

Elevating GIS through Dashboards

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Elevating GIS through

Dashboards

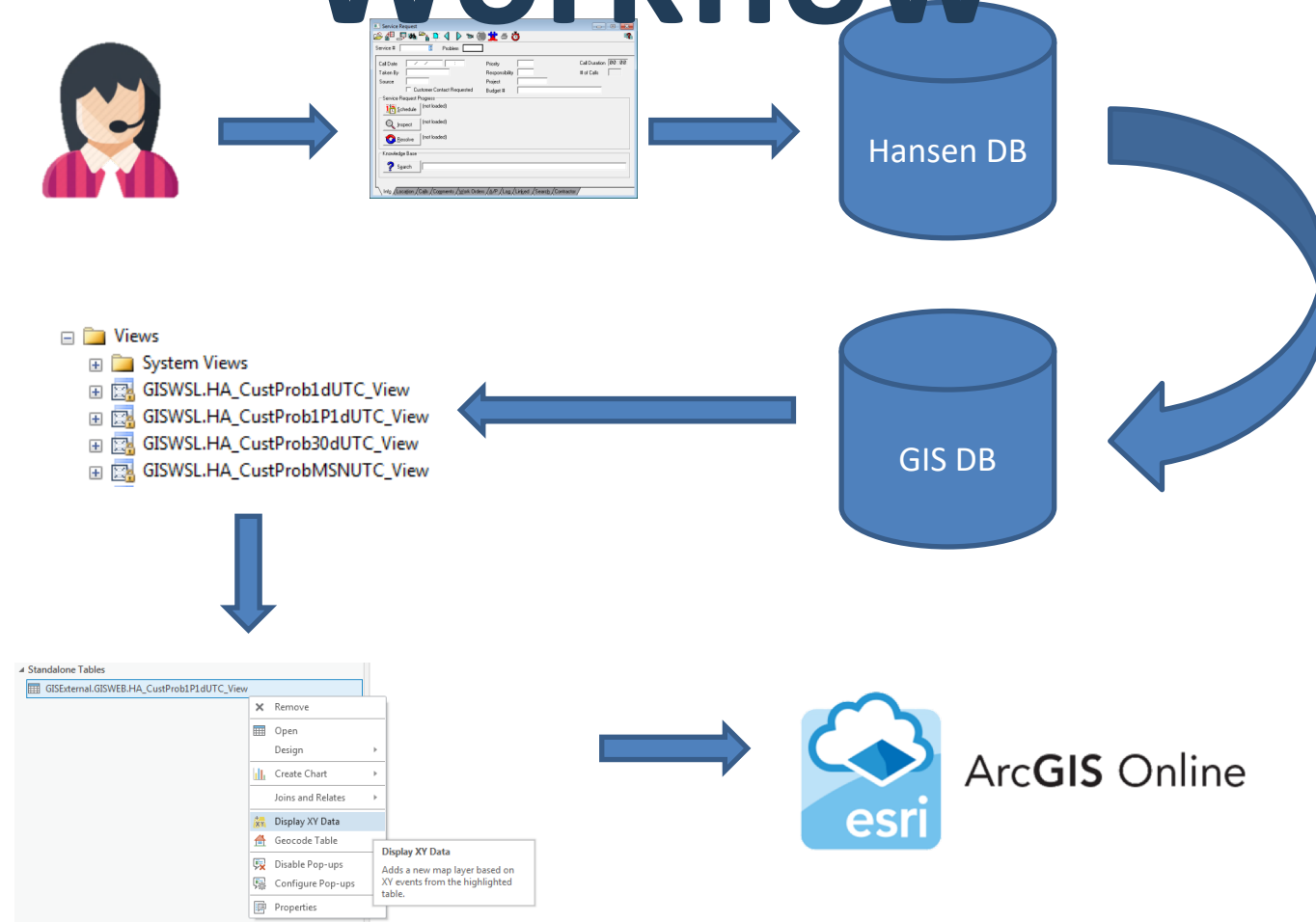
- This presentation will show how Watercare is using dashboards to help provide operational insights to the organisation.
- This presentation will focus on the processes and workflows used by the GIS Team including discussing how the GIS team sources data from a tabular database and converts it to spatio-temporal data and how this information is used to create the dashboards. Supported with various examples this presentation will also talk about how the ESRI Operations Dashboard Application and the Dashboard Theme in Web App Builder was used to provide live and up to date information which helps Watercare provide clear and accurate information to the public.
- This presentation will conclude with talk about future projects regarding how the GIS team is planning to add live spatial information of our fleet vehicles to allow to dashboards to provide more efficient and accurate information to the rest of the business

Elevating GIS through Dashboards

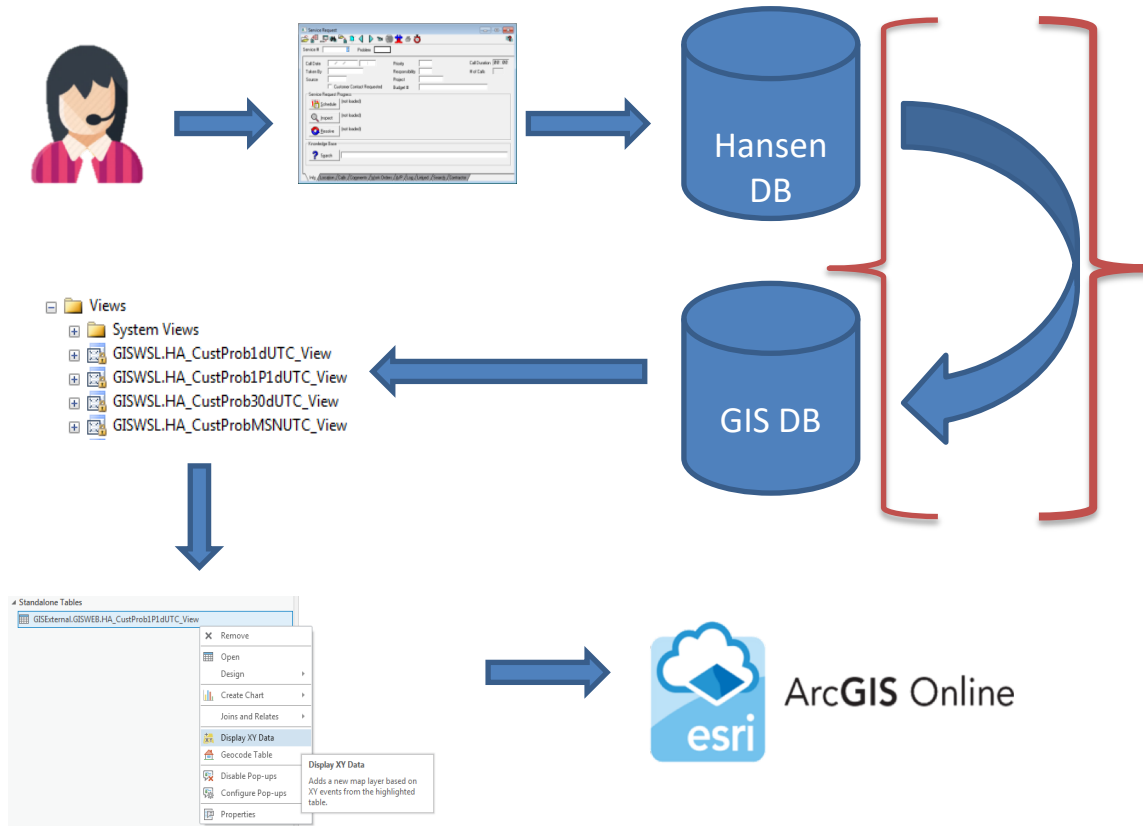
- Service Request Point
- Work Order Request
- Live Data
- Web App Builder – Dashboard Theme
- Operations Dashboards
 - Map Actions
 - Selectors – Attribute and Spatial
 - Operations
 - Embedded Content Pane
- Future Plans

Service Request (Points)

Workflow



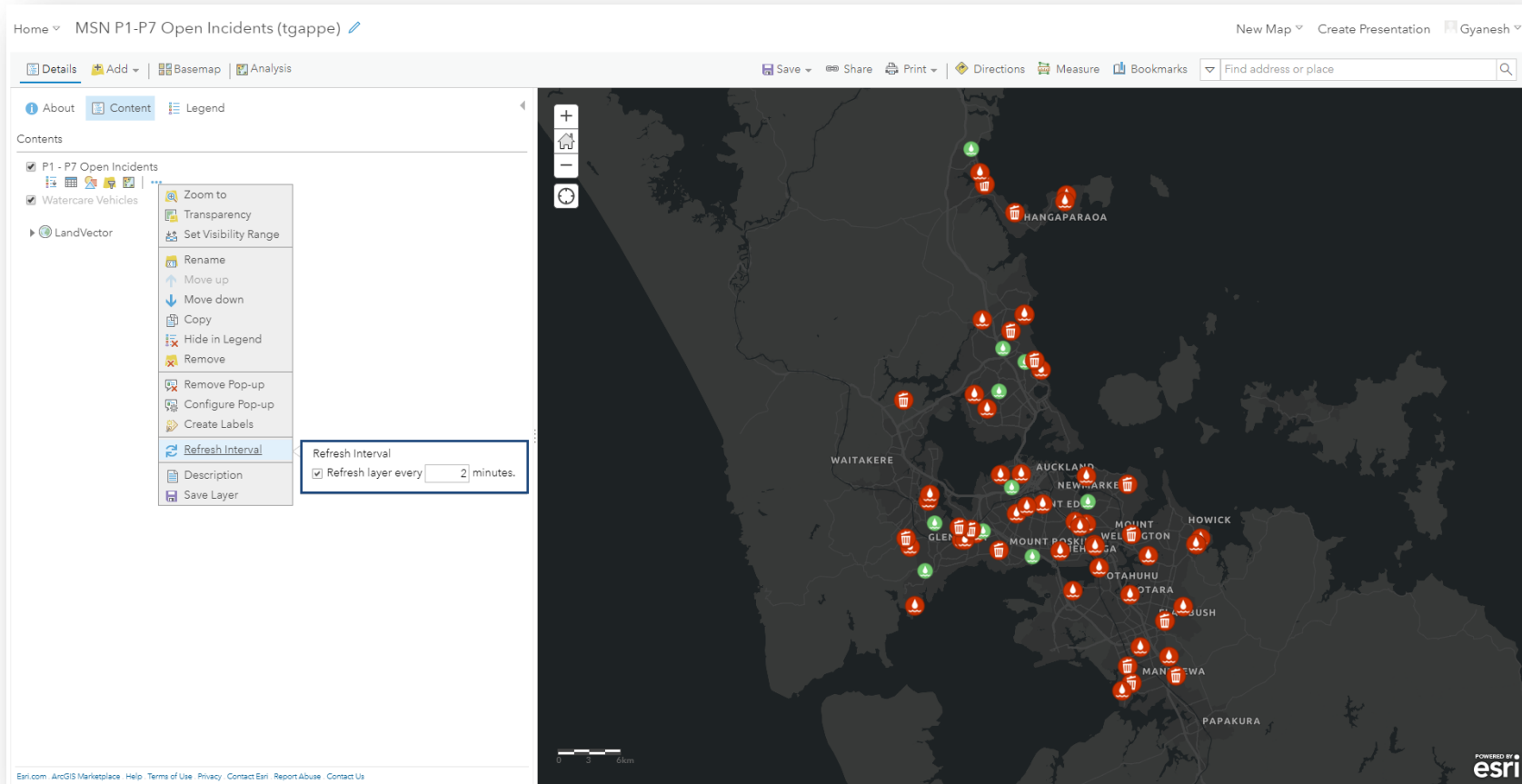
Live Updates



- GIS SQL Server is updated every 10 minutes from Hansen
- The views also get updated as the data is updated
- New Data needs to be visible on the dashboards without requiring the user to refresh the page



Live Updates



- Refresh interval between 2-5 minutes is applied to layers in the Web Maps



Work Order Request (Point and Lines)

BreakRateAnalysis.tbx

- SupermainBreaksPart1
- SupermainBreaksPart2
- SupermainBreaksPart3
- SupermainBreaksPart4
- SupermainBreaksPart5
- SupermainBreaksPart6
- SupermainBreaksPart7

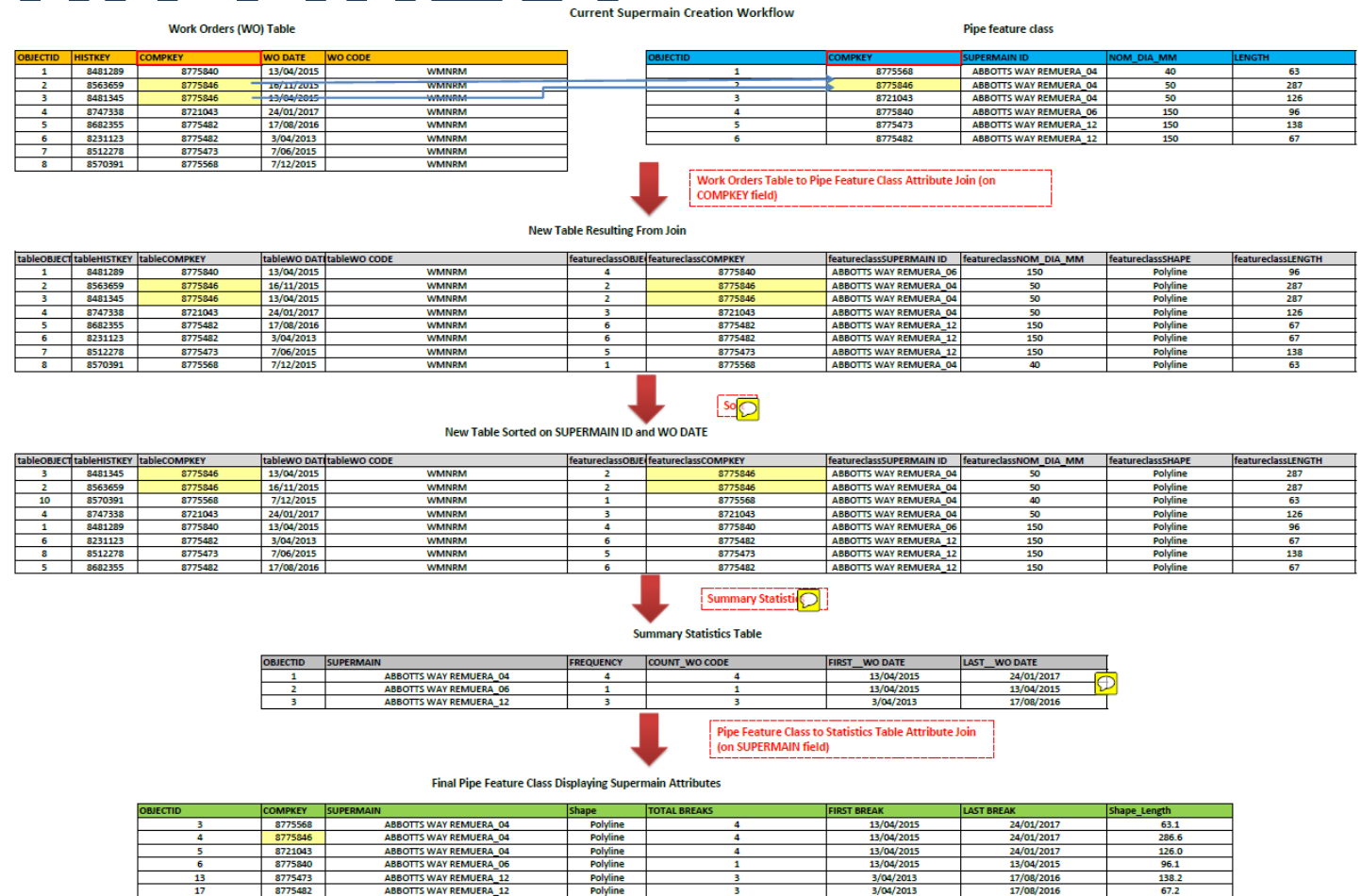


WatermainBreaks.gdb

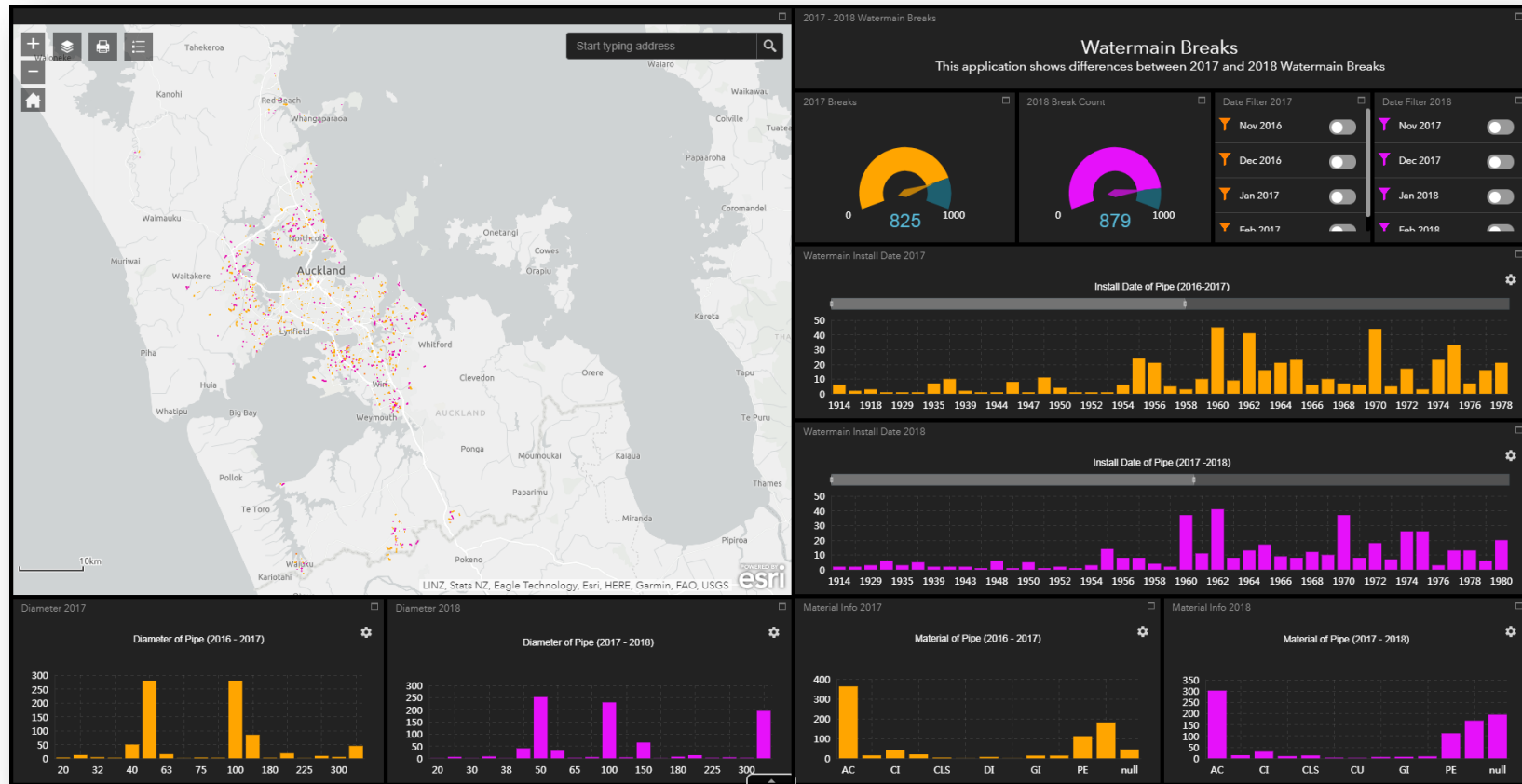
- W_Pipe
- WatermainBreaks_Sort_Statistics



and Lines

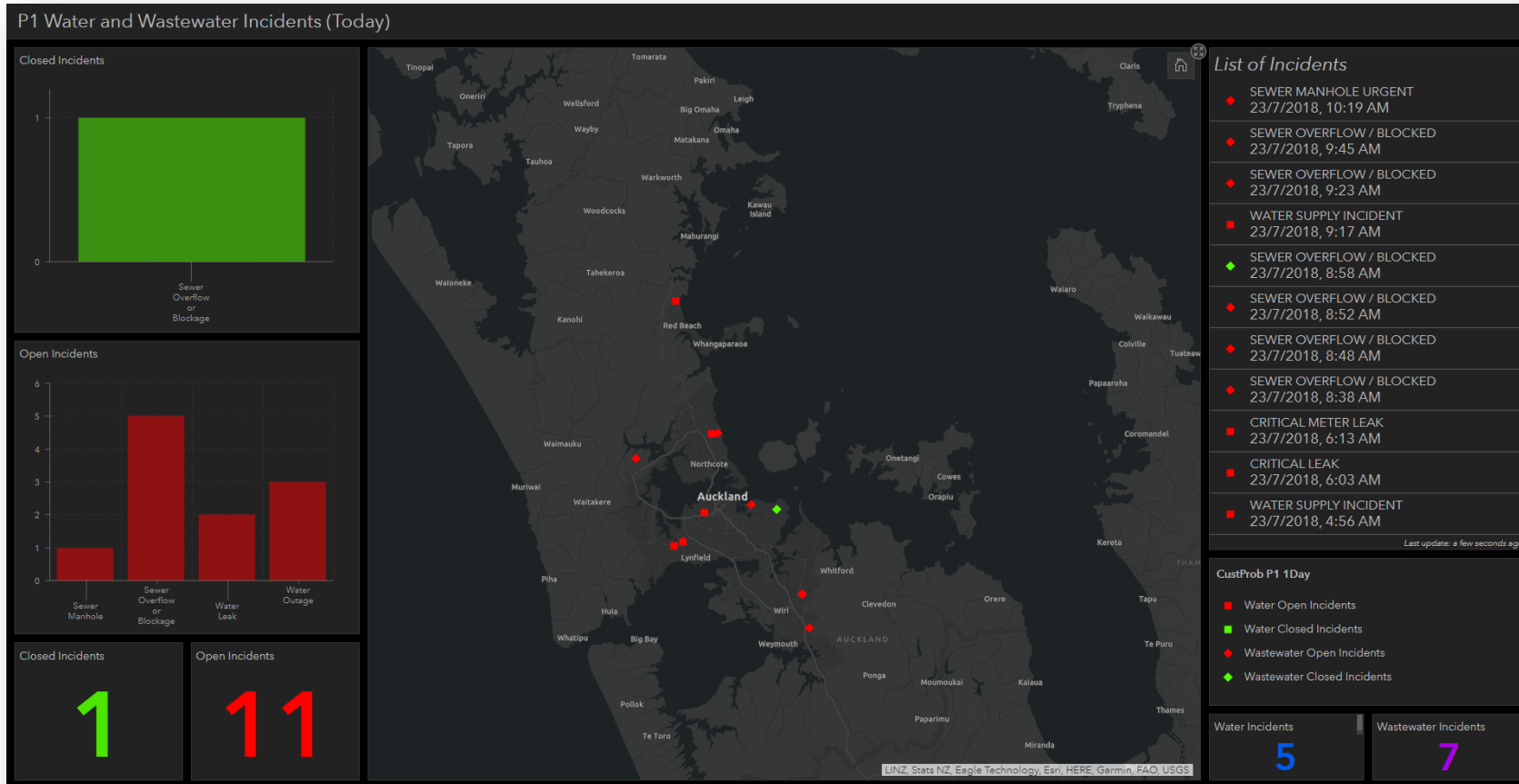


Web App Builder – Dashboard Theme



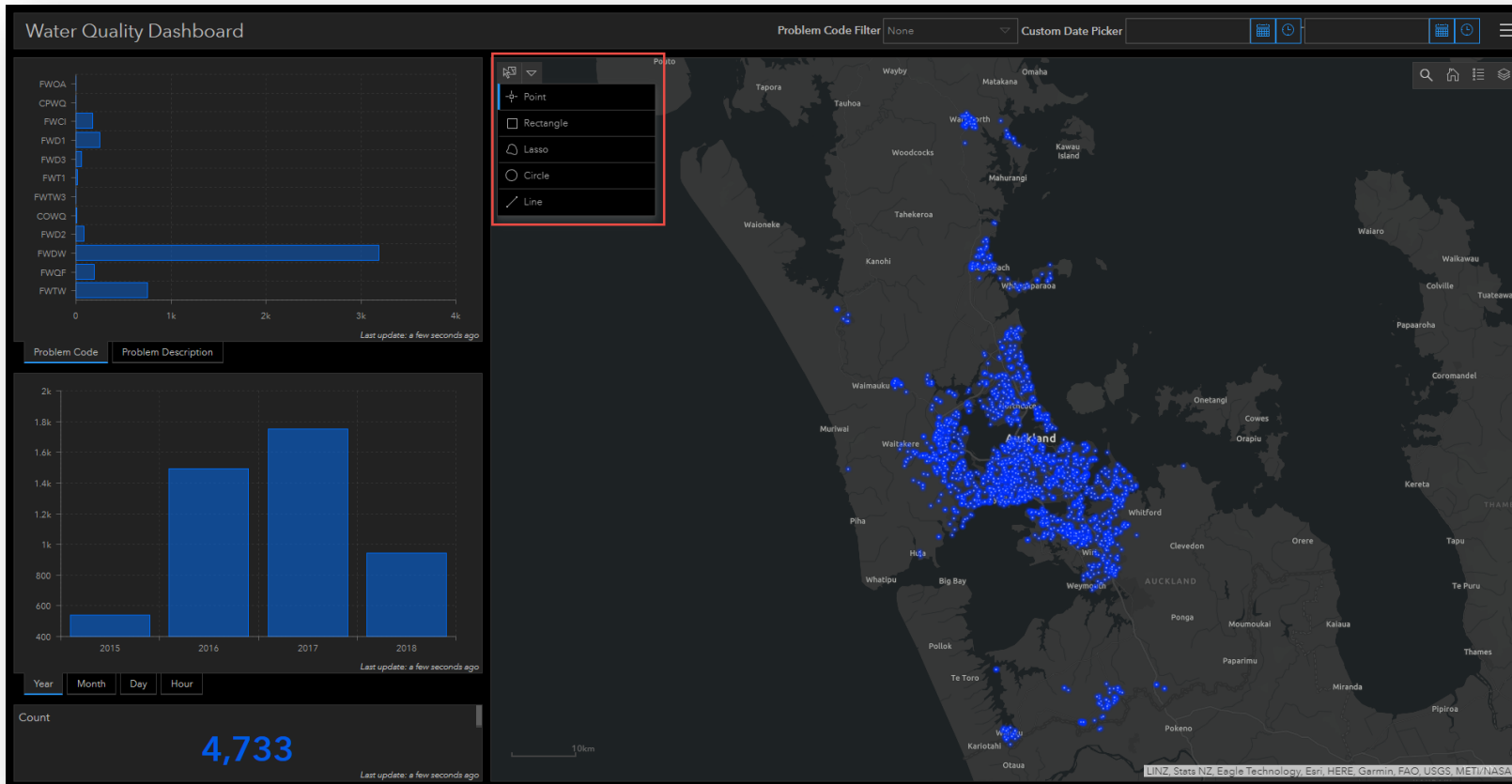
- Ideal for lighter datasets
 - Limited in terms of including external datasets and comparing multiple maps
 - Becomes quite slow with the more widgets that is added to the application
- Watercare**
An Auckland Council Organisation

Operations Dashboard



- Ideal for larger datasets
- Has functionality which allows data to be added to the dashboard which is not in the web map

Map Selectors – Operations Dashboard



- Filter using user drawn extent
 - Point
 - Rectangle
 - Lasso
 - Circle
 - Line
- Filter based on other features on the maps



Map Selectors – Operations

Dashboard

The dashboard displays a map of Auckland with watermain breaks highlighted in red. The interface is divided into several sections:

- Query Watermain Breaks:** A panel on the left with a slider set to 0 and filters for "Total Breaks Greater Than or Equal To".
- Water Supply Zone:** A pop-up window showing details for the CBD zone, including GIS ID 962,322, DZ CODE ACBA, and SYMBOLOGY 3.
- List of Watermain Breaks:** A table on the right listing specific breaks with details like Supermain ID, Total Workorders, Material, and Supermain length.
- Summary:** A large blue number "290" representing the total number of pipes, with a "Last update: a few seconds ago" timestamp.

| Supermain ID | Total Workorders | Material | Supermain length |
|-----------------------------------|------------------|----------|------------------|
| Albert Street Auckland Central_19 | 4 | CLCI | 153.17 |
| Albert Street Auckland Central_19 | 4 | CLCI | 153.17 |
| Albert Street Auckland Central_19 | 4 | CLCI | 153.17 |
| Albert Street Auckland Central_19 | 4 | CLCI | 153.17 |
| Madden Street Auckland Central_07 | 4 | CLS | 25.21 |
| Albert Street Auckland Central_19 | 4 | CLCI | 153.17 |
| Albert Street Auckland Central_19 | 4 | CLCI | 153.17 |
| Madden Street Auckland Central_07 | 4 | CLS | 25.21 |
| William Place Freemans Bay_01 | 3 | | |



Operations Dashboard –

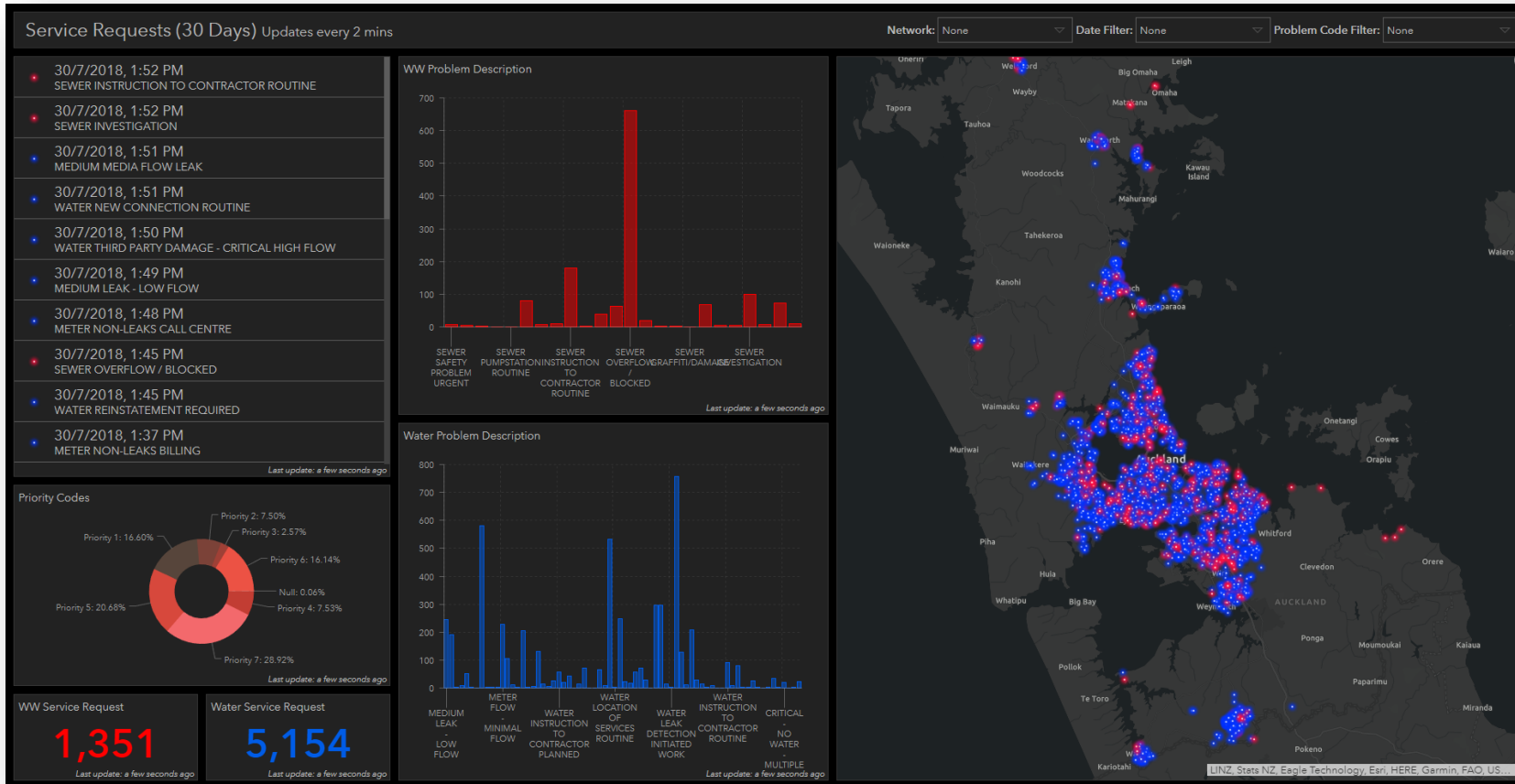
Multiple Maps

The screenshot displays the 'Watercare GIS Watermain Breaks' dashboard. On the left, there is a sidebar with filters: 'No. of breaks equal to or greater than' (set to 0), 'Supermain length equal to or greater than' (set to 'e.g 10'), 'First Date' (set to 'None'), 'Last Date' (set to 'None'), and 'Service Request Problem Code'. The main area features two map views: a top-left map showing colored supermain regions (Massey, Ranui, Te Atatu Peninsula, Te Atatu South, West Harbour, Waitemata Harbour) and a top-right map showing a street-level view with blue dots representing breaks. A bottom-right panel titled 'List of Watermain Breaks' contains a table with columns for Supermain ID, Total No. of Breaks, Material, and Supermain length. Below the table is a 'Number of Pipes' widget showing a large blue '310' with a water tap icon.

| Supermain ID | Total No. of Breaks | Material | Supermain length |
|------------------------------|---------------------|----------|------------------|
| Tango Place Henderson_01 | 16 | AC | 523.72 |
| Tango Place Henderson_01 | 16 | AC | 523.72 |
| Tango Place Henderson_01 | 16 | PVC | 523.72 |
| Tango Place Henderson_01 | 16 | PVC | 523.72 |
| Tango Place Henderson_01 | 16 | AC | 523.72 |
| Triangle Road Massey_70 | 6 | PVC | 284.88 |
| Triangle Road Massey_70 | 6 | PVC | 284.88 |
| Triangle Road Massey_70 | 6 | PVC | 284.88 |
| Woodford Avenue Henderson_06 | 4 | AC | |

- Filter on map extent
- Can control which widgets/charts will get filtered
- Can add multiple maps and spatial filters can be

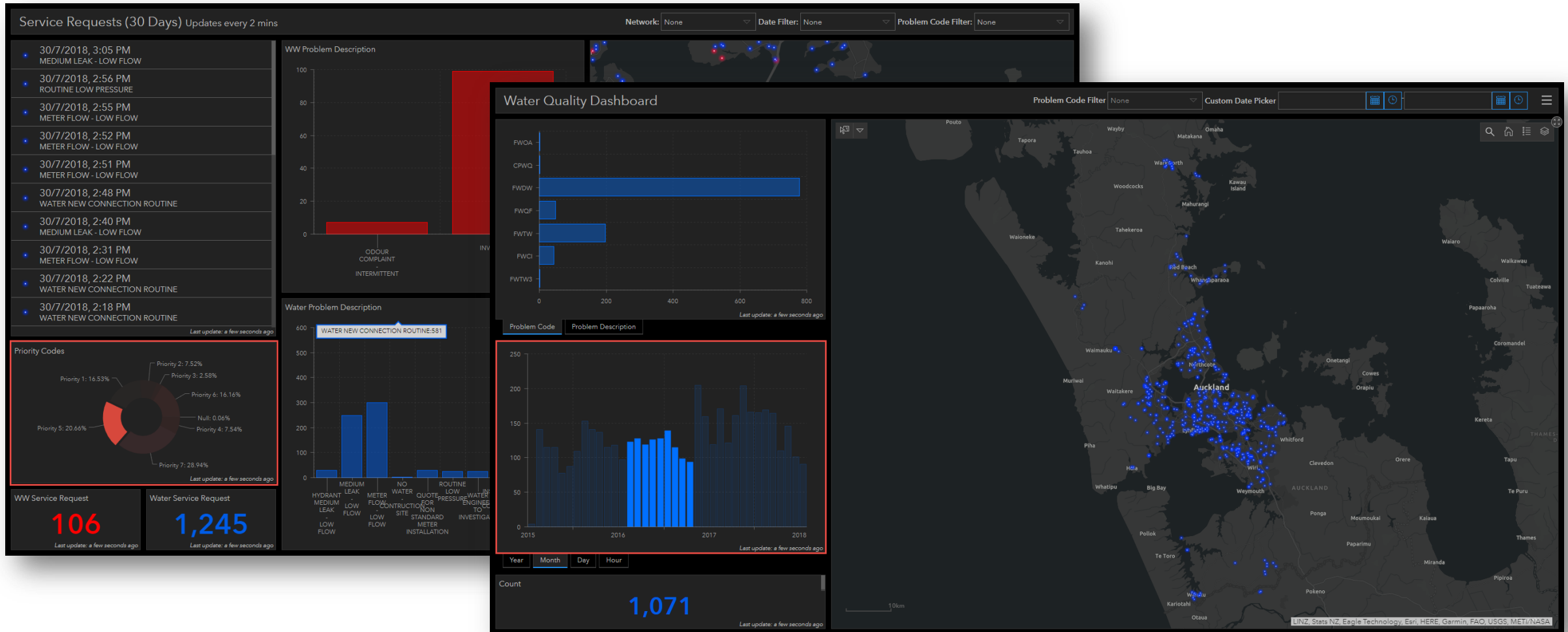
Layer Selectors – Operations Dashboard



- Single Selector
- Multiple Selector
- Category Selector
- Date Selector
- Number Selector



Single and Multiple Selectors



Number Selector

Watermain Breaks (WMRM, WMRL Workorders)

Query Watermain Breaks

Total Breaks Greater Than or Equal To

To

0

Supermain length equal to or greater than

e.g 10

First Workorder Date

None

Last Workorder Date

None

List of Watermain Breaks

Supermain ID: Birdwood Road Massey_05
Total Workorders: 31
Material: PVC

Watermain Breaks (WMRM, WMRL Workorders)

Query Watermain Breaks

Total Breaks Greater Than or Equal To

To

4

Supermain length equal to or greater than

500

First Workorder Date

None

Last Workorder Date

None

List of Watermain Breaks

- Supermain ID: Sispara Place Beach Haven_01
Total Workorders: 21
Material: AC
Supermain length: 828.14
- Supermain ID: Sispara Place Beach Haven_01
Total Workorders: 21
Material: AC
Supermain length: 828.14
- Supermain ID: Sispara Place Beach Haven_01
Total Workorders: 21
Material: AC
Supermain length: 828.14
- Supermain ID: Wellington Street Pukekohe_05
Total Workorders: 20
Material: PVC
Supermain length: 619.84
- Supermain ID: Wellington Street Pukekohe_05
Total Workorders: 20
Material: PE
Supermain length: 619.84
- Supermain ID: Wellington Street Pukekohe_05
Total Workorders: 20
Material: ALK
Supermain length: 619.84
- Supermain ID: Tango Place Henderson_01
Total Workorders: 16
Material: AC
Supermain length: 523.72
- Supermain ID: Tango Place Henderson_01
Total Workorders: 16

Number of Pipes

529

Last update: a few seconds ago

LINZ, Stata NZ, Eagle Technology, Esri, HERE, Garmin, USGS, METI/NASA

Date Selector

Watermain Breaks (WMMR, WMRL Workorders)

Query Watermain Breaks

Total Breaks Greater Than or Equal To:

Supermain length equal to or greater than:

First Workorder Date

Select:

| July | | | | | | |
|------|----|----|------|----|------|----|
| S | M | T | W | T | F | S |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 29 | 30 | 31 | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 2017 | | | 2018 | | 2019 | |

Service Requests (30 Days) Updates every 2 mins

- 30/7/2018, 2:22 PM WATER NEW CONNECTION ROUTINE
- 30/7/2018, 2:18 PM WATER NEW CONNECTION ROUTINE
- 30/7/2018, 2:17 PM MEDIUM FLOW LEAK
- 30/7/2018, 2:10 PM SEWER OVERFLOW / BLOCKED
- 30/7/2018, 2:07 PM URGENT DISCOLOURED - ONE PROPERTY AND TIME DEPENDANT 2
- 30/7/2018, 2:07 PM WATER INSTRUCTION TO CONTRACTOR ROUTINE
- 30/7/2018, 2:07 PM WATER THIRD PARTY DAMAGE - CRITICAL HIGH FLOW
- 30/7/2018, 2:05 PM WATER NEW CONNECTION ROUTINE
- 30/7/2018, 2:03 PM MEDIUM LEAK - LOW FLOW
- 30/7/2018, 2:00 PM METER NON FUNCTIONING

Priority Codes

WW Service Request: 1,351 (Last update: a few seconds ago)

Water Service Request: 5,163 (Last update: a few seconds ago)

WW Problem Description

Water Problem Description

Network: None | Date Filter: **None** | Problem Code Filter: None

- None
- Today
- Yesterday
- This Week
- Last Week

LINZ, Stats NZ, Eagle Technology, Esri, HERE, Garmin, FAO, US

Vehicle Information

The dashboard displays incident information for water and wastewater services. It features two main panels on the left for incident lists and a large map on the right showing the geographic distribution of these incidents across Auckland.

Left Panel - Incident Lists:

- List of Open Water Incidents (3 Days):**
 - Description: CRITICAL METER LEAK
Problem Date: 17/8/2018, 11:06 AM
Status: Open
 - Description: URGENT - LOW PRESSURE
Problem Date: 17/8/2018, 10:27 AM
Status: Open
 - Description: WATER THIRD PARTY DAMAGE
Problem Date: 17/8/2018, 9:31 AM
Status: Open
 - Description: URGENT DISCOLOURED - ONE PROPERTY AND TIME DEPENDANT
Problem Date: 17/8/2018, 9:07 AM
Status: Open
 - Description: URGENT LEAK - TIME DEPENDANT 1
Last update: a few seconds ago
- List of Open Wastewater Incidents (3 Days):**
 - Description: SEWER OVERFLOW / BLOCKED
Problem Date: 17/8/2018, 11:34 AM
Status: Open
 - Description: SEWER OVERFLOW / BLOCKED
Problem Date: 17/8/2018, 11:25 AM
Status: Open
 - Description: SEWER OVERFLOW / BLOCKED
Problem Date: 17/8/2018, 11:17 AM
Status: Open
 - Description: SEWER OVERFLOW / BLOCKED
Problem Date: 17/8/2018, 10:49 AM
Status: Open
 - Description: SEWER OVERFLOW / BLOCKED
Problem Date: 17/8/2018, 10:39 AM
Status: Open
 - Description: SEWER OVERFLOW / BLOCKED
Problem Date: 17/8/2018, 10:08 AM
Last update: a few seconds ago

Summary Cards (Today):

- Water Incidents:** 10 Open Incidents, 6 Closed Incidents (Last update: a few seconds ago)
- Wastewater Incidents:** 10 Open Incidents, 7 Closed Incidents (Last update: a few seconds ago)

Map: Shows incident locations as colored markers (red for blocked, green for other types) on a map of Auckland. Labels include Eden Terrace, Newmarket, Remuera, Epsom, Greenlane, Ellerslie, Penrose, Royal Oak, Onehunga, Meadowbank, St Johns, Stonefields, Panmure, Mount Wellington, Pakuranga, and Point England. The map includes a search bar and navigation controls.

Map Legend: Map, Confirmed Overflow Work Order, Confirmed Overflow Spot Inspections

Map Footer: LINZ, Stats NZ, Eagle Technology, Esri, HERE, Garmin, METI/NASA, USGS

Embedded External Content

The screenshot displays a Watercare dashboard for 'Reported Sewer Overflows'. It features a map with red markers indicating overflow locations. A pop-up window titled 'SEWER OVERFLOW / BLOCKED' shows details for a specific incident: SR Number 14050356, Address Key 59333, Code FDOF, Description SEWER OVERFLOW / BLOCKED, and Priority 1. An 'Embedded Content' window is open, showing a table of 'Spot Inspections' with columns for SR Number, Inspection Date, Spot Code, Description, and Spot Value. The table contains several rows of data, with the first row having a Spot Value of 3196724. The 'Embedded Content' window also includes a 'Data Options' sidebar with settings for 'Type', 'Filter', 'Content Type', 'URL', 'Maximum Features Displayed', and 'Sort By'. The URL field is highlighted with a red box and contains the text: `https://wslidcttweb.water.internal/GISApps/HanRdb/find-id.aspx?servno={SERVNO}`. The 'Sort By' dropdown is set to 'PROB' with 'Ascending' selected.

| SR Number | Inspection Date | Spot Code | Description | Spot Value |
|-----------|-----------------|-----------|--------------------------------|------------|
| 13864013 | | W9000 | CONTRACTOR REFERENCE NUMBER | 3196724 |
| 13864013 | | W9010 | CREW ID | CITCAR |
| 13864013 | | W1360 | GIS CORRECT | Y |
| 13864013 | | W2800 | SUBMITTED SKETCH | N |
| 13864013 | | W2050 | PHOTOS TAKEN | N |
| 13864013 | | W2700 | SGLPROP, MULTIPROP,ENVIRONMENT | SGL |
| 13864013 | | W1760 | MH LID DISPLACED BY O/F? Y/N | N |
| 13864013 | | W1380 | GTRAP, MH, OFLOW PT, PIPE? | GTRAP |
| 13864013 | | W3230 | WET WEATHER EVENT Y/N | N |
| 13864013 | | W1170 | DID YOU REPEAT THE MH LID? Y/N | Y |

- Document
- Image
 - Refresh Interval
- Video

Future Plans

- Live Scada/PI Data
- Live Vehicle Data
- Live Video Capabilities
- Repeat Incidents
 - Live Data Analysis
- Weather Information
 - Rainfall Data
- Projected Models
- And much more.....

Thank You

Any Questions ?