

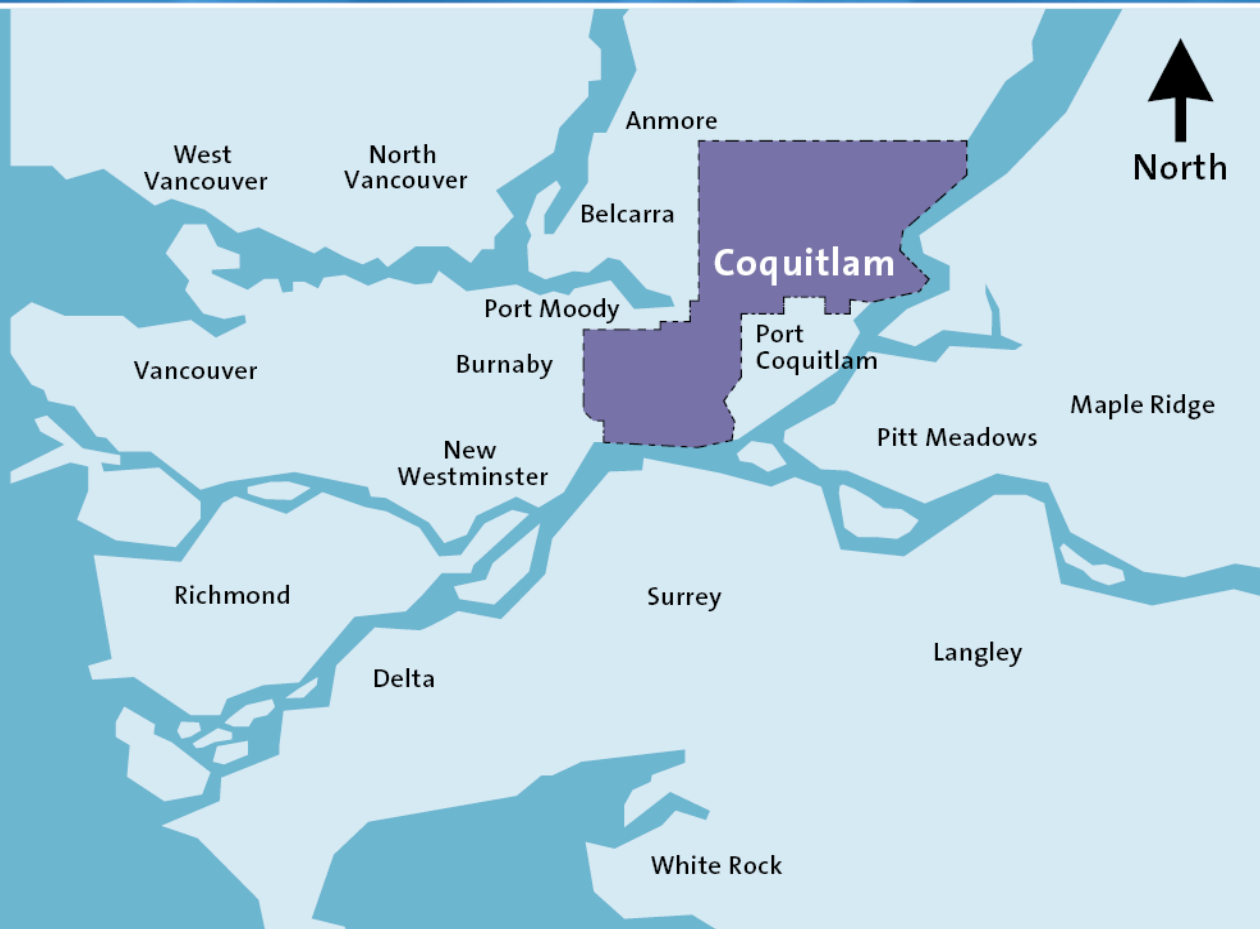
City of Coquitlam

Survey 123 for Snow Event Response & Storm Event Preparedness

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Supervisor Mapping & Drafting
Engineering & Public Works

February 22, 2016



Strong support for GIS within organization




Topography of the City
presents challenges

Westwood Plateau

Burke Mountain

Southwest Coquitlam

Can experience localized extreme
weather conditions including large
amounts of snowfall and rainfall runoff



Over 570 km of roads or
1,200 km of travel lanes



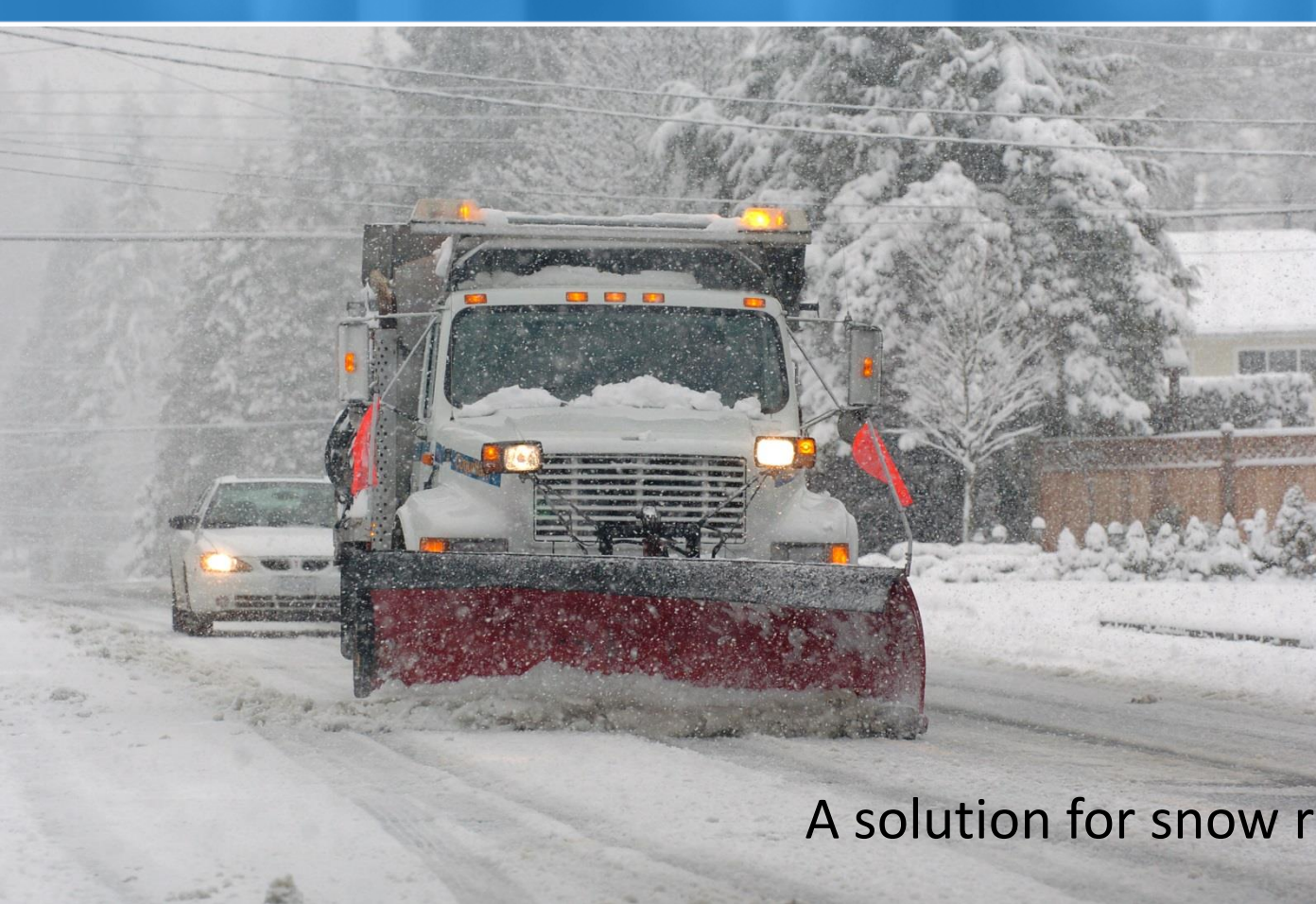
Over 600 km of watercourses
and 580 km of storm mains

Over 520 storm culverts
of various sizes and type

Response & Preparedness

Weather events such as heavy snow and rainfall present many challenges





Survey123

A solution for snow response requests

Challenge

140,000 residents

+

1,200 km of travel lanes

+

30 cm of snow

=

Many resident phone calls

Many forms to fill out

Many comments to pass along to Roads Department

Many hours & dollars spent on administrative staff time



Goals

Simplify process for residents to submit a snow response request

Reduce volume of incoming calls to customer service

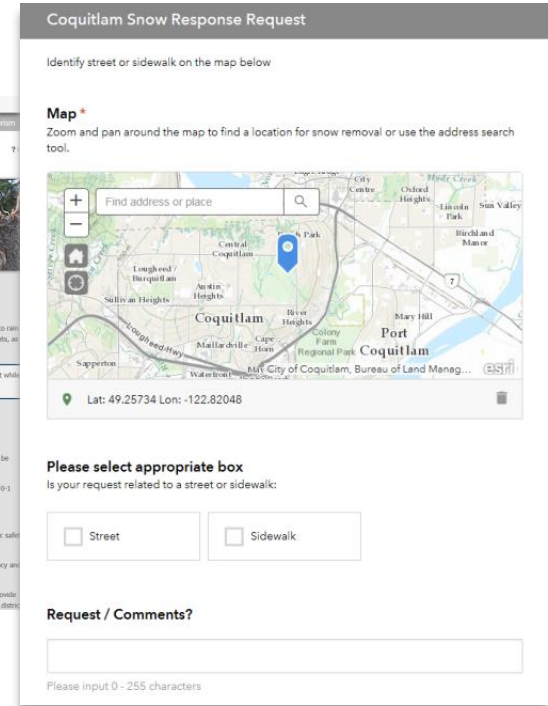
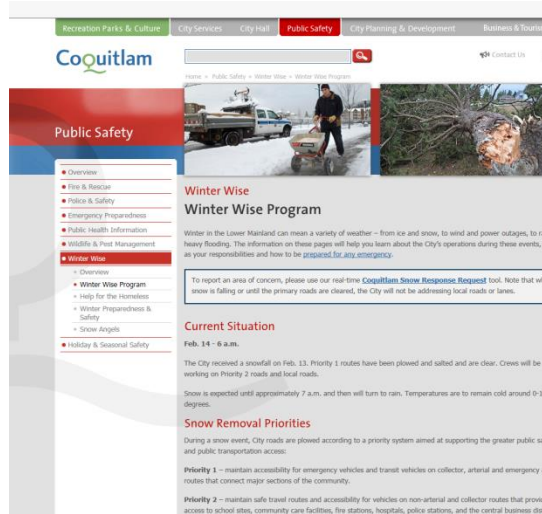
Reliable, simple solution for collecting and presenting public requests in real-time

Improve internal processes

Solution - Snow Response Request Form for Residents

Simple user interface & solution for data collection

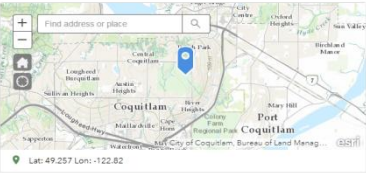
Survey123 application URL easily embedded within existing content within corporate web page(s)



Coquitlam Snow Response Request

Identify street or sidewalk on the map below

Map *
Zoom and pan around the map to find a location for snow removal or use the address search tool.



Lat: 49.257 Lon: -122.82

Please select appropriate box

Street Sidewalk

Provide Your Contact Information (optional) *
I agree to the storage of personal information as outlined in the City's Privacy Policy <http://www.coquitlam.ca/privacy-policy.aspx>

Yes
 No

Name?

Email?

Phone?

Submit an Image?

[Click here to upload file. \(<10MB, support: jpg, jpeg, png, gif\)](#)

Additional Comments?

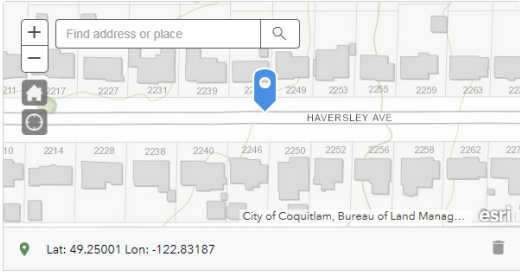
Please input 0 - 255 characters

Simple user interface

Coquitlam Snow Response Request

Identify street or sidewalk on the map below

Map *
Zoom and pan around the map to find a location for snow removal or use the address search tool.

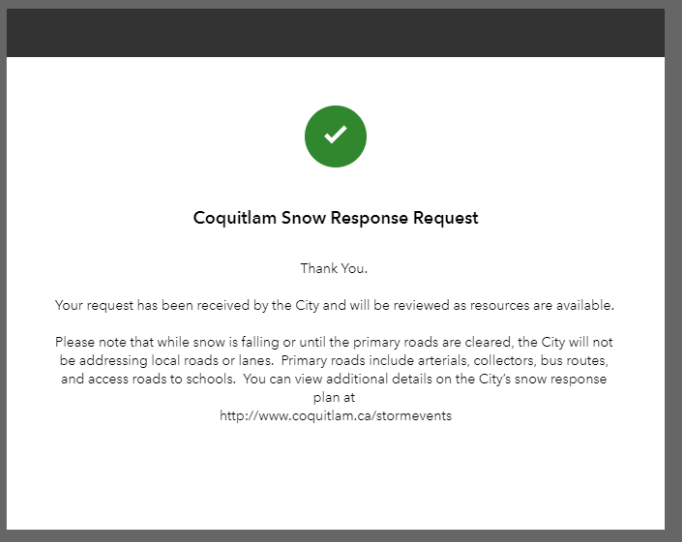


Lat: 49.25001 Lon: -122.83187

Please select appropriate box

Is your request related to a street or sidewalk:

Street Sidewalk



Coquitlam Snow Response Request

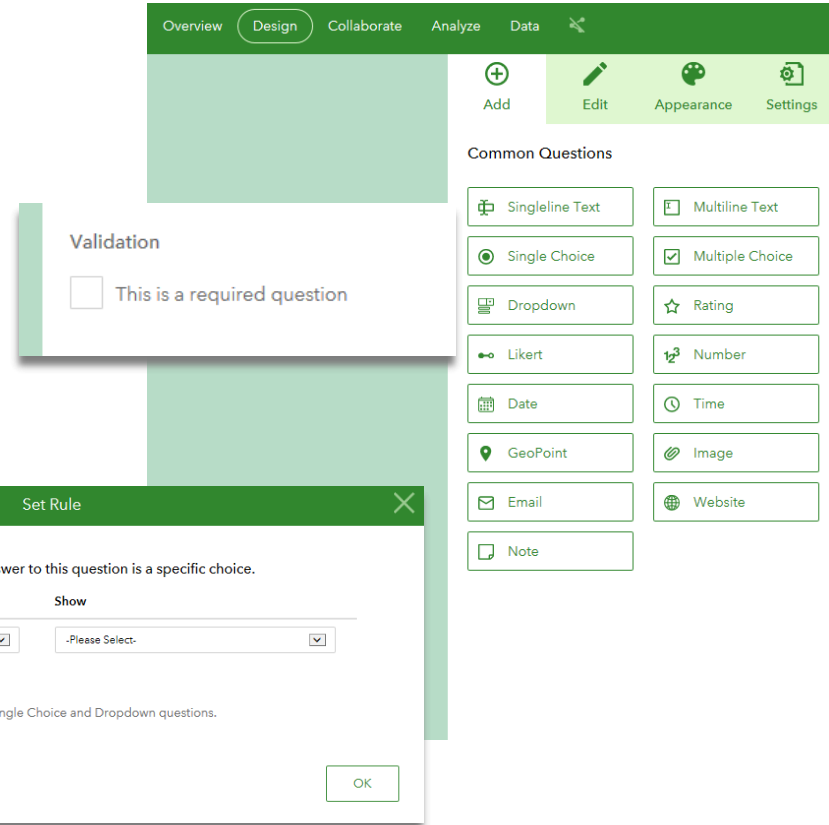
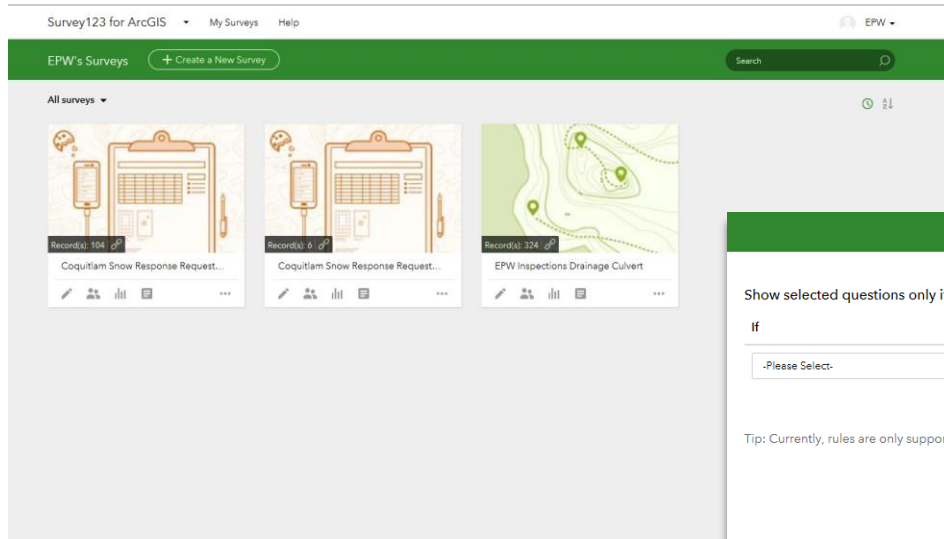
Thank You.

Your request has been received by the City and will be reviewed as resources are available.

Please note that while snow is falling or until the primary roads are cleared, the City will not be addressing local roads or lanes. Primary roads include arterials, collectors, bus routes, and access roads to schools. You can view additional details on the City's snow response plan at <http://www.coquitlam.ca/stormevents>

Survey Application Setup

Simple interface for building survey
Many options, validation and rule setting



Data storage - ESRI Managed Cloud Service

Anonymous access for survey application (for data collection)

Secure data (feature service not shared)

Privacy Impact Assessment

Set Rule

Show selected questions only if the answer to this question is a specific choice.

if	Show
<input type="text" value="-Please Select-"/>	<input type="text" value="-Please Select-"/>

Tip: Currently, rules are only supported by Single Choice and Dropdown questions.

OK

Request / Comments?

Please input 0 - 255 characters

Provide Your Contact Information (optional) *
I consent to the storage of my personal information outside of Canada in accordance with Section 30.1(a) of the Freedom of Information and Protection of Privacy Act. I understand that my personal information will only be used for the purpose of the City's Snow Response Program.

Yes

No

Submit an Image?

Submit

Powered by Survey123 for ArcGIS

Provide Your Contact Information (optional) *
I consent to the storage of my personal information outside of Canada in accordance with Section 30.1(a) of the Freedom of Information and Protection of Privacy Act. I understand that my personal information will only be used for the purpose of the City's Snow Response Program.

Yes

No

Name

Email

Phone

Submit an Image?

Submit

Data presentation

Reference survey response feature service within a Portal map application

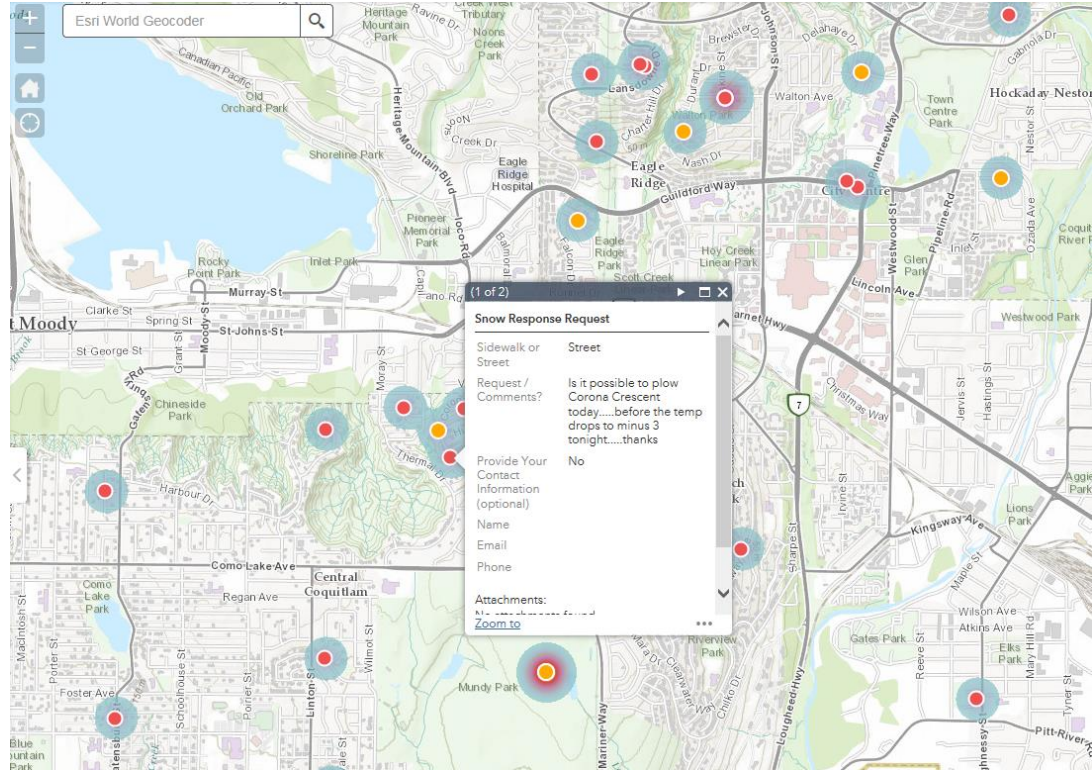
The screenshot displays a web map application for Coquitlam Snow Removal Requests. The interface is divided into three main sections:

- Operational Layers (Left Sidebar):** A list of time-based filters for snow requests. The 'All Snow Response Request' option is selected and highlighted in grey.
- Main Map Area:** A map of Coquitlam showing a heatmap overlay of snow removal requests. The heatmap uses a color scale from blue (low density) to red (high density) to indicate areas with higher concentrations of requests. Various neighborhoods like Port Moody, Coquitlam, and Port Coquitlam are labeled.
- Filter Dialog (Right):** A modal window titled 'Filter: Last 48 Hours Snow Requests'. It contains a search expression: 'CreationDate in the last 2 day(s)'. Below the expression are radio buttons for 'Value', 'Field', and 'Unique', with 'Value' selected. At the bottom, there are three buttons: 'APPLY FILTER', 'APPLY FILTER AND ZOOM TO', and 'CLOSE'.

Data presentation

One shared map application for staff in multiple locations

Real-time data



Data extraction & analysis within Survey123

Survey123 for ArcGIS ▾ My Surveys Help

Coquitlam Snow Response Request Form

11/5/17 - 2/14/18 Report (Beta) ▾ Export ▾ Open in Map Viewer Show it

Selected records only

- CSV
- Excel
- KML
- Shapefile
- File Geodatabase

surveyPoint (Features: 104, Selected: 0)

Please select appropriate box	Request / Comments?	Provide Your Contact Inf (optional)
street	Wondering why street wasn't brined	Yes
street	Lots of black ice after new pavement	Yes
street	Icy road, care workers are at home 4x daily and sometimes struggle with uphill.	No
sidewalk	Walkway leading from Corona to Park (WW3005) gets very icy/slippery, shaded asphalt, black ice lingers all day long. Suggest applying salt on a regular basis, close to elementary school and skytrain.	Yes
street,Sidewalk	Hi there, I have noticed in the	Yes

Survey123 for ArcGIS ▾ My Surveys Help EPW ▾

Coquitlam Snow Response Request Form Overview Design Collaborate Analyze Data <

Filtered Count: 104 (Total: 104) 11/5/17 - 2/14/18

View Settings

- Set Visibility
- Print Current View

Please select appropriate box Column Bar

80
70
60
50
40
30
20
10
0

Street Sidewalk

[Hide Table](#) Empty Categories Sort

Answers	Count	Percentage
Street	87	83.65%
Sidewalk	22	21.15%

Answered: 104 Skipped: 0

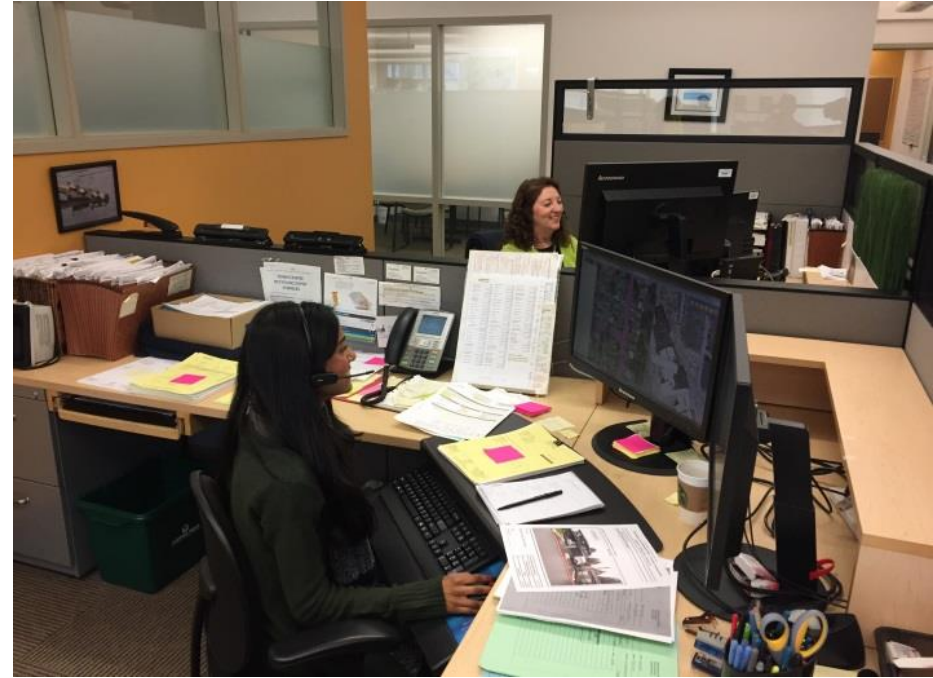
Results – Success – We Got Smarter

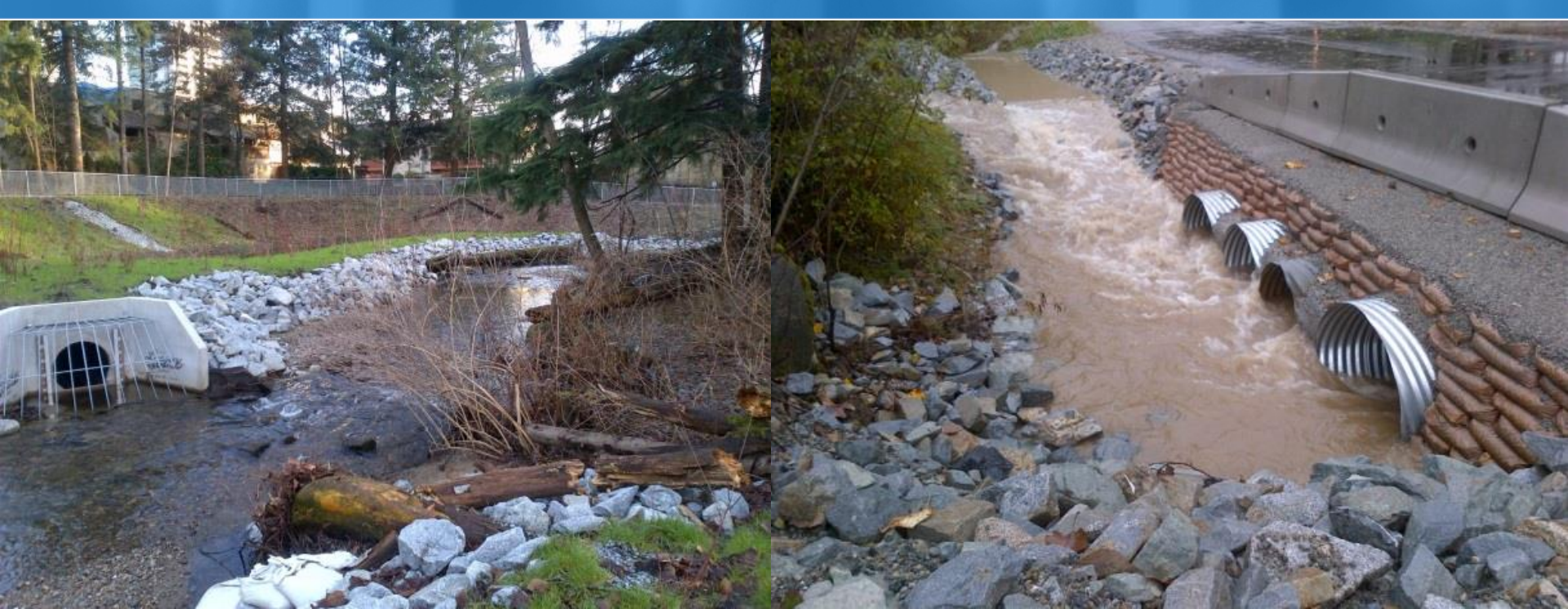
Simplified process for residents

Reduced volume of incoming calls to customer service

Introduced a reliable, simple solution for collecting and presenting public requests in real-time

Improved internal processes





Survey123

A solution for storm event preparedness (culvert inspections)

Challenge

1,200 km of watercourses and storm mains

+

520 storm culverts

+

heavy rainfall events

=

Need to ensure storm culverts are assessed regularly

Need to ensure condition inspection data is available and useful to staff

Solution – Inspection Form for Staff

A simple mobile data collection form to assist staff conducting field inspections

Goals

Simplify and improve processes

Collect better data for better decision making

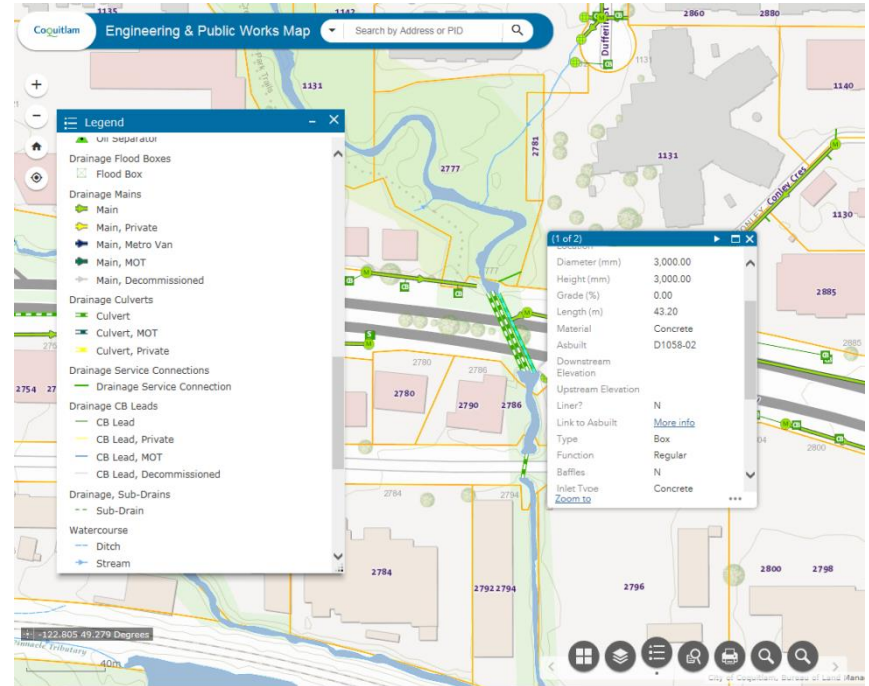
Data integration with asset management system



Step One – Data Setup

Use existing culvert location and attribute data from GIS and Asset Management System

Additional condition data fields added to asset management records (specifications from Engineering Staff)



Survey form opened from a map feature

Created a field inspection map

Inspection form launched from a culvert feature attribute (URL with input parameters) to include Asset ID & other attributes “pre-populated” in survey form

Reduce chance of data entry errors & ignore spatial accuracy limitations of mobile device

The screenshot displays a web-based map application interface. At the top, the title bar reads 'Cognitlam Culvert Assessment Map Engineering & Public Works Questions?'. Below the title bar is a search bar with the text 'Find address'. The main map area shows a green and blue topographic map with a red location marker. Overlaid on the map is a 'Pipe Condition Guide' window. This window contains a table with 'Balances' (1-5) and 'Conditions/Issues/Building' (Minor Defects, Failure not in the foreseeable future, Failure Within 25 years, May fail within 10 years, Probable Failure in 5 years, Replacement Required within a few years). It also lists 'Defects to observe' (Cracks or Fractures, Spalling larger than 1/8", Joint Separation, Pipe Deformation, Surface Corrosion, Infiltration). Below the table is a grid of 15 images showing different pipe conditions, categorized by material (Concrete, CMP, Plastic) and condition (Condition 1 to Condition 5). To the right of the map is a 'Culvert Inspection' form window. The form contains the following information:

Culvert Inspection	
GIS ID	STCV18134
Inspection Form	Launch Culvert Inspection Form
Inspection Guide	More info
Inspection Status	COMPLETE
Install Date	9/18/2014, 5:00 PM
Asset Status	OPERATING
Type	Round
Function	Regular
Baffles	N
Inlet Type	Concrete Blocks
Inlet Rack	N
Inlet Apron	
Outlet Type	Concrete Blocks
Outlet Rack	N
Outlet Apron	
Liner	N
Zoom to	

Culvert Inspection Survey

Pick lists for minimal typing

Validation ensures required fields are completed before submitting

Automated email to schedule work when a specific response is selected

Submit photos with survey

Survey123 for ArcGIS

Culvert Inspection Form

ASSET ID *

DO NOT TYPE

STC

PIPE

Conc

PIPE

Roun

PIPE

2400

PIPE

Select

No

Cra

Fea

Sul

Er

PIPE

PIPE Observed Overall Condition *

INLET Headwall *

Concrete

Protruding Pipe

Sandbag

Concrete Blocks

Wood

INLET Trash Rack *

INLET Headwall Defects *

Select multiple if necessary

None

Cracks / Features

Bank Erosion

Corrosion

Deformation

Operations and Maintenance Service Request Required?

If YES check the required boxes

Debris or Trash

Structural Obstruction

Vegetation



CCTV Required

Rip Rap Required

Comments

Only if required

Picture Taken *

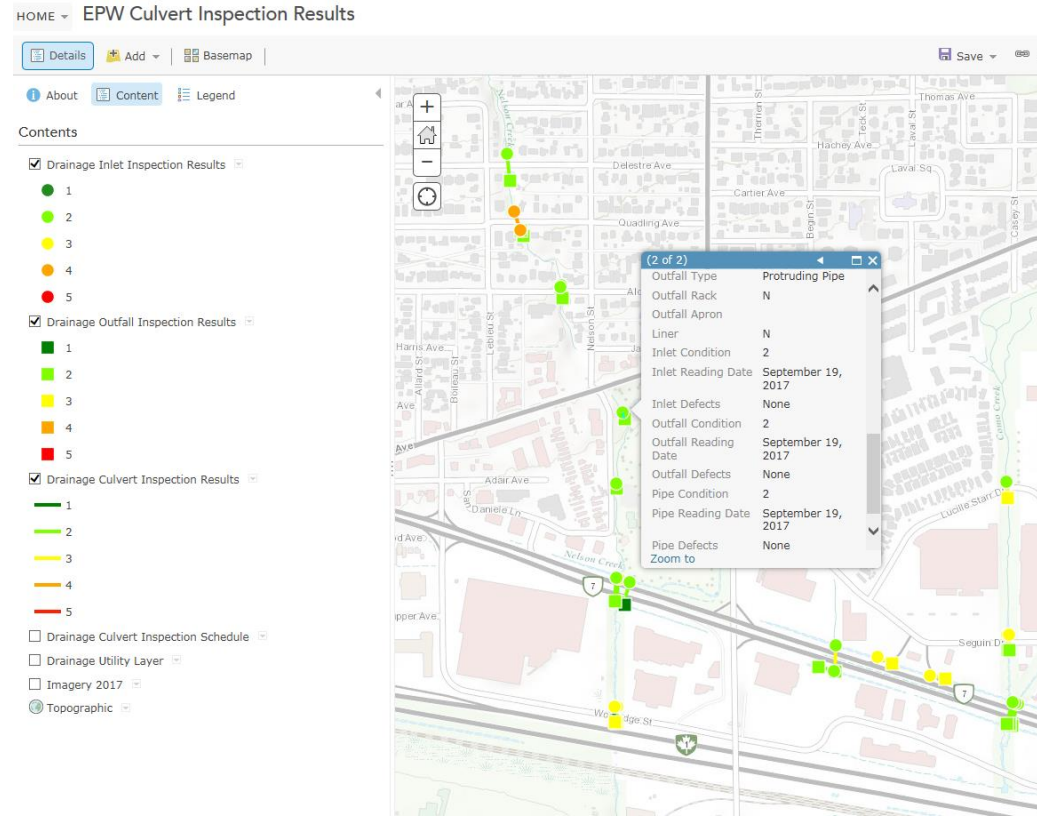
 

Survey Results

FME used to migrate data to asset management system

FME used to generate three spatial features containing inspection results (inlet, outfall & culvert)

Map application in GIS Portal for review of inspection results



Data overview with Survey123

Survey123 for ArcGIS ▾ My Surveys Help

EPW ▾

EPW Inspections Drainage Culvert

Overview Design Collaborate Analyze Data <

EPW Inspections Drainage Culvert

First created on: Jun 7, 2017

The survey is shared with City of Coquitlam and following groups: EPW



Total Records



Total Participants



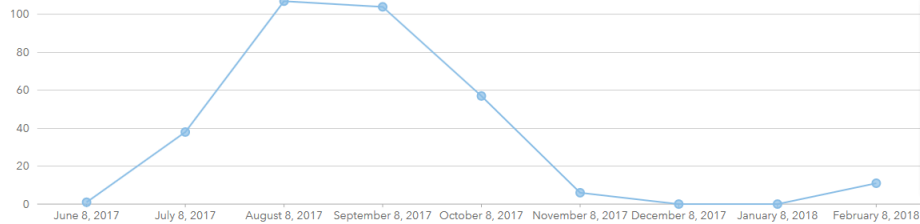
First Submitted On



Last Submitted On ⓘ

Surveys Count: 324 (Total: 324)

6/8/17 - 2/14/18



Top Participants

User	Surveys Submitted
pedems@coquitlam.ca	304
abaumann@coquitlam.ca	10
dburgess@coquitlam.ca	9

Results – Success – We Got Smarter

Simplified and improved process for staff

We are collecting better data

Already using the data to make better decisions



Questions

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604-927-4312