

USER INVENTORY MODERNIZATION

Christian Somoza, Pretreatment Coordinator

John Miller, GIS Technician

St Vrain Sanitation District

OVERVIEW

- What is a User Inventory?
- Data Collection Methods
- Challenges of Data Collection
- St Vrain Sanitation District Demographics
- Historical Data Collection and Storage
- Brainstorming Ideas Using Available Technology
- What is GIS?
- How GIS can be impactful on many fields of study
- Building a GIS tool/app for pretreatment use

WHAT IS A USER INVENTORY?

- 40 CFR Part 403.8(f)(2)(i-ii)
 - Requires all POTWs to establish procedures to identify and locate all possible industrial users subject to the requirements of the pretreatment program and identify the volume and character of pollutants discharged by the industrial user.
 - Data must be readily available to Regional Administrator or Director upon request
- Translation
 - Have an updated list of all non-residential users
 - What are they discharging?
 - Determination
 - Readily accessible

Does not sound to challenging at first glance...

IDENTIFYING NON-RESIDENTIAL USERS

- Internal Data Collection
 - Existing Customer List
 - New Customers (POTW Billing)
 - Billing Transfers
 - Plan Review Department
 - Driving your area
- External Data Collection
 - Referrals from Town/City/County
 - Building Departments

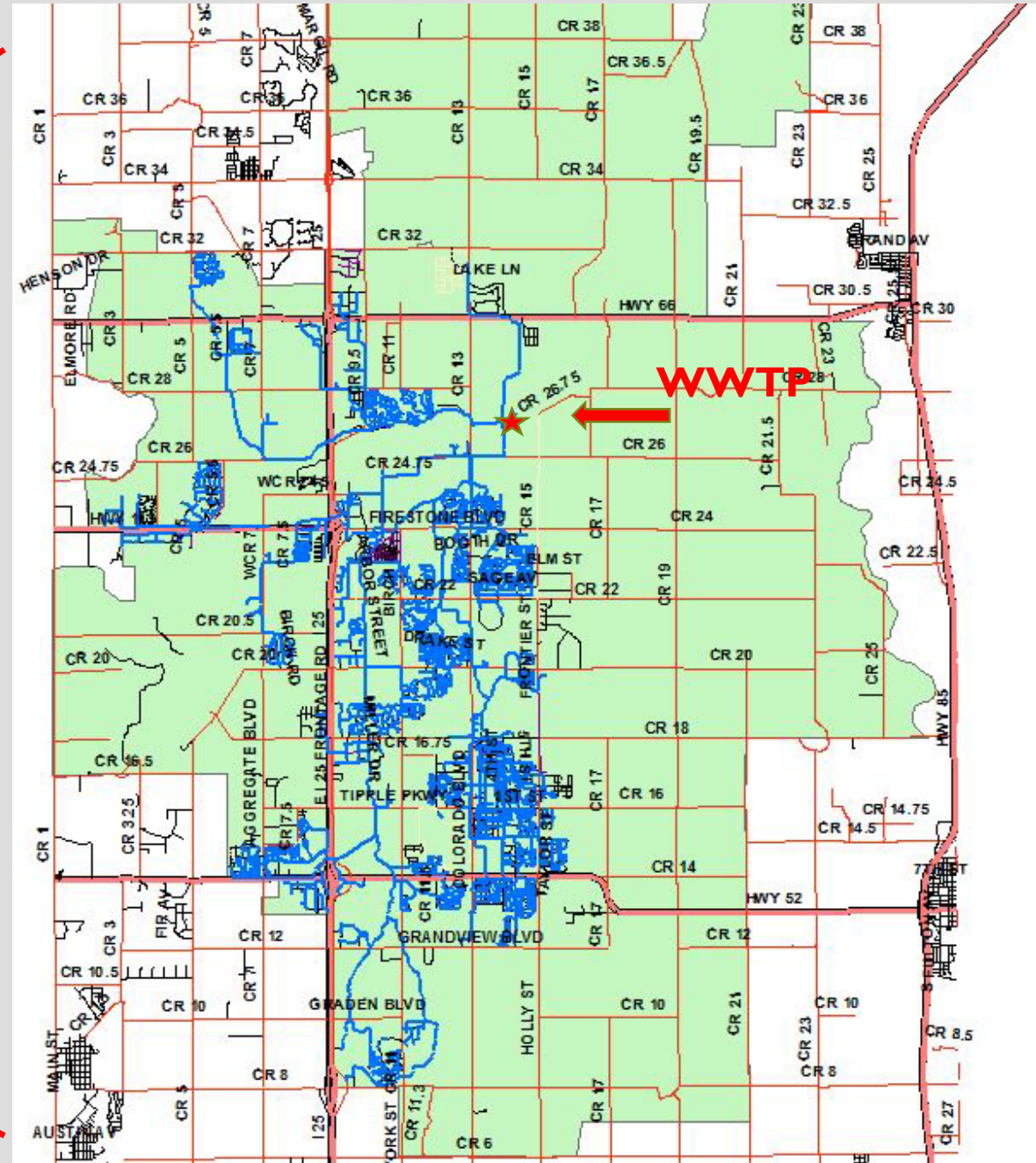
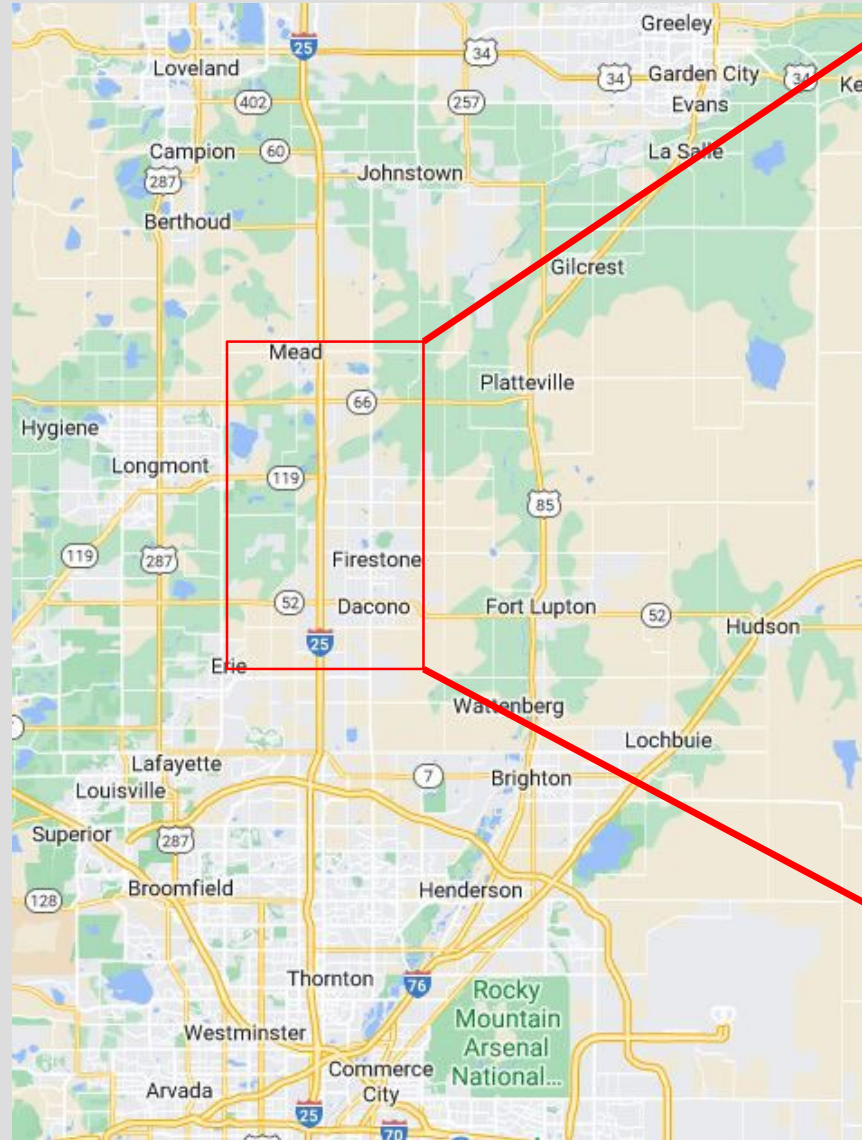
HOW DO WE CHARACTERIZE WW CONTRIBUTION?

- Waste Surveys
 - Business Information and Activities
 - Categorical List of Activities
 - Materials and Processes
 - SIC or NAICS industry codes
 - Chemical Usage
 - Drain information
- Walkthrough Inspections
 - Inspection report
 - Similar to waste survey data. (include staffing and visual observations)
- Determination Letter (Informing IU of your findings)

GENERAL CHALLENGES

- Disorganization
 - Not centralizing your data
 - Not having processes in place to route data
 - Not reviewing your data
- Non-Cooperative Towns/Cities/Counties
 - Do not understand your legal authority
 - Do not have an IGA in place
- Multi-Tenant Headaches
 - High turnover
 - Owners submit guesses for Waste Surveys
 - Tenants are unresponsive and/or uncooperative

ST VRAIN SANITATION DISTRICT 208

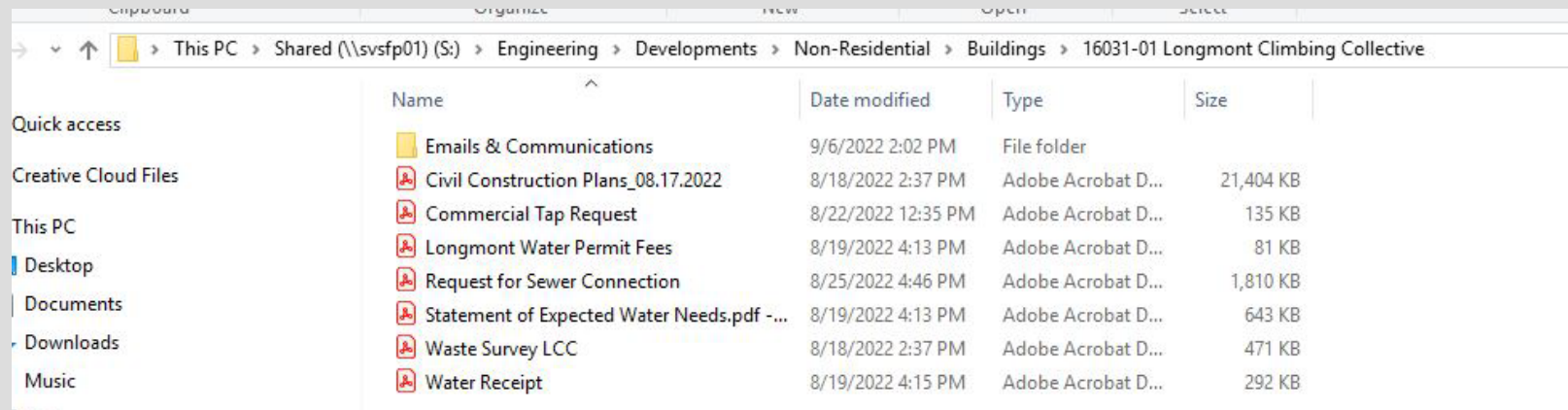


DEMOGRAPHICS

- Approximately 550 non-residential taps (total 15,100 taps)
 - 5 permitted dischargers
 - Pharma, Food Manufacturer, Dairy, Truck Wash, Medical Sterilization
 - 5 zero-discharges (all metal finishers)
 - 135 Interceptors
 - Half are restaurants or grease producing facilities
 - Potentially 1000-3000 businesses out of these 550 taps
- Non-Residential = 10-20 % of Daily Flows (Current 4mgd, Rated 6mgd)
- Connectors
 - Firestone, Frederick, Dacono, parts of Longmont and Mead

HISTORICAL METHODS

- Project Technician
 - Requests Waste Survey as part of Submittals or Referrals
 - Request IPP review of plans that may need pretreatment
 - Moves waste surveys to tap folders
- Field Inspections
 - IPP ID's business of concern
 - Conducts inspections and requests waste surveys
 - Attached documents to tap folders



The screenshot shows a Windows File Explorer window with the following path: This PC > Shared (\svsfp01) (S:) > Engineering > Developments > Non-Residential > Buildings > 16031-01 Longmont Climbing Collective. The main pane displays a list of files and folders with columns for Name, Date modified, Type, and Size.

Name	Date modified	Type	Size
📁 Emails & Communications	9/6/2022 2:02 PM	File folder	
📄 Civil Construction Plans_08.17.2022	8/18/2022 2:37 PM	Adobe Acrobat D...	21,404 KB
📄 Commercial Tap Request	8/22/2022 12:35 PM	Adobe Acrobat D...	135 KB
📄 Longmont Water Permit Fees	8/19/2022 4:13 PM	Adobe Acrobat D...	81 KB
📄 Request for Sewer Connection	8/25/2022 4:46 PM	Adobe Acrobat D...	1,810 KB
📄 Statement of Expected Water Needs.pdf - ...	8/19/2022 4:13 PM	Adobe Acrobat D...	643 KB
📄 Waste Survey LCC	8/18/2022 2:37 PM	Adobe Acrobat D...	471 KB
📄 Water Receipt	8/19/2022 4:15 PM	Adobe Acrobat D...	292 KB

CURRENT PROBLEMS

- We do not receive most tenant finish plans
- Some municipalities are unwilling to share information or include the District in plan reviews
 - Results in multitude of IPP and Engineering issues
- We do not capture updated surveys during billing transfers
 - Including signature agreeing to follow rules and regs
- Data stored in engineering files, not in pretreatment files
- Management of data is onerous
 - Searching records and data review

BRAINSTORMING

Waste Surveys
↓
EPA Compliance
↓
LIST OF ALL NEAR-RES USERS
↓
GOALS

INTERGRATION W/ GIS

- Establish Database (1)
- Establish SOPs (2)
 - Data collection
 - Tenants
 - OWNERS > Legal Sign.
- Collections & Maintenance

Database excel

1	2	3	...	1500
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ADDRESS	NEUR	USE AD	Q
	Y		
	N		

TASKS

Christina → w/ melissa → transfer form
- update
- other ideas

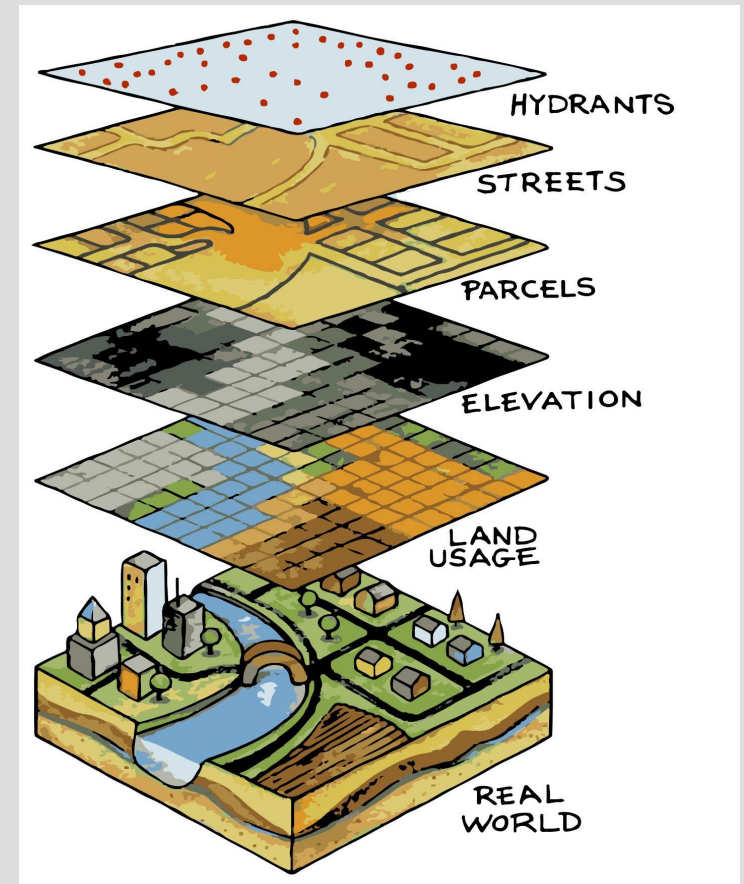
→ talk to car → legal
→ what attribute info

John → Look into
↳ new survey
↳ multi-level attribute
↳ w/ choice & kernel on Survey 123 / fisher integration

Melissa → transfer form
↳ add to closing docs
→ Heidi add disclaimer to website

GIS OVERVIEW

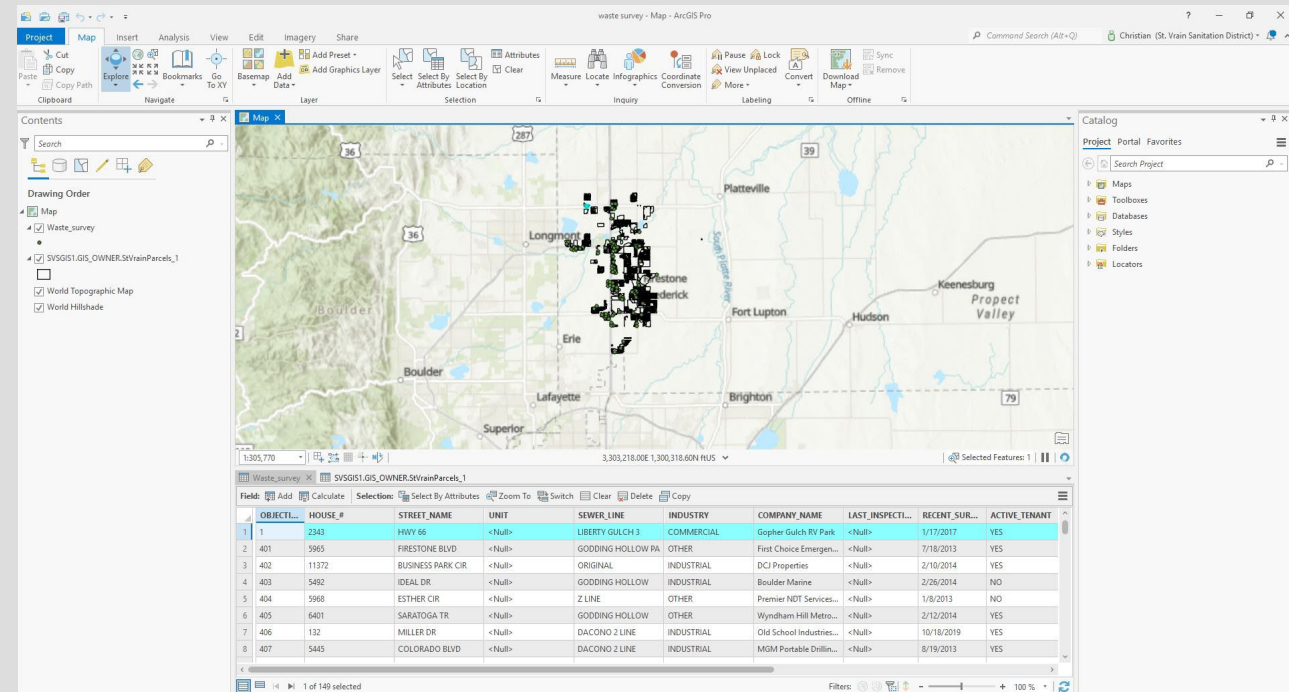
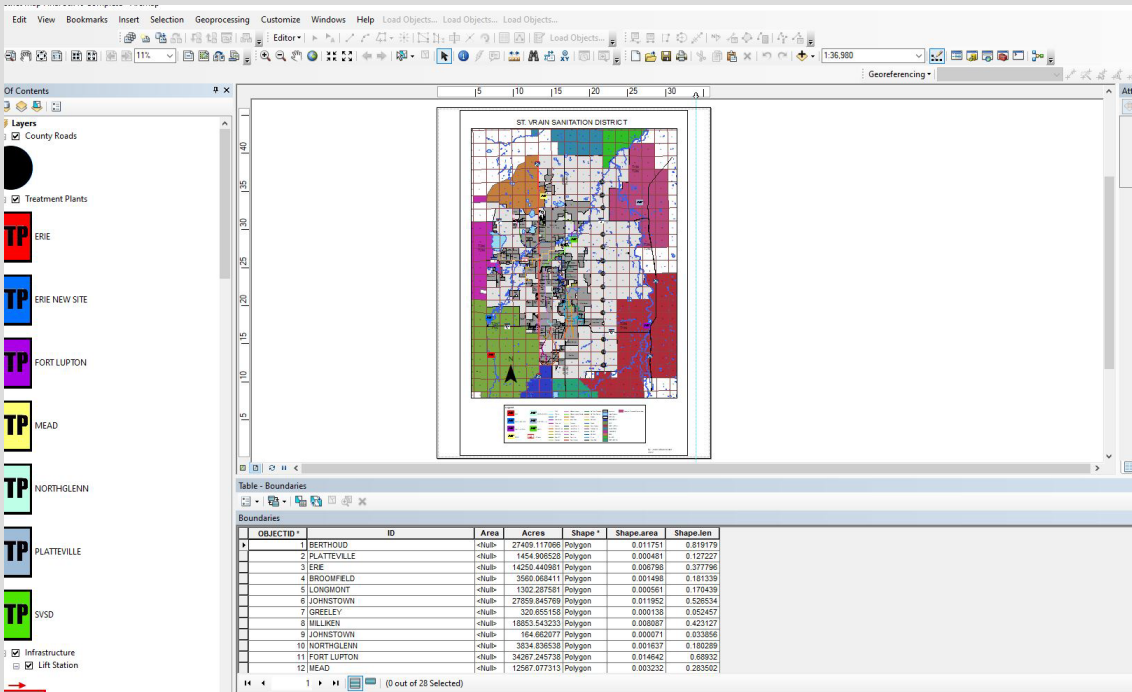
- GIS or Geographic Information Systems are computer systems designed for capturing, storing, checking, manipulating and displaying data related to positions on Earth's surface.
- GIS connects data to a map, integrating location data with all types of descriptive information . This provides a foundation for mapping and analysis that is used in almost every industry.
- GIS is a rapidly growing field and is a great tool to assist in the modernization of organizations and already established systems.



USING GIS TO MANAGE DATA

- We decided that ArcPRO would be our platform
 - All existing tap information is already present
 - Owner info
 - Tap purchase information
- We would add Pretreatment data
 - Waste Surveys
 - Inspection forms
 - Pictures

GIS + PRETREATMENT = A GOOD TIME



By using data already stored in GIS in conjunction with data collected over the years in our pretreatment program we can create a “queriable” system to modernize our pretreatment program and increase efficiency. This can be done with any process that involves any type of spatial data.

EXAMPLE

The screenshot displays a GIS application interface. The top portion shows a map with various features, including roads, parks, and water bodies. A specific parcel is highlighted with a green dot, indicating a waste survey location. The bottom portion of the interface shows a data table with the following columns and one row of data:

OBJECTID	HOUSE#	STREET_NAME	UNIT	SEWER_LINE	INDUSTRY	COMPANY_NAME	LAST_INSPECT...	RECENT_SUR...	ACTIVE_TENANT	PERMIT	WASTE_SURVEY	NOTES	CUSTOME	
1	334	1423	SKYWAY DR	<Null>	ORIGINAL	COMMERCIAL	Sind & Sky LLC	<Null>	1/7/2021	YES	<Null>	YES	<Null>	15023-01

- Green dot = single waste survey
- Polygons = parcel boundary
- “stackable” for multi-tenant
- Attributes – unlimited options, can be as complex or a simple as one wishes.
- Can be selected individually, together or queried based on a set of rules you make...

EXAMPLE OF QUERY

The screenshot shows the ArcGIS Pro interface with a map of a residential and industrial area. A 'Select By Attributes' dialog box is open, displaying the following query:

```
Where INDUSTRY is equal to INDUSTRIAL  
And SEWER_LINE is equal to DING HOLLOW
```

The dialog also shows the 'Input Rows' as 'Waste_survey' and the 'Selection type' as 'New selection'. Below the dialog, a table of attributes is visible, showing columns for OBJECTID, HOUSE #, STREET_NAME, UNIT, SEWER_LINE, and other fields.

OBJECTID...	HOUSE #	STREET_NAME	UNIT	SEWER_LINE	RECENT_SUR...	ACTIVE_TENANT	PERMIT	WASTE_SURVEY	NOTES	CUSTC
1	2343	HWY 66	<Null>	LIBERTY GULCH 3	1/17/2017	YES	NO	YES	<Null>	11145-0
2	401	FIRESTONE BLVD	<Null>	GODDING HOLLOW PA	7/18/2013	YES	NO	YES	<Null>	1407-0
3	402	BUSINESS PARK CIR	<Null>	ORIGINAL	2/10/2014	YES	NO	YES	<Null>	02642-1
4	403	IDEAL DR	<Null>	GODDING HOLLOW	2/26/2014	NO	NO	YES	<Null>	2968-0
5	404	ESTHER CIR	<Null>	Z LINE	1/8/2013	NO	NO	YES	<Null>	3198-0
6	405	SARATOGA TR	<Null>	GODDING HOLLOW	2/12/2014	YES	NO	YES	<Null>	3354-0
7	406	MILLER DR	<Null>	DACONO 2 LINE	10/18/2019	YES	NO	YES	<Null>	3573-0
8	407	COLORADO BLVD	<Null>	DACONO 2 LINE	8/19/2013	YES	NO	YES	<Null>	4705-0

- By using the “select by attributes” tool we can quarry our waste surveys based on any of the information we have in the “table of attributes” (customer #, address, sewer line, industry type, and/or any other type of data you'd like).
- ArcPRO utilizes a simple coding method where you just have to use drop down boxes and fill in the blanks. This way very minimal coding knowledge is needed and it is very user friendly. Older versions of GIS will require some knowledge of code writing.

EXAMPLE OF QUERY CONTINUED

OBJECTID	HOUSE #	STREET_NAME	UNIT	SEWER_LINE	INDUSTRY	COMPANY_NAME	LAST_INSPECTI...	RECENT_SUR...	ACTIVE_TENANT	PERMIT	WASTE_SURVEY	NOTES	CUSTC
403	5492	IDEAL DR	<Null>	GODDING HOLLOW	INDUSTRIAL	Boulder Marine	<Null>	2/26/2014	NO	NO	YES	<Null>	2968-0
414	7051	EAGLE BLVD	<Null>	GODDING HOLLOW	INDUSTRIAL	Agilent Technologies	<Null>	4/1/2022	YES	<Null>	YES	Temp Construction T...	12622-
415	4040	KODIAK CT	<Null>	GODDING HOLLOW	INDUSTRIAL	Intec	<Null>	4/4/2019	NO	<Null>	YES	<Null>	7416-0
435	7301	EAGLE BLVD	<Null>	GODDING HOLLOW	INDUSTRIAL	Town of Frederick	<Null>	4/28/2014	YES	<Null>	YES	Public works building	11120-
439	7200	EAGLE BLVD	<Null>	GODDING HOLLOW	INDUSTRIAL	Shadtree Eagle LLC	<Null>	4/22/2015	NO	<Null>	YES	<Null>	11564-
446	7595	MILLER CT	<Null>	GODDING HOLLOW	INDUSTRIAL	7595 Investments LLC	<Null>	9/3/2015	YES	<Null>	YES	<Null>	11726-
447	5814	IDEAL DR	<Null>	GODDING HOLLOW	INDUSTRIAL	Source Gas Distributi...	<Null>	<Null>	YES	<Null>	YES	<Null>	11732-
472	8312	RASPBERRY WAY	<Null>	GODDING HOLLOW	INDUSTRIAL	Mountain and Tropic...	<Null>	9/15/2017	YES	<Null>	YES	<Null>	12620-

- As you can see all waste surveys where the “Industry” attribute is “industrial” and are the “Sewer Line” attribute is “Godding Hollow” are selected.
- A new map layer can be created/exported with just these waste surveys.
- You are able to select by as many attributes as you'd like.

ONCE I SELECT, HOW DO I SEE MY ORIGINAL WASTE SURVEY?

The screenshot shows the ArcGIS Desktop interface. The map displays a residential area with a parcel selected. The 'Attributes' pane on the right shows the following data for the selected feature:

OBJECTID	HOUSE_#	STREET_NAME	UNIT	SEWER_LINE	INDUSTRY	COMPANY_NAME	LAST_INSPECT...	RECENT_SUR...	ACTIVE_TENANT	PERMIT
1	2343	HWY 66	<Null>	LIBERTY GULCH 3	COMMERCIAL	Gopher Gulch RV Park	<Null>	1/17/2017	YES	NO

The 'Table of Contents' pane shows the following layers:

- Waste_survey
- SVSGIS1_GIS_OWNER.StVrainParcels_1

The screenshot shows the ArcGIS Desktop interface. The map displays the same residential area with the same parcel selected. The 'Attributes' pane on the right shows the same data as the first screenshot:

OBJECTID	HOUSE_#	STREET_NAME	UNIT	SEWER_LINE	INDUSTRY	COMPANY_NAME	LAST_INSPECT...	RECENT_SUR...	ACTIVE_TENANT	PERMIT
1	2343	HWY 66	<Null>	LIBERTY GULCH 3	COMMERCIAL	Gopher Gulch RV Park	<Null>	1/17/2017	YES	NO

The 'Table of Contents' pane shows the following layers:

- Waste_survey
- SVSGIS1_GIS_OWNER.StVrainParcels_1
- Waste_survey.pdf

FINAL RESULT

The screenshot displays the ArcGIS Pro interface with several key components:

- Map View:** Shows a geographic map with a selected parcel. The map includes labels for 'St Vrain State Park', 'Cormorant Pond', 'Blue Heron Reservoir', and 'Great Egret Pond'.
- Table View:** A data table is visible at the bottom of the interface, showing columns for 'ST_INSPECTI...', 'RECENT_SUR...', 'ACTIVE_TENANT', and 'PERMIT'. The table contains several rows of data.
- PDF Document:** An Adobe Acrobat Reader window is open, displaying a 'Waste Survey.pdf' for 'ST. VRAIN SANITATION DISTRICT NON-RESIDENTIAL WASTE SURVEY'. The document contains the following text:

ST. VRAIN SANITATION DISTRICT
NON-RESIDENTIAL WASTE SURVEY

1. BUSINESS NAME Gopher Gulch RV Park
 MAILING ADDRESS 1675 County Road 26, Longmont, CO 80504
 BUSINESS LOCATION 2343 Hwy 66, Longmont, CO 80504

INDIVIDUAL RESPONSIBLE FOR OPERATION
 Chris Cain Owner 303-591-3404
 Name Title Phone No.

INDIVIDUAL PROVIDING INFORMATION
 Jose Ramirez Engineer 303-506-3118
 Name Title Phone No.

2. TYPE OF BUSINESS: MANUFACTURING [] SALES [] SERVICE []
 DISTRIBUTION [] OTHER [X] Recreational RV Park

DESCRIBE YOUR BUSINESS ACTIVITY
Tourism, Hospitality and Recreational RV Park

CHECK ALL ACTIVITIES OCCURRING AT YOUR LOCATION

<input type="checkbox"/> Centralized Waste Treatment	<input type="checkbox"/> Mining
<input type="checkbox"/> Copper or Aluminum Forming	<input type="checkbox"/> Non Ferrous Metals Forming
<input type="checkbox"/> Chemical Manufacture	<input type="checkbox"/> Oil & Gas Refining/Extraction
<input type="checkbox"/> Electrical Component Assembly or Manufacturing	<input type="checkbox"/> Pharmaceutical Manufacture
<input type="checkbox"/> Electroplating	<input type="checkbox"/> Painting/Finishing
<input type="checkbox"/> Flammables/Explosives Use	<input type="checkbox"/> Photographic/X-Ray developing
<input type="checkbox"/> Glass Manufacture	<input type="checkbox"/> Porcelain Enameling
<input type="checkbox"/> Grain Mills	<input type="checkbox"/> Printing/Publishing
<input type="checkbox"/> Laundry, Commercial	<input type="checkbox"/> Rubber Processing
<input type="checkbox"/> Leather Tanning & Finishing	<input type="checkbox"/> Sawmilling/Metal Refining
<input type="checkbox"/> Metal Finishing (including electroless plating, anodizing, coating, chemical etching, etc.)	<input type="checkbox"/> Steam Power Generation
<input type="checkbox"/> Metal Molding and Casting	<input type="checkbox"/> Timber Products & Processing
<input checked="" type="checkbox"/> None of the Listed Activities	<input type="checkbox"/> Transportation Equipment Cleaning
	<input type="checkbox"/> Vehicle Repair Shop/Carwash
	<input type="checkbox"/> Trucks/Hauled Waste

MORE POSSIBILITIES

- Remote/field capabilities
- Real time data sharing within your organization
- Online surveys/forms
- Ability to share data and information with anyone with only a few clicks
- GIS can be as powerful and impactful on your organization as you'd like, it is a tool with truly unrealized potential.



QUESTIONS?