allows the user to turn on and off layers that are displayed on the map

**Edit Development**

This allows the user to add, edit and delete development areas and associated data. A new development area is added with the "Create features" tool. Once a polygon has been added a data entry will appear to allow the user to add attributes about the development.

**Run Wastewater Capacity or Run Water Capacity**

This allows the user to check available capacity in the network using the interactive tool. The user selects the "Select Area" tool then chooses the required development area. The user can then use the "Assigned Node" tool to select the required wastewater or water node. Once the node has been assigned the user presses the "run" button to check available capacity.

# The Tool

Tonkin+Taylor
Find address or place

Overview | Edit Development | Run Wastewater Capacity | Run Water Capacity | Generate Report

### Layer Control

- Network Capacity Analysis Output - WS
- Network Capacity Analysis Output - WW
- Development Areas
- WW Capacity Maps
- WS Capacity Maps

### Wastewater Connection

**1. Area**

Area Name: 123456

**2. Connection**

Node ID: WWR21002

Description: Sewer Manhole

### Capacity Trace Settings:

Included Phase(s): 3 selected

Baseline Model: Current

Proposed Popula...	Phase	Reference	Comments	Developer Name	Wastewater Nod...	Water Node ID
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# The Tool

Tonkin+Taylor
Find address or place

Overview | Edit Development | Run Wastewater Capacity | Run Water Capacity | Generate Report

### Layer Control

- Network Capacity Analysis Output - WW
- Network Capacity Analysis Output - WS
- Development Areas
- WW Capacity Maps
- WS Capacity Maps

### Wastewater Connection

**1. Area**

Area Name: 123456

**2. Connection**

Node ID: WWR21002

Description: Sewer Manhole

### Capacity Trace Settings:

Included Phase(s)

Baseline Model

Proposed Popula...	Phase	Reference	Comments	Developer Name	Wastewater Nod...	Water Node ID
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# The Tool

Tonkin+Taylor
Network Capacity Tool

Find address or place

Overview
Edit Development
Run Wastewater Capacity
Run Water Capacity
Generate Report

**Layer Control**

- Network Capacity Analysis Output - WS
- Network Capacity Analysis Output - WW
- Development Areas
- WW Capacity Maps
- WS Capacity Maps

**Water Supply Connection:**

**1. Area**

Area Name: 123456

**2. Connection**

Node ID: POINT\_108899\_1\_HYVICT0551

Description: POINT\_108899\_1\_HYVICT0551

**Capacity Trace Settings:**

Included Phase(s)

Baseline Model

Development Areas    Network Capacity Analysis Output - WW output view    Network Capacity Analysis Output - WS output view

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# The Tool

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Network Capacity Tool

Overview
Edit Development
Run Wastewater Capacity
Run Water Capacity
Generate Report

Selected features: 1

Development Areas
Network Capacity Analysis Output - WW output view
Network Capacity Analysis Output - WS output view

Proposed Popula...	Phase	Reference	Comments	Developer Name	Wastewater Nod...	Water Node ID
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**Layer Control**

- Network Capacity Analysis Output - WS
- Network Capacity Analysis Output - WW
- Development Areas
- WW Capacity Maps
- WS Capacity Maps

**Add Report Fields**

**Edit feature**

Settings

**Development Areas**

Population:

Type:

Phase:

Reference:

Comments:

Developer Name:

Update
Delete

Get Report For '123456'

# Questions



