



Putting Tools in One Place:

How Lakewood Water District Integrates Field Data Systems



Kevin Wyckoff, GISP
GIS Coordinator

Lakewood Water District overview

- ▶ Almost 26 square mile service area
- ▶ Around 17,000 Service Connections
- ▶ 4 Wholesale Water Customers + 1 in 2023
- ▶ 275 miles of Water Main
- ▶ 12 miles of Transmission Main to service wholesale customers
- ▶ Only responsible for Drinking Water, separate entities handle all other utilities
- ▶ 36 full time staff members, including an IT Manager and GIS Coordinator

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Information

Information is the life blood of all modern business. In the water industry we rely on information to:

Track Accounts and Bill Customers

Track inventory

Track Water Production and other operational data

Plan new projects

Document Construction

And hundreds of other categories of information that utilities need to store

The Old System

- Thousands of pages of paper distributed across a dozen offices and storage rooms
- Dozens of Binders and Notebooks
- Dozens separate file share directories with hundreds of folders and sub-folders with no organization standards
- GIS consisted of one computer accessible by one trained staff member
- Paper based forms for all field work



There has to be a
better way!

The Answer Part 1: Build Digital Literacy in your workforce

Digital Literacy is the ability to use information and communication technologies to find, evaluate, create, and communicate information through use of cognitive and technical skill.

Regardless of role, digital literacy will empower workers to tackle:

- ▶ Project Management
- ▶ Collaboration
- ▶ Communication

The Answer Part 2: Build a Data Fluent organization

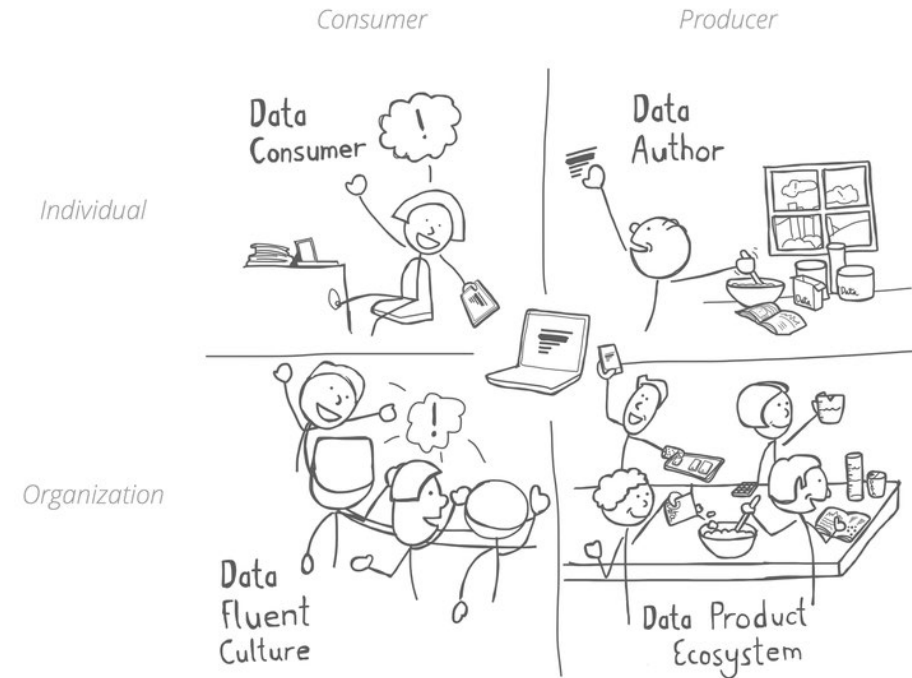
Data fluency rejects the idea that only a select few are gatekeepers of information, instead spreading knowledge, widening data access across an organization, and as a result, improving decision-making for everyone.

Data Fluent Organizations:

8

Have guiding principals, and stick to them:

- ▶ Make use of common interfaces
- ▶ Remove Information Silos wherever possible
- ▶ Provide training to all staff to enhance digital literacy



What technology to deploy?

9



Prioritize off the shelf functionality



Common interface on a variety of devices



Automate the work that can easily be automated



Make it Searchable



Use Single Sign On Logins



Reliable

Develop a
good home
base

SharePoint

Search this site

Kevin Wyckoff

IT/GIS

Private group

Following

4 members

Home

Conversations

Documents

Notebook

Pages

Site contents

Recycle bin

Edit

New

Send to

Promote

Page details

Immersive Reader

Analytics

Published 4/14/2022

Edit

GIS Coordinator's Dashboard

Kevin Wyckoff

GIS Dashboard

This site is built to serve as the online nerve center of Lakewood Water District's GIS Department. This page provides an easy to use gateway to sites and content related to administering GIS for the District.

Admin Links

LWD AGOL

LWD GIS Portal

Field Maps Admin

Server Admin

Server Manager

Portal Administrator Directory

Account Login - ArcGIS Survey123

GIS Change Management Form

Troubleshoot Portal for ArcGIS

External Data

Washington Geospatial Open Data Portal

Assessor-Treasurer Information Portal

Pierce County Auditor Doc Search

Pierce County GIS

LWD Resources

LWD Team Site

Field Services Resources and Links

As-Builts

Connect Online Login

Lucy Web 18.5 - LucyAzure - User is not logged in

GIS Reference Documentation

Getting Started | ArcGIS Arcade

Portal | Documentation for ArcGIS Enterprise

GIS Server | Documentation for ArcGIS Enterprise

ArcGIS API for Python | ArcGIS Developer

esri-styles.maps.arcgis.com

Mito Documentation - Mito

List of 3,000+ Federal, State, County, City ArcGIS Servers

Troubleshooting Performance Issues in ArcGIS Pro - Esri...

GIS Training

Welcome to Geo-Python 2021!

Python GIS Class

Like

Comment

237 Views

Save for later

Comments

Add a comment. Type @ to mention someone

Post

11

GIS Coordinator's Dashboard

SharePoint

Search this site

Kevin Wyckoff KW

LWD Team Site

HMS.NET

Caselle Cloud

Caselle Connect

Caselle CIMS

Lucity

Xpress Bill Pay

LWD Website

Eagle Eye

Brivo

Sensus Analytics 4.4

UtiliSync

Field Services

As-Builts

One Call Now

Phone login

LWD Team Site

Following

Share

ElementsXS

Daily COVID

Get Technical Support

Home

Documents

Admin Documents

HR Documents

Mineral

Shared Files

Operations

LWD Photo Library

On Call Calendar

Generate MFA App Passw...

Backflow File Room

Recycle bin

Edit

New

Send to

Promote

Page details

Analytics

Published 11/16/2021

Edit

Field Resources and Links

General Lakewood Water District Links

Caselle Connect Login

Lakewood Water District Daily COVID-19 Questionnaire

Remote Support Portal | Powered by BOMGAR

Vehicle Forms

Fill | LWD Vehicle Check Form

Fill | LWD Fueling Record

Lakewood Water GIS Portal

UtiliSync

Locate Dashboard

Links to Forms

Pressure Test Form

Fire Flow Form





Daily Trenching Log


Excavation Summary Form

Safety Meeting Minutes

Service Crew Dashboard

GIS Portal


[Home](#) [Gallery](#) [Map](#) [Scene](#) [Groups](#) [Content](#) [Organization](#)     Kevin Wyckoff
LWDGISAdmin




Lakewood Water District GIS Portal

Welcome to Lakewood Water District's GIS Portal. Your home for all data and apps that help us maintain our commitment to the community


Field Services



Web Map
Field Map



Web Map
Novotx Map



Web Map
Elements Pumping Map

[View gallery](#)

For assistance please contact
Kevin Wyckoff GISP, GIS Coordinator
kwyckoff@lakewoodwater.org
253-300-6693

[Edit home page](#)



Forms:


GETTING DATA INPUT


Provide Support

15


5/1/2022


Support Portal

 English (US)

Representatives 

2 - Christian Fast

Session Key 

Issue Submission 

Your Issue

- Please choose an issue - ▼

Your Name

Company Name

Company Code

Describe Your Issue

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BeyondTrust Remote Support

Microsoft Forms

- Work on PC, iPhone, and Android
- Results are emailed to the Fleet Manager and recorded in an Excel Sheet
- Includes only the essential information needed

LWD Vehicle Check Form

Use this form to record your vehicle inspections.

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Hi, Kevin. When you submit this form, the owner will see your name and email address.

* Required

1. Select Vehicle you are inspecting: *

Select your answer

2. Enter the Inspection Date: *

Please input date (M/d/yyyy)

3. Odometer Reading *

The value must be a number

4. Inspection Start Time *

Enter your answer

5. Inspection Items *

- ☐ Engine Oil Level
- ☐ Transmission Fluid
- ☐ Windshield Washer Fluid
- ☐ Lights/Brakes/Signal/Flashers/Side
- ☐ Battery
- ☐ Tire Pressure
- ☐ Wash Vehicle

6. Comments:

Enter your answer

7. Inspection End Time: *

Enter your answer

Submit

Fire Hydrant Flow Calculator

Enter the answers to the questions below.

Hydrant Number	22H1	Hydrant Location	
Nozzle Coefficient	0.90		
Nozzle I.D., inches	2.00		
Pitot Pressure	7.8		
Residual Pressure	84	Date of Test	February 26, 2020
Static Pressure	65	Clear	
Flow, gpm =	468	Print Record	
Flow, gpm at 20 psi=	1803		

Survey123

Fire Flow Calculations

Static PSI*

84

Residual PSI*

65

Flow Hydrant Number*

Port Size

2.5"

Number of Ports Used

2

Pitot Reading*

7.80

Main Size

Flow Quantity

Please provide an estimate for our water loss tracking. It is ok to leave this blank.

HPR Hydrant #1

This field and the next are for use when conducting a comprehensive test using Hydrant Pressure Loggers Upstream and Downstream of where you are testing. Please record the Hydrant Number here. For normal tests, please disregard.

HPR Hydrant #2

GPM

Calculated Flow in GPM

468

Flow @ 20 psi

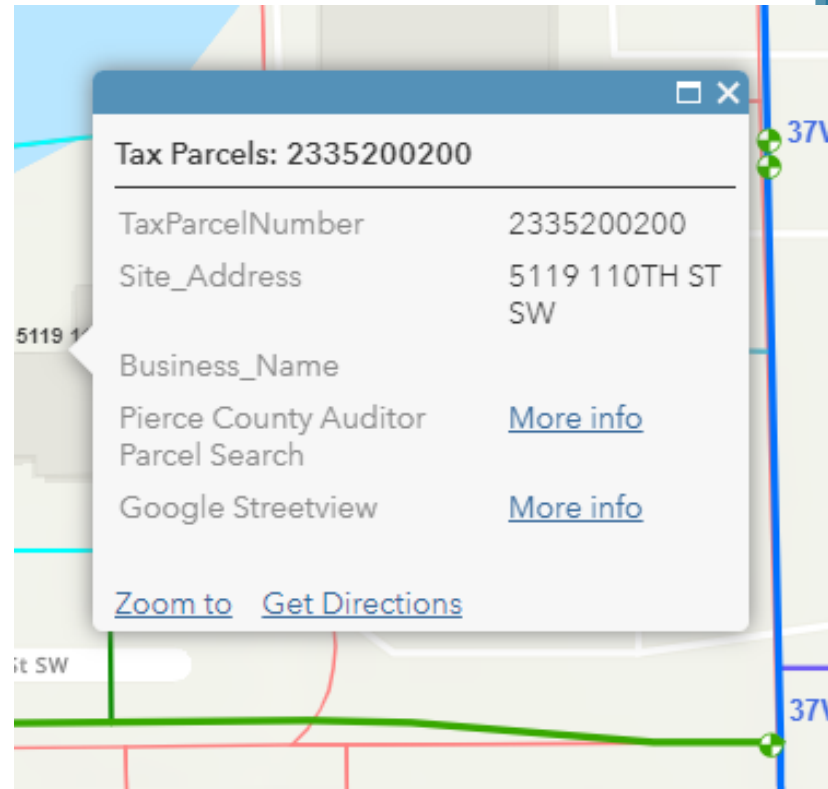
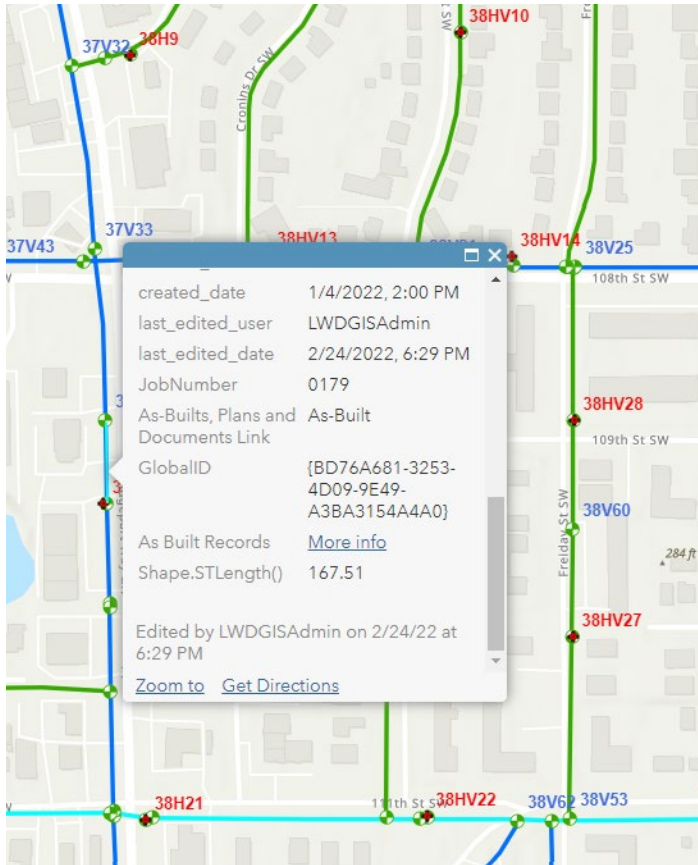
Calculated Flow @ 20 psi

1803

Signature of Submitter

Putting Information at Staff's Fingertips

Connecting to Information through maps





As-Built Documents

SharePoint

Search this library

AB As-Builts Private group

Home
Conversations
Documents
Shared with us
Notebook
Pages
Site contents
Recycle bin
Edit

+ New
Upload
Edit in grid view
Sync
Add shortcut to OneDrive

Documents

Name
Asset Images and Documents (not associated with jobs)
Easements
Facility Maps
Hydrant Cards
Job Folders
Notebooks
System Maps
Valve Cards
Historical Work Order Listing.xlsx

HOME DIALYSIS PATIENTS

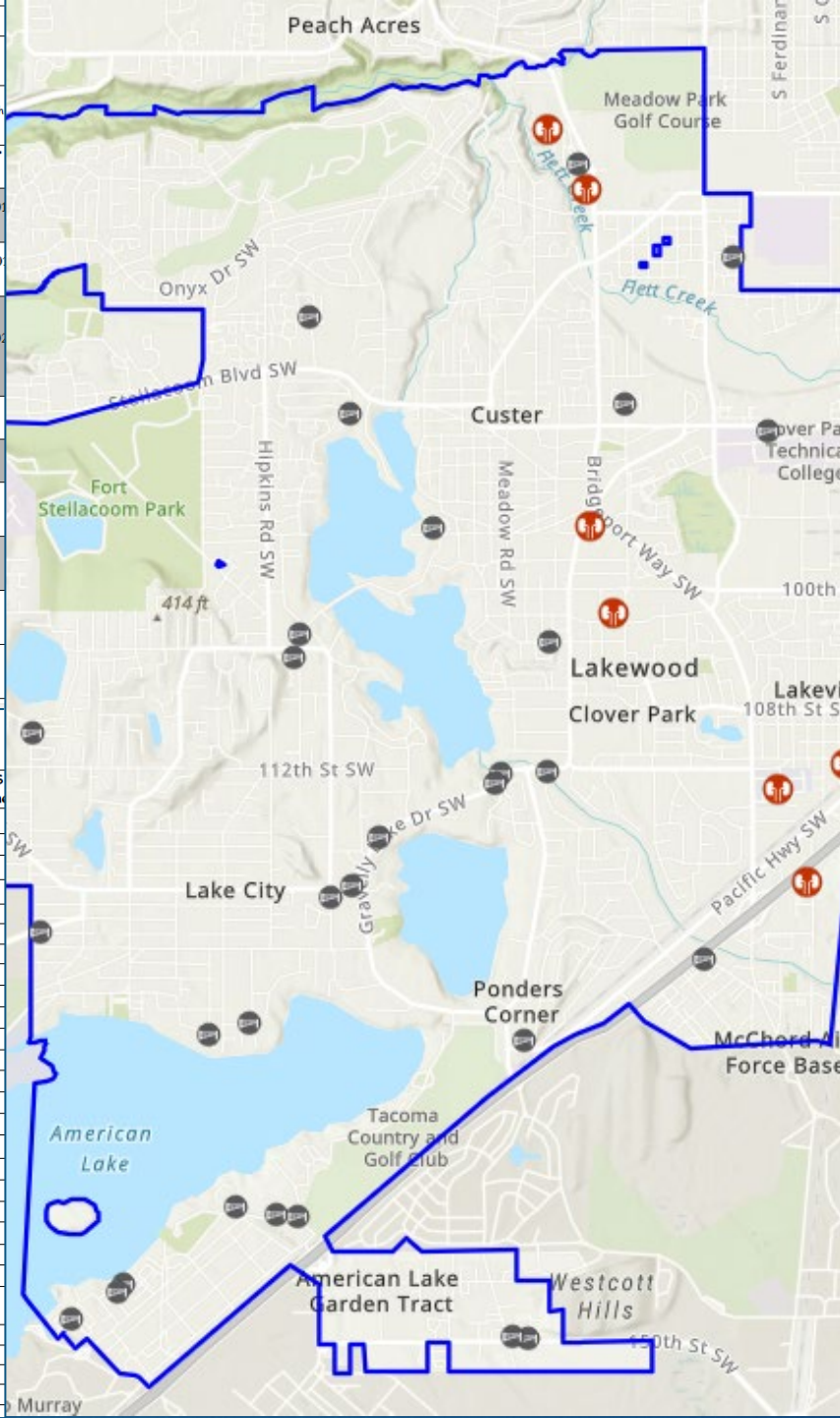
REVISED 3/18/21

It would be greatly appreciated if you could notify, **IN ADVANCE**, any scheduled service interruptions so that they could schedule their use of the machine.

CUSTOMER	ADDRESS	PHONE #.	METER LOCATION	METER NUMBER	CUST #
LAKESIDE DIALYSIS CENTER - DAVITA Contact: Fred Newcomer	Lakewood Town Center 5919 Lakewood Town Center Blvd Suite A	[REDACTED]	LT REAR CO 1 OF 2 M	73615143 80973450	16695.0
PUGET SOUND KIDNEY CENTER Contact: Bob Hamper	11950 47TH Ave SW	[REDACTED]	NE CO OF bg F OF PIV	89275931 93135784	27537.0
[REDACTED]	[REDACTED]	[REDACTED]	Meter tapped off of 16" transmission main E side of apartment bldg.	77834799 81400606	17736.0
St Clare Hospital	11315 Bridgeport Way SW, Lakewood, WA 98499	[REDACTED]			
West Pierce Fire and Rescue Station 21	5000 Steilacoom Blvd SW, Tacoma, WA 98499				
West Pierce Fire and Rescue Station 24	8310 87th Ave SW, Lakewood, WA 98498				
West Pierce Fire and Rescue Station 20	10928 Pacific Hwy SW, Lakewood, WA 98499				
West Pierce Fire & Rescue Station 20	10928 Pacific Hwy SW, Lakewood, WA 98499				
Virginia Franciscan Urgent Care	9537 Gravelly Lake Dr SW #E10, Lakewood, WA 98499	[REDACTED]			

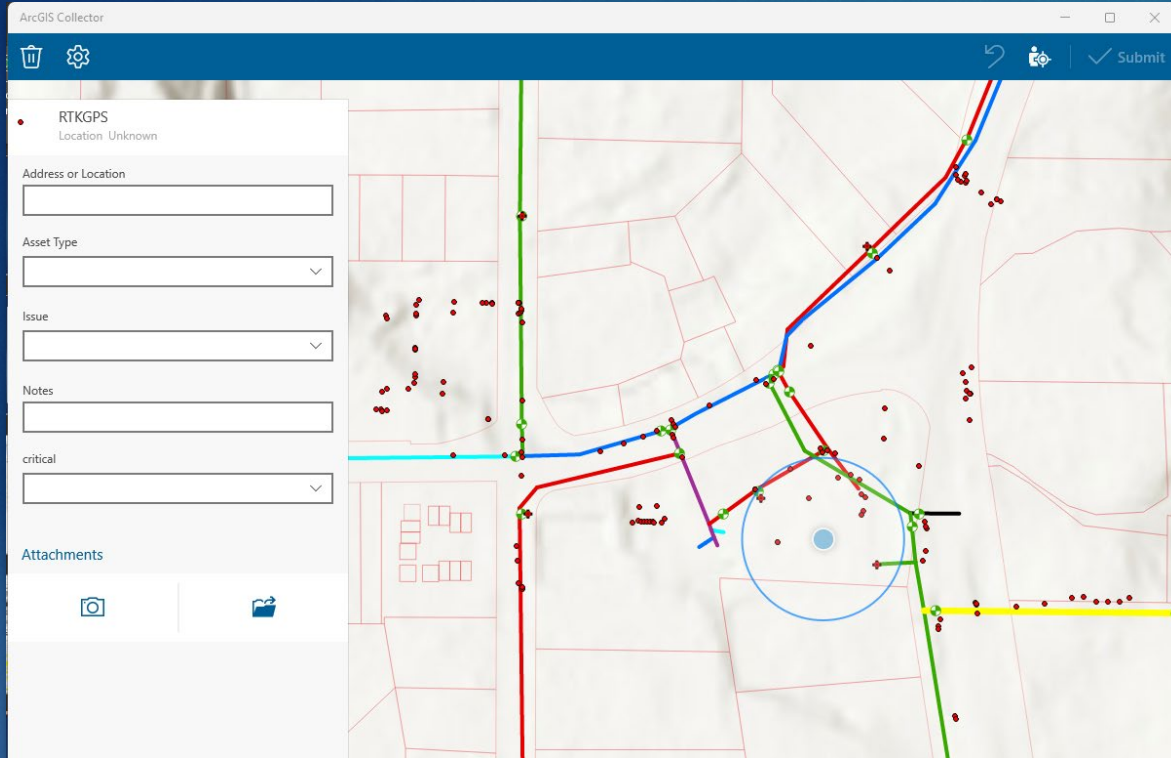
GATED COMMUNITIES

LOCATION	CONTACT	CODE	GIS Done
11615, 11617, & 11621 Gravelly Lake Dr SW		#1313	Y
15132 Silcox Dr		7412	Y
62ND AVE CT SW - 8621	[REDACTED]	#0217	Y
65TH Avenue Court		#2747	Y
8101 N THORNE LN SW	[REDACTED]	2667 Key	Y
American Lake Eagle PT RD. (15893)	[REDACTED]	#2165	Y
Brookdale Properties (8607 Durango St)	[REDACTED]	1775	Y
Chambers Garden	[REDACTED] (SENSITIVE KEYPAD)	#0010	N
11611 Gravelly Lake Dr. SW	[REDACTED]	#8008	Y
Clover Crest Estates	[REDACTED]	#8367	Y
Clover Creek Crossing	[REDACTED]	#1965	N
Country Club Circle	[REDACTED]	#9849	N
Country Club Estates	Tacoma Country Club	#4114	N
Country Place Homeowners Association	[REDACTED]	#9644	Y
Creekside Oaks Homeowners Association	[REDACTED]	#0704	N
Crosswater/ San Martiz	[REDACTED]	003249	Y
Crystal Oaks 841-0111	[REDACTED]	#4283	N
Fern St. SW - 15210	[REDACTED]	0611	Y
Fire Department Training Facility	[REDACTED]	#0342	Y
Flett Creek	[REDACTED]	Key Key 0007	N
12753 Gravelly Lake Dr	[REDACTED]	#1397	Y
Greystone's Homeowners Association	[REDACTED]	Key Key 1111	Y
Harwood Cove (contact during construction)	[REDACTED]	#3149	
Hawaiian Village Apts (main gate only)	[REDACTED]	#1355	Y
Holly Hedge Condo Association	[REDACTED]	#4940	Y
Interlaken Lane or 80th	[REDACTED]	#2580	N
Lakeholme Rd SW - 13001	[REDACTED]	#4365	Y
Lake Louise Place (Off Holden Rd.)	[REDACTED]		Y



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Informing Field Techs: Old vs. New



Using GPS to Update Maps

To Summarize...



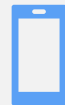
Think Critically about your existing information management systems. Have guidelines to guide this work



Involve and invest in your workforce



Prioritize simple solutions that require little configuration. Make Data visible and easy to interpret



Put things in one place whenever possible



Questions



Thank you

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