

# *Managing Inventory*

*ArcGIS Online as a solution for Orphan Well Association  
(OWA) Contractor Engagement*

Shawn Banack, B.Sc., MBA, R.T.(Ag)  
Carla Incontri, B.A., B.GIS, MGIS, GISP



# Introduction

- ▶ Presenter Introductions
- ▶ OWA - Brief History
- ▶ North Shore's Involvement
- ▶ What is a Site?
- ▶ Turnover Flow
- ▶ Traditional Approach
- ▶ Webmap Design
- ▶ Demo
- ▶ Future possibilities and options



ArcGIS Online



**Orphan Well  
Association**

**peloton**  
well focused®

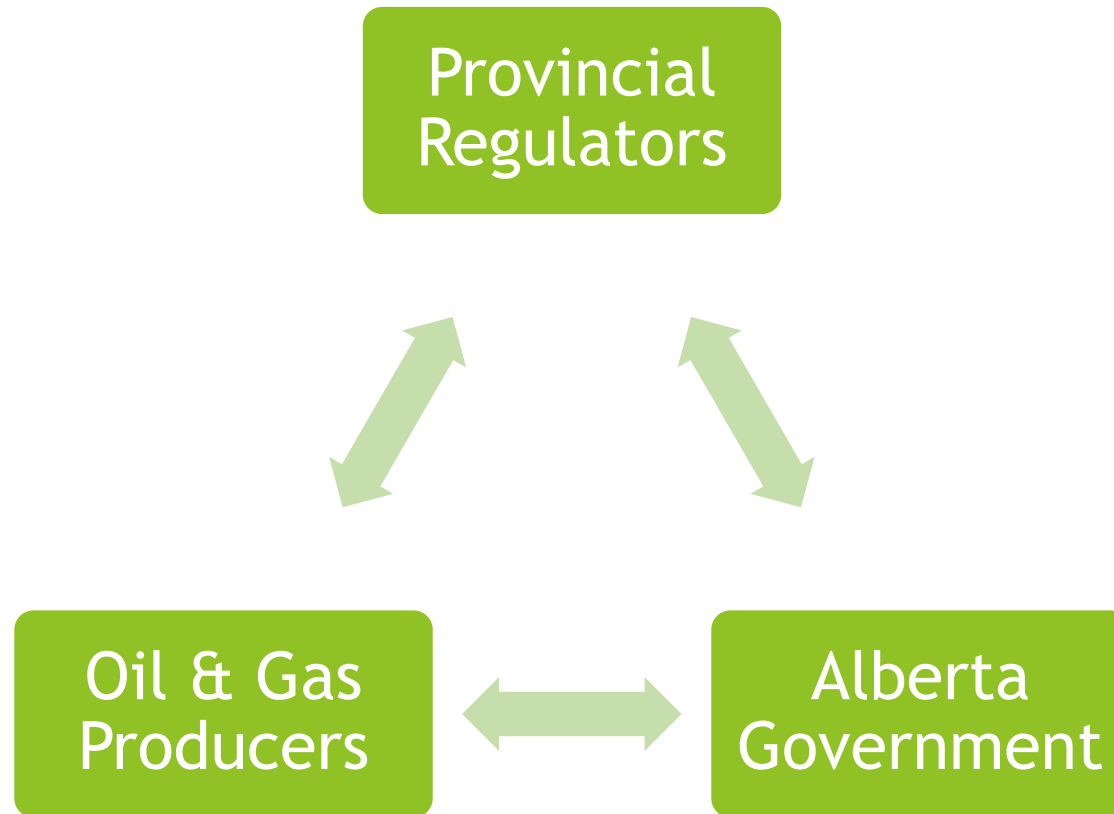
# Carla Incontri, B.A., B.GIS, MGIS, GISP

- ▶ Over 14 years of GIS/Consulting experience
- ▶ Providing mapping, data management and analysis services
  - ▶ Municipal Planning Support
  - ▶ Community Planning Support
  - ▶ Environmental Planning Support
  - ▶ Wetlands GIS Support
  - ▶ Heritage Resources
  - ▶ First Nations & TLU Management

# Shawn Banack, B.Sc., MBA, R.T.(Ag)

- ▶ 11 Years of Consulting experience
- ▶ Corporate Consulting Manager at North Shore
- ▶ Providing implementation, data analysis, liability management, and business process improvement services
  - ▶ SiteView
  - ▶ Data Analysis
  - ▶ Data Structuring
  - ▶ Workflows and Efficiencies
  - ▶ Asset Retirement Obligation
  - ▶ Liability Assessments

# Orphan Well Association - History



# Orphan Well Association - Snapshot

<b><i>Inventory</i></b>			
<b>Year*</b>	<b>Wells (ABD)</b>	<b>PL Segs (ABD)</b>	<b>Sites (Rec)</b>
2015	705	730	451
2021	2,113	3,183	4,934

<b><i>Work Completed</i></b>				
<b>Year*</b>	<b>Wells (ABD)</b>	<b>PL Segs (ABD)</b>	<b>Rec Certs</b>	<b>Expenses**</b>
2015	43	18	36	\$17MM
2021	1922	2102	267	~\$180MM

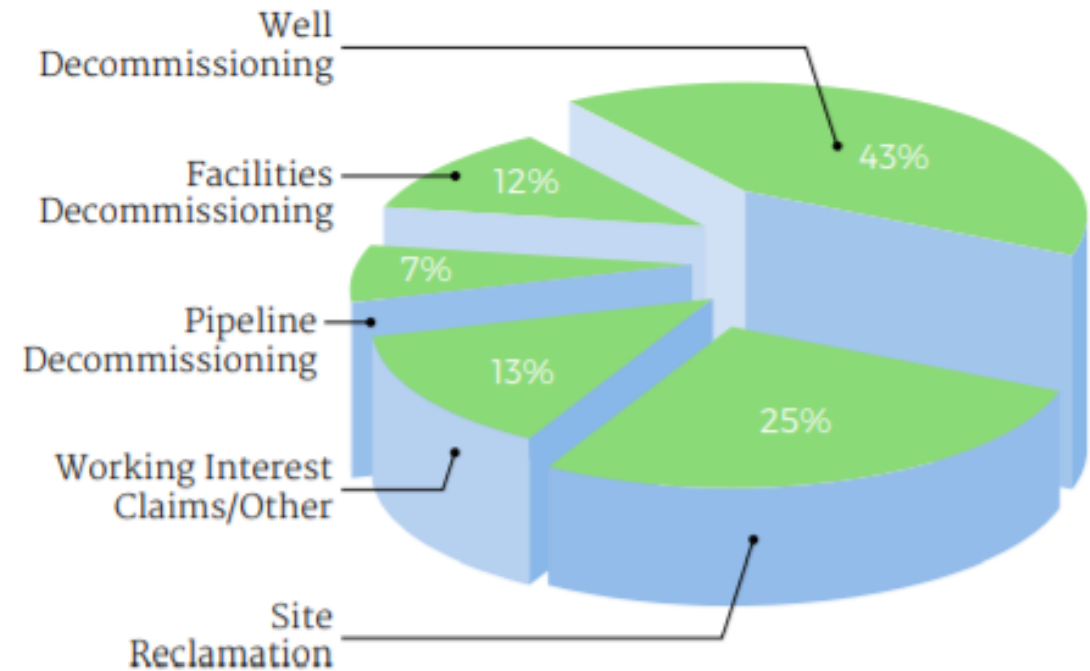
\*Year indicates fiscal year, from April 1 to March 31

\*\*Expenses include any/all operating and other costs (Working Interest Claims, Administration, etc.)

# Orphan Well Association - Recent Funding

- ▶ 2017 - \$235MM Provincial Loan
- ▶ 2020 - \$100MM Provincial Loan
- ▶ 2020 - \$200MM Federal Loan
- ▶ 2021 - \$70MM Orphan Levy
- ▶ All loans are repayable

**2019 OPERATING EXPENDITURES BY CATEGORY**



# North Shore's Involvement

- ▶ Historical data review
- ▶ Requirements gathering
- ▶ Workflow and process coordination/development
- ▶ SiteView configuration
- ▶ Data conversion, mapping, and migration
- ▶ QA/QC of converted and migrated data
- ▶ Report development
- ▶ Security setup
- ▶ User acceptance testing
- ▶ Training and rollout
- ▶ Ongoing maintenance - imports, security, user management, workflows
- ▶ Mapping



# Orphan Sites and Categories

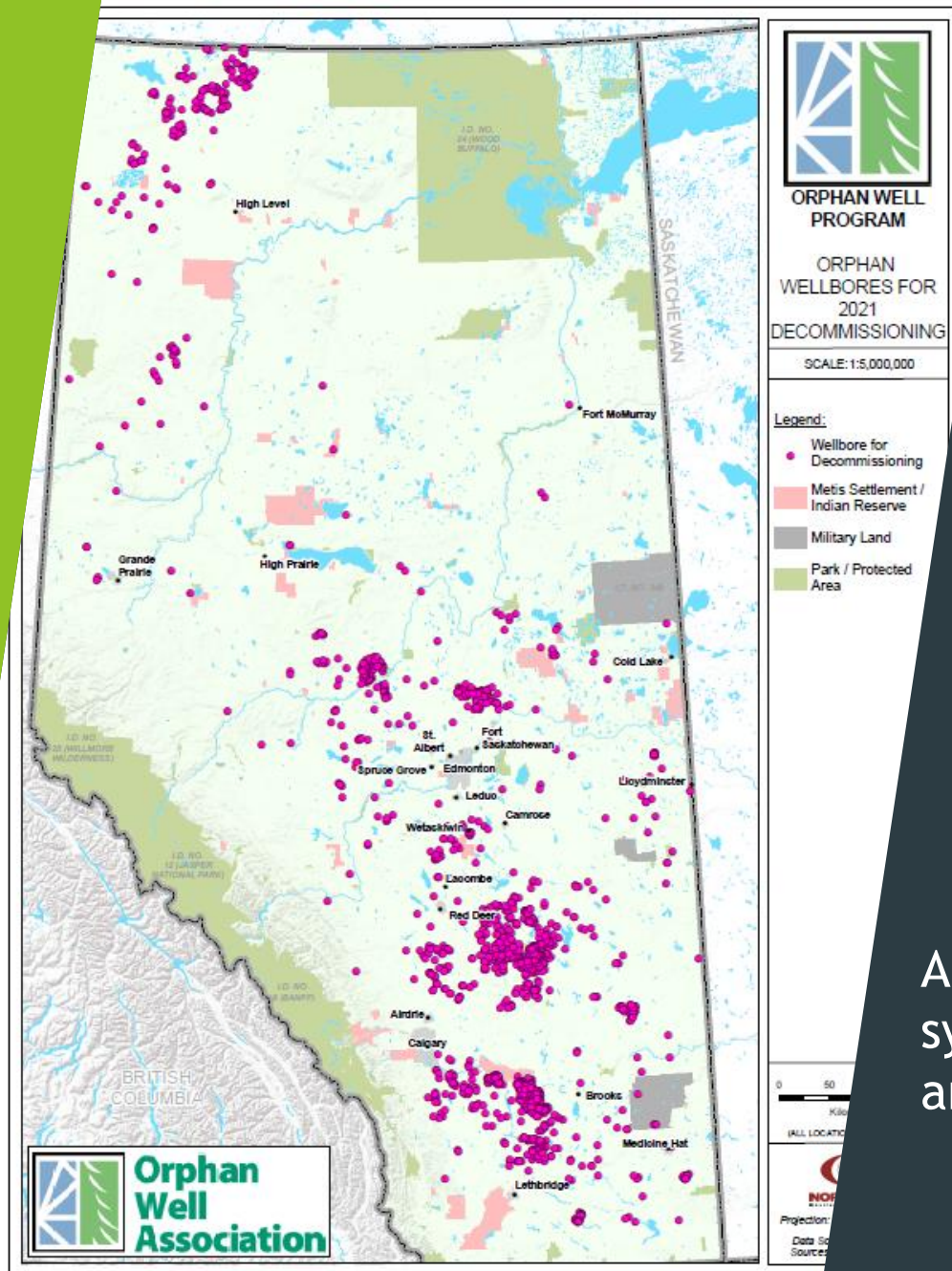
- ▶ Single well - 09-10-086-17W4 (100).
- ▶ Single well directional drill - 09-10-086-17W4 (100/08-10)
- ▶ Multiwell - 09-10-086-17W4 (Multi)
- ▶ Facility - e.g. 09-10-086-17W4 (Facility)
- ▶ Spills - e.g. 09-10-086-17W4 (Spill)
- ▶ Pipelines - e.g. 12345-4 (PL)

Site Name	Land Ownership/Classification
23160-10 (PL)	
05-19-038-16W4 (Multi)	Private - White Area
15-35-053-09W5 (Facility)	Private - White Area
10-29-078-08W5 (100/09-29)	Provincial - Green Area
14-17-079-08W5 (100)	Provincial - Green Area

# Turnover Workflow and Usage

<b><i>Map Categorization</i></b>
Orphan Sites for Decommissioning
Orphan Sites with Turnover/Intake for Decommissioning
Orphan Sites with Environment/Reclamation
Orphan Sites with Turnover/Intake for Environment/Reclamation
Orphan Sites - Closed

- ▶ Well and facility licenses are turned over to the OWA from the AER for either abandonment, reclamation, or abandonment and reclamation.
- ▶ Classified as being with the Turnover/Intake group upon import.
- ▶ Further classification based on turnover type(s)



# Issues with Traditional Approach

- ▶ SiteView allows for many ways to analyze a dataset
- ▶ Geographic relationships difficult to explore in SiteView
- ▶ Inefficiencies can lead to increased operational costs

A dynamic, interactive web mapping system enables more informed decisions and reduces costs

## - Exploring Webmapping Platforms: GeoJSON with Leaflet

PROS	CONS
Lightweight and Fast	Requires hiring a custom software developer to implement it and keep the software current
Free (Open Source)	Does not easily allow for additional geospatial data, and does not handle complex geometry well
	Users cannot edit the data or add their own content
	Handling user logins for confidential information requires extra steps

## Exploring Webmapping Platforms: ArcGIS Online

### PROS

Allows for users to add their own data, and to interact with multiple data sources

The Creator license allows for users to edit their own data and change the maps and create their own maps

Many different functionalities are available through various widgets and web apps can be built without writing code

Access to a variety of basemaps

Easy to control access to information and decide level of sharing

### CONS

Requires a small software subscription cost

Can be slow depending on internet speed

Using pre-built widgets does not allow full control of customization



# ArcGIS Online Web Apps

- ▶ Platform of choice for authoritative data distributors
- ▶ Easy to share and distribute information publicly while protecting confidential information

ArcGIS Pricing Map Scene Help

## Calgary River Flooding



Explore your flood risk by searching the flood map. Find out about your regular impacts of previous floods, projects that reduce risk, how to prepare for floods and the impact of our changing climate.

Web Mapping Application by [calgary.ca](https://maps.calgary.ca)

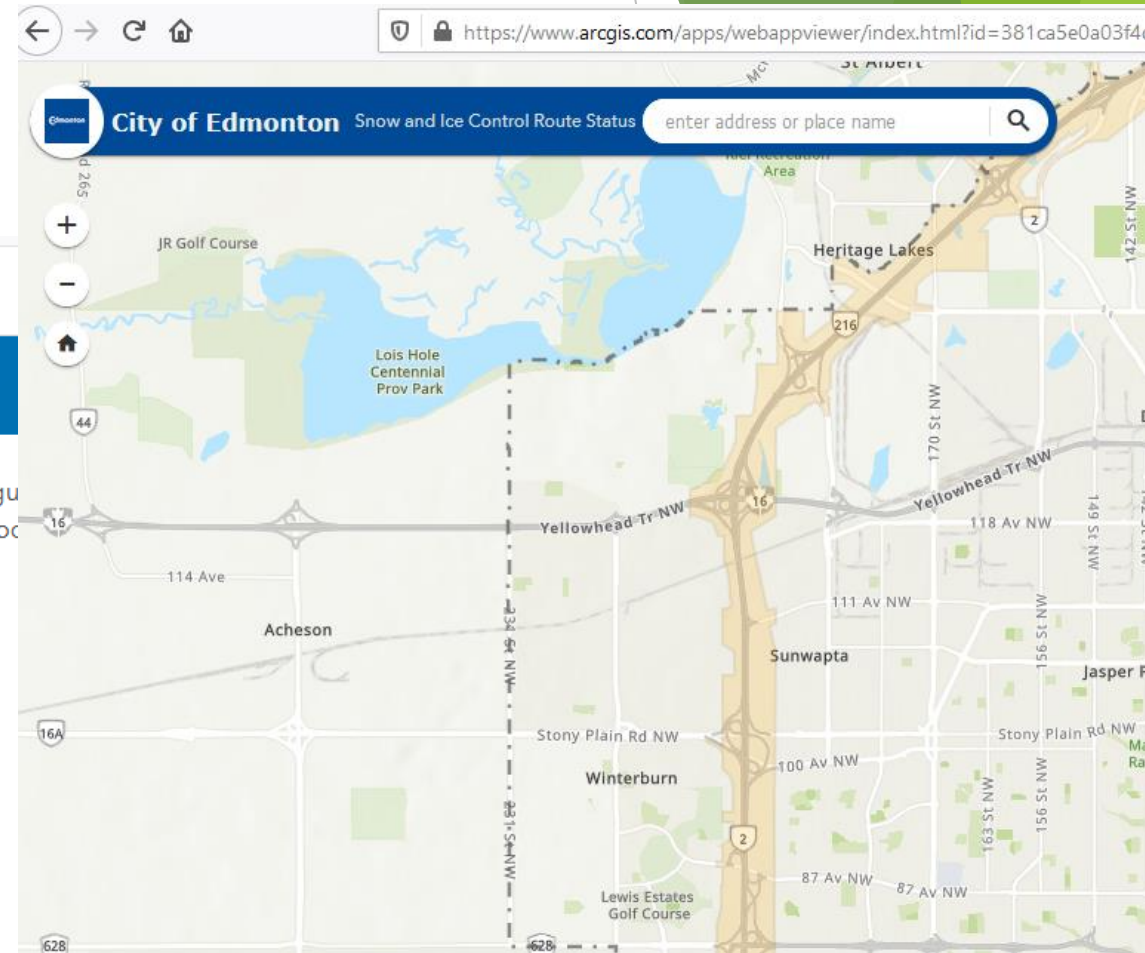
Created: Apr 23, 2019 Updated: Apr 28, 2021 View Count: 181

### Description

An in-depth description of the item is not available.

<https://maps.calgary.ca/RiverFlooding/>

<https://www.arcgis.com/apps/webappviewer/index.html?id=381ca5e0a03f4d49976e5b5422449d42>



# ArcGIS Online Web App Examples



**Maricopa County Assessor Parcel**  
Web Mapping Application



**Shawnee County, KS Property Search**  
Web Mapping Application



**Calhoun County Parcel Viewer**  
Web Mapping Application



**GIS Viewer for Boone County, Kentucky**  
Web Mapping Application



**Property Mapper - Cumberland County,**  
Web Mapping Application



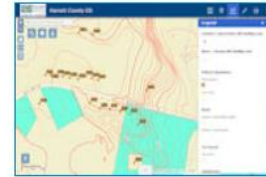
**Iowa DOT Snowplows**  
Web Mapping Application



**Mahoning County GIS Public Viewer**  
Web Mapping Application



**Lexington County One Map**  
Web Mapping Application



**Harnett County, NC GIS Viewer**  
Web Mapping Application



**Clovis Unified School District Online Map**  
Web Mapping Application



**City of Mountain View Zoning District Viewer**  
Web Mapping Application



**Maryland Traffic Volume Monitor**  
Web Mapping Application



**Weber County Geo-Gizmo**  
Web Mapping Application



**County of Simcoe - Interactive Maps**  
Web Mapping Application



**IWASD Projects**  
Web Mapping Application



**The University of the West Indies, St**  
Web Mapping Application



**Muscatine County Iowa Information**  
Web Mapping Application



**Hamilton County Indiana Map Viewer**  
Web Mapping Application



**In Your Neighborhood**  
Web Mapping Application



**Wyoming Hunt Planner**  
Web Mapping Application

<https://www.arcgis.com/apps/MapAndAppGallery/index.html?appid=1e3085af6e1a48c8908fa624bdfef768>

# ArcGIS Web AppBuilder

- ▶ Allows very fast deployment of webapps with minimal effort
- ▶ Objectives of project:
  - ▶ Deliver ability to visualize OWA Site locations
  - ▶ Allow for contractors to easily be able to extract information about sites in their areas of interest

## ArcGIS Web AppBuilder

Home

Create Apps

Manage Apps

Extend Apps

Build powerful GIS apps that run on any device. No coding required.

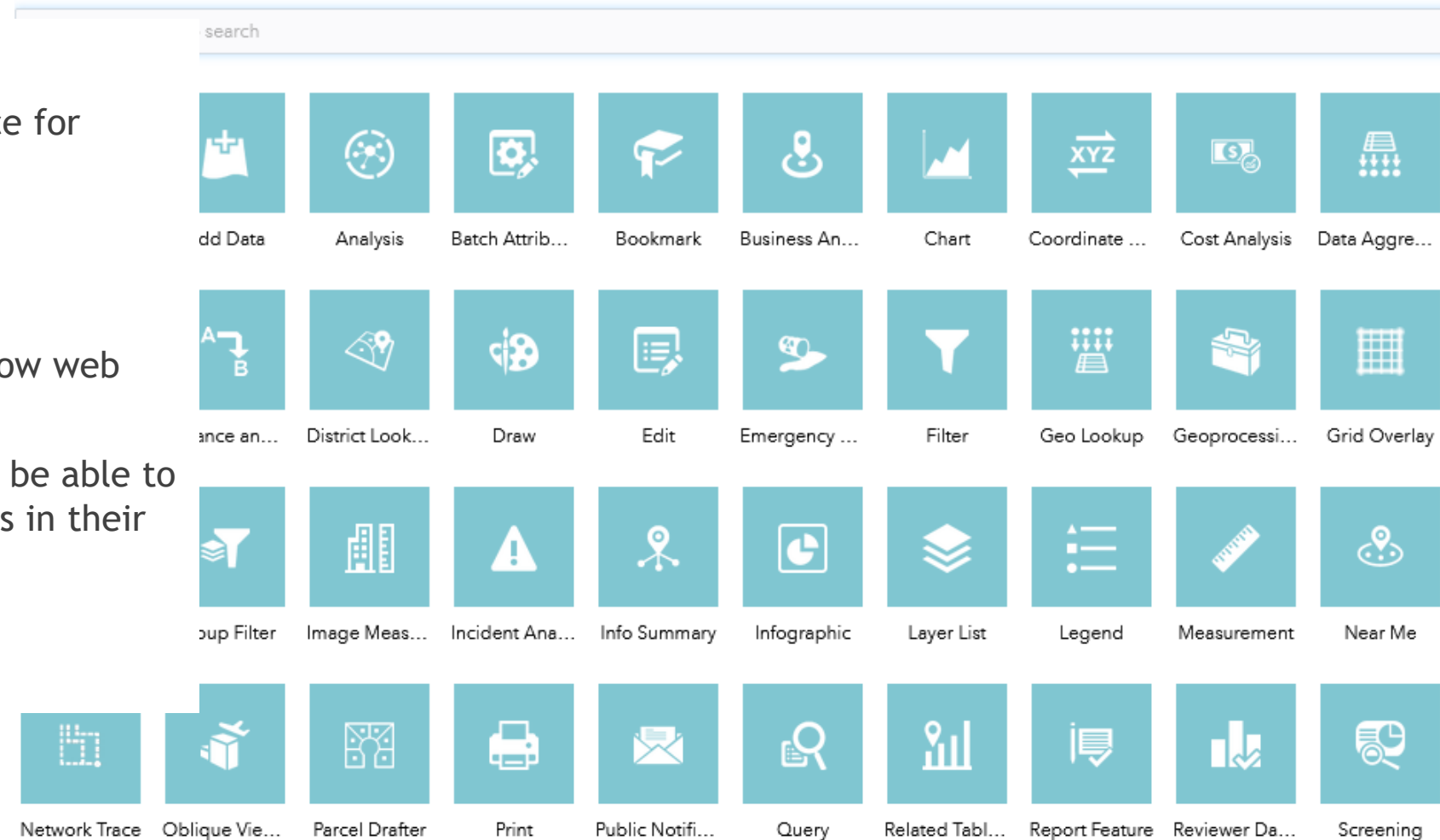


# Widget Selection

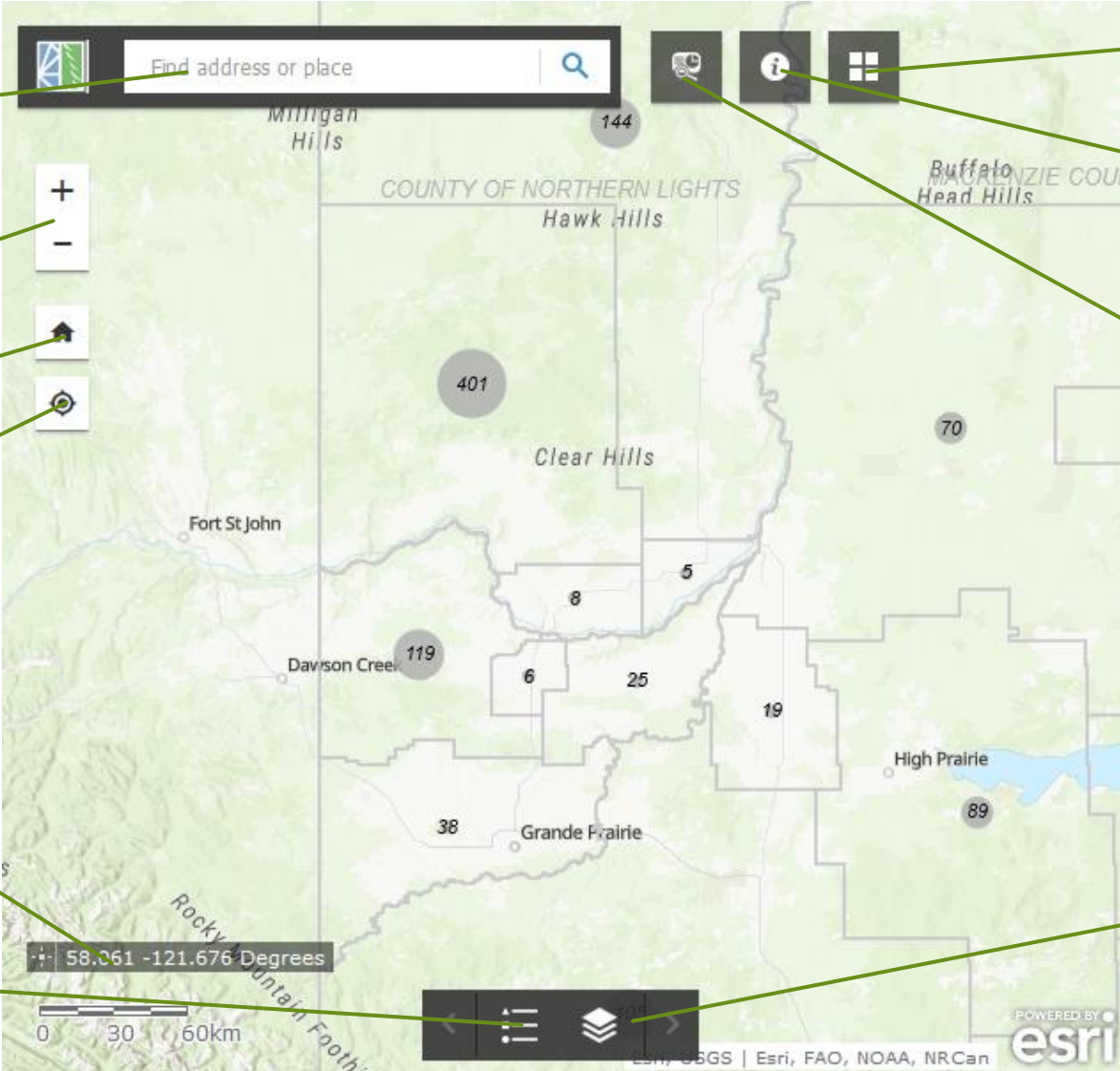
Choose Widget

## ► Objectives:

- Create an easy-to-use interface for sharing with the public
- Minimal amount of buttons
- Easy to interact with tools
- Keep it simple for users with low web map literacy
- Allow for contractors to easily be able to extract information about sites in their areas of interest



# Widget Selection / Design



The image shows a screenshot of an ArcGIS web map interface. The map displays a topographic view of a region in Alberta, Canada, including areas like Milligan Hills, Hawk Hills, Clear Hills, and Grande Prairie. Various widgets are highlighted with green callout boxes:

- Search**: Points to the search bar at the top left with the placeholder text "Find address or place".
- Zoom in and out**: Points to the zoom in (+) and zoom out (-) buttons on the left side.
- Go to Default Extent**: Points to the home button (house icon) on the left side.
- Go to My Location**: Points to the location button (person icon) on the left side.
- Basemap Switcher**: Points to the basemap switcher button (globe icon) at the top right.
- About This Map**: Points to the information button (i icon) at the top right.
- Generate Report / Extract Data**: Points to the report button (document icon) at the top right.
- Turn Layers On and Off**: Points to the layers button (layers icon) at the bottom right.
- Show Legend**: Points to the legend button (list icon) at the bottom right.
- Display Coordinates and Scale Bar**: Points to the coordinate display and scale bar at the bottom left, showing coordinates 58.061 -121.676 Degrees and a scale bar from 0 to 60km.

# Generate Report Widget

**Generate Report/Extract Data** ×

AOI +

Draw

Shapefile

Select draw mode

Buffer distance (optional)

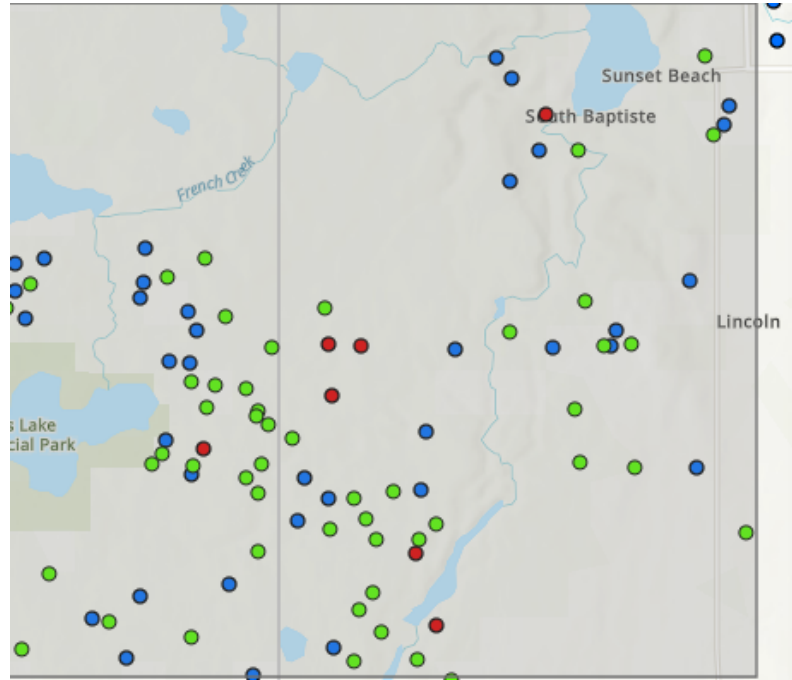
Show results within

0

Meters

Search

Start Over



**Generate Report/Extract Data** ×

Search +

Back

Area : 337,046,318.49 m<sup>2</sup>

↺

↻

⬇

🖨

⚙

+

Orphan Site with Environment Reclamation ... (0) ⚙

+

Orphan Sites with Turnover/Intake for Envi... (0) ⚙

+

Orphan Sites with Turnover/Intake for Dec... (0) ⚙

+

+

Upload shapefile to include in analysis

Upload

# Generate Report Widget - Interface

**Generate Report/Extract Data** [X]

Search [🔍]

< Back Area : 337,046,318.49 m<sup>2</sup>

⌂ ⬇️ 🖨️ ⚙️

Select Format : **CSV** (0) ⚙️

CSV (0) ⚙️

File Geodatabase (0) ⚙️

Shapefile (0) ⚙️

+ Orphan Sites with T... ec... (0) ⚙️

+ Orphan Sites with Environment/Reclamation (49) ⚙️

+ Orphan Sites for Decommissioning (36) ⚙️

Upload shapefile to include in analysis **Upload**

**Generate Report/Extract Data** [X]

Search [🔍]

< Back Area : 337,046,318.49 m<sup>2</sup>

⌂ ⬇️ 🖨️ ⚙️

+ C Layout **Letter ANSI A Lan** (0) ⚙️

Note : The report title and comments can be edited in the report preview. **Print**

+ C (0) ⚙️

+ Orphan Sites with Environment/Reclamation (49) ⚙️

+ Orphan Sites for Decommissioning (36) ⚙️

Upload shapefile to include in analysis **Upload**

**Generate Report/Extract Data** [X]

Search [🔍]

< Back Area : 337,046,318.49 m<sup>2</sup>

⌂ ⬇️ 🖨️ ⚙️

+ Or Show area results in : **Square meters** (0) ⚙️

+ Or Show length results in : Meters (0) ⚙️

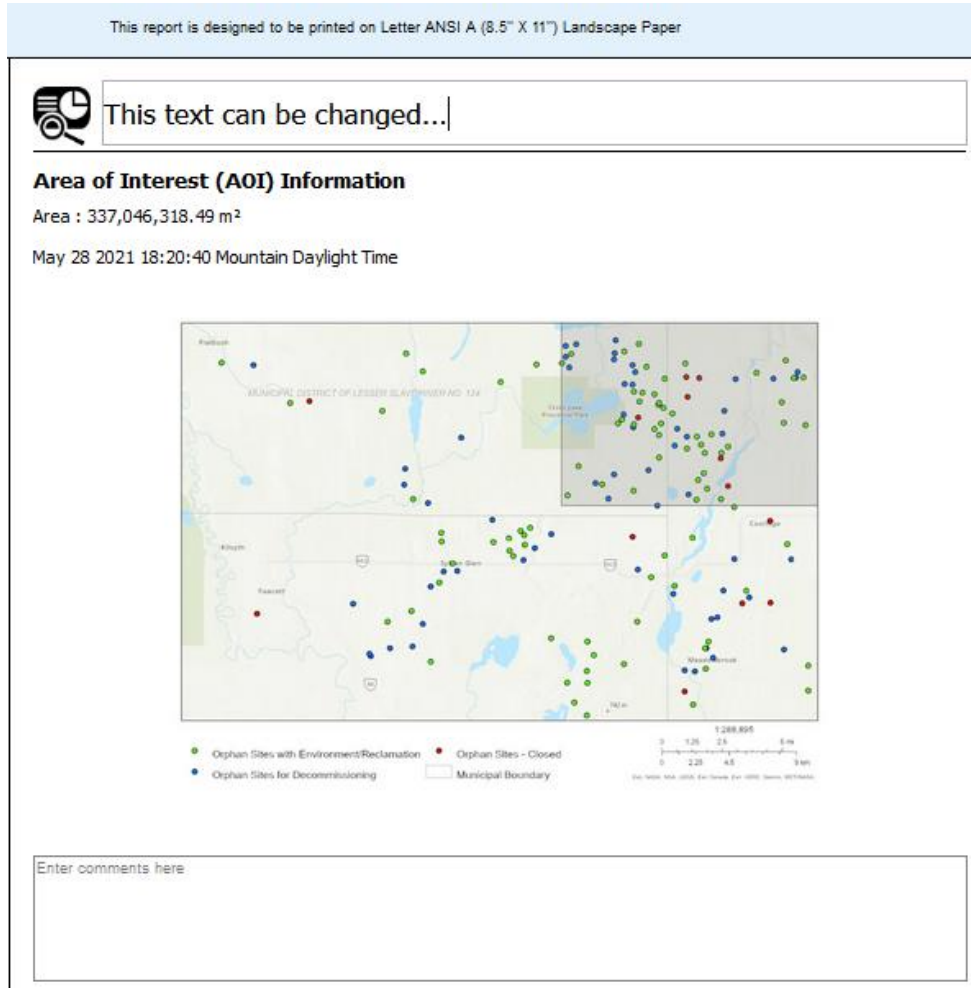
+ Or (0) ⚙️

+ Orphan Sites with Environment/Reclamation (49) ⚙️

+ Orphan Sites for Decommissioning (36) ⚙️

Upload shapefile to include in analysis **Upload**

# Generate Report Widget - Report

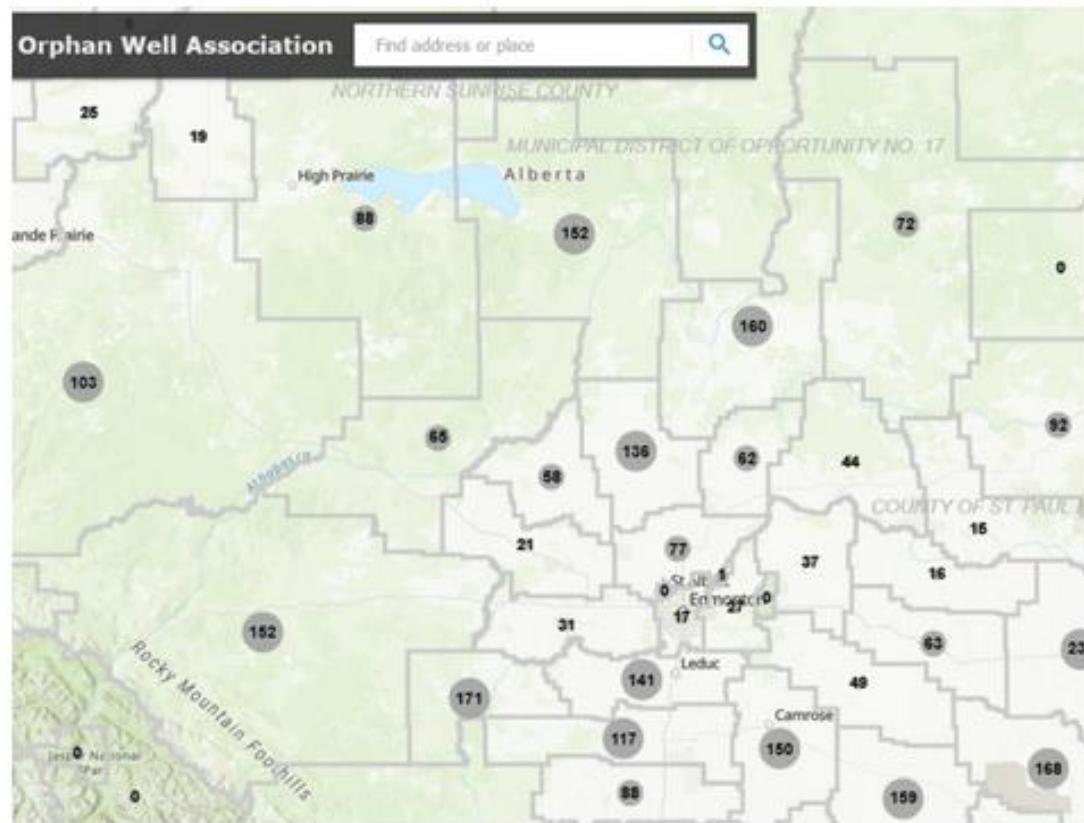


Orphan Sites with Environment/Reclamation

#	Licensee	Site_Name	ResponsibleDepartment	ResponsibleDeptDateChange	Location Name	AbandonmentConsultingCompany	Facilities DecomConsultingCompany	EnvironmentalConsultingCompany	WellCount	Count
1	SEQUOIA RESOURCES CORP	08-27-085-25W4 (100)	Environment	3/29/2021, 6:00 PM	08-27-085-25W4	Environmental Liability Management Inc.	Environmental Liability Management Inc.	Aurora Land Consulting Ltd.	1	1
2	SEQUOIA RESOURCES CORP	10-22-085-24W4 (100)	Environment	3/4/2020, 5:00 PM	10-22-085-24W4	No Data	No Data	NorthWind Land Resources Inc.	1	1
3	SEQUOIA RESOURCES CORP	11-13-085-24W4 (100)	Environment	3/9/2020, 6:00 PM	11-13-085-24W4	No Data	No Data	NorthWind Land Resources Inc.	1	1
4	SEQUOIA RESOURCES CORP	12-34-085-24W4 (100)	Environment	3/5/2020, 5:00 PM	12-34-085-24W4	No Data	No Data	NorthWind Land Resources Inc.	1	1
5	SEQUOIA RESOURCES CORP	01-28-088-24W4 (100)	Environment	3/5/2020, 5:00 PM	01-28-088-24W4	No Data	No Data	NorthWind Land Resources Inc.	1	1
6	SEQUOIA RESOURCES CORP	10-34-085-24W4 (100)	Environment	4/7/2020, 6:00 PM	10-34-085-24W4	No Data	No Data	NorthWind Land Resources Inc.	1	1
7	SEQUOIA RESOURCES CORP	08-04-088-24W4 (100)	Environment	3/5/2020, 5:00 PM	08-04-088-24W4	No Data	No Data	NorthWind Land Resources Inc.	1	1
8	SEQUOIA RESOURCES CORP	18-21-085-24W4 (100)	Environment	3/4/2020, 5:00 PM	18-21-085-24W4	No Data	No Data	NorthWind Land Resources Inc.	1	1
9	SEQUOIA RESOURCES CORP	18-01-085-28W4 (100)	Environment	3/9/2020, 6:00 PM	18-01-085-28W4	No Data	No Data	NorthWind Land Resources Inc.	1	1

# ArcGIS Web App Demo

## OWA Interactive Map





# Usage Statistics

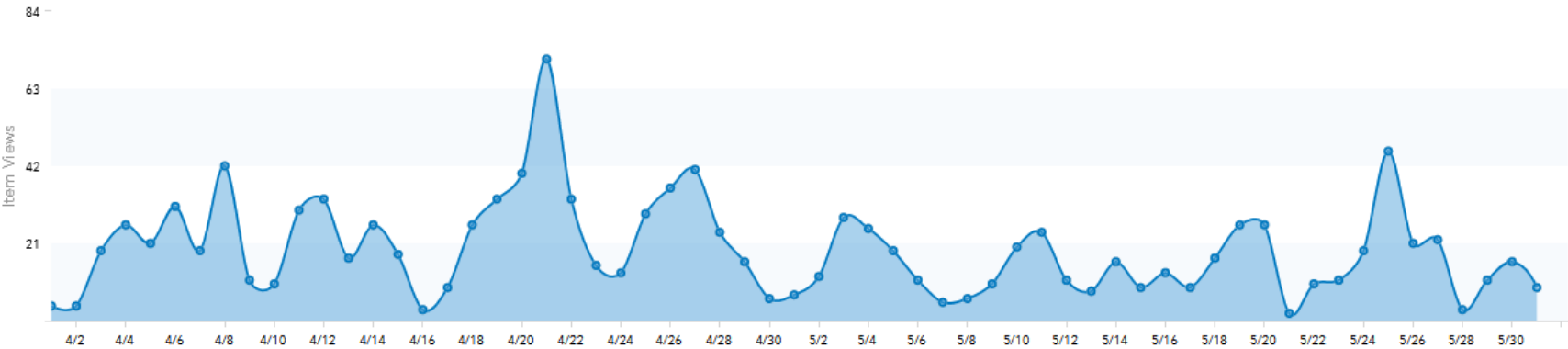
Usage details for the period:  
April 2, 2021 - June 1, 2021

Past 60 Days

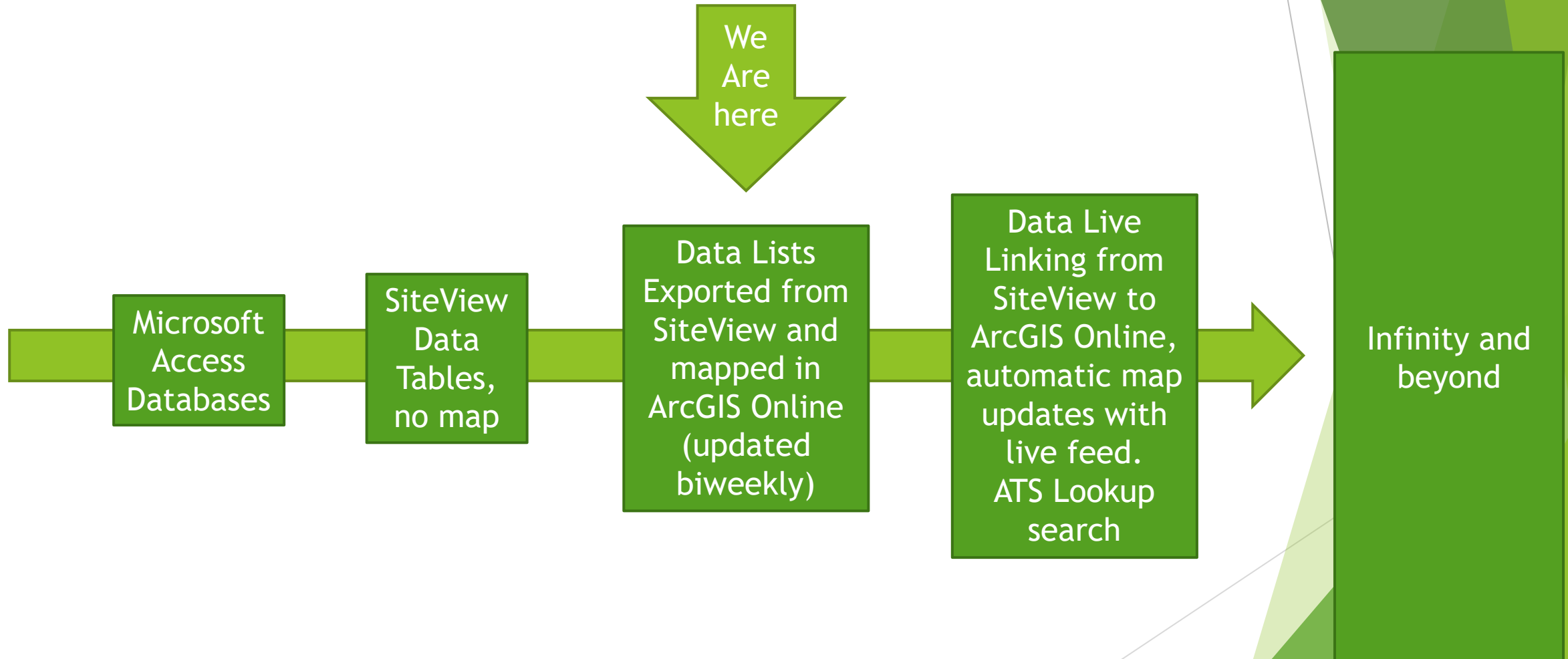
Item Views this Period  
1,178

Avg Item Views Per Day  
19.63

Usage Time Series



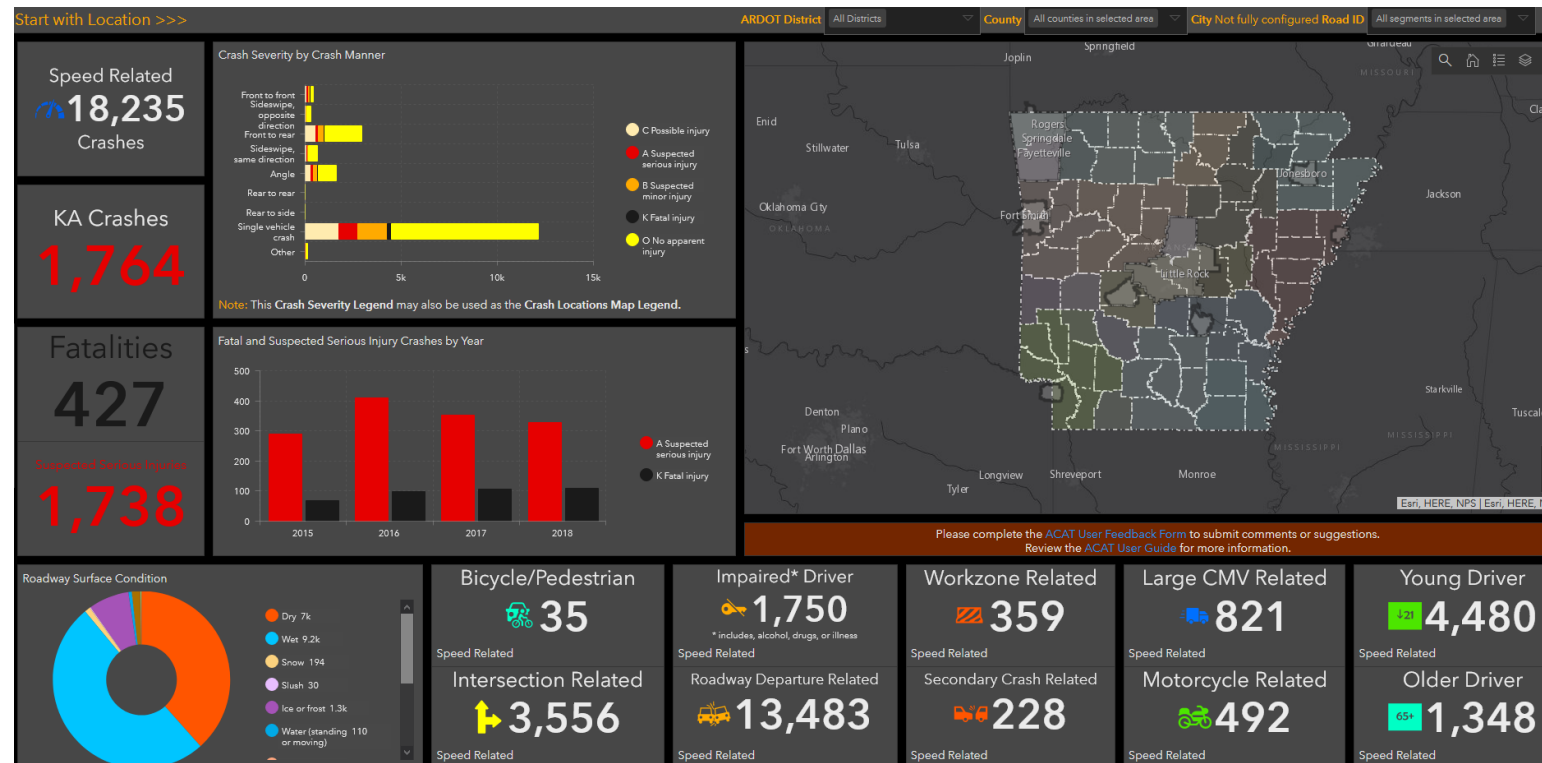
# Potential Product Roadmap





# Other Possibilities

- ▶ Custom Dashboards
- ▶ Additional Analysis Capabilities
- ▶ PDF Attachments/Photos embedded



# Questions?

Get curious! Here are some resources to explore further:

- [ESRI Webapp Gallery](#)

- ArcGIS Online

  - [free public account for personal use:](#)

  - Ask your GIS department to get a viewer license

- [Geodiscover Alberta](#)

Check out the [Orphan Well Web App](#)

## Thank-you!