What's Happening in My Watershed?

How Implementing a GIS system to Utilize Spatial Data and Digital Collection Techniques can help Solve Watershed Issues.

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City of Tulsa – Stormwater Quality

Overview

- Where did we come from?
- What was the Process to get started?
- What are we doing now?
- Where are we going?
  - Utilizing our collected data to target education and enforcement to improve the health of the watersheds in our community.

Where did we come from?

- Full Paper Copies of all work.
- No digital data collection.
- No useable interactive Maps
- Not utilizing the Spatial data available.
- Using what has always worked.

Where did we come from?

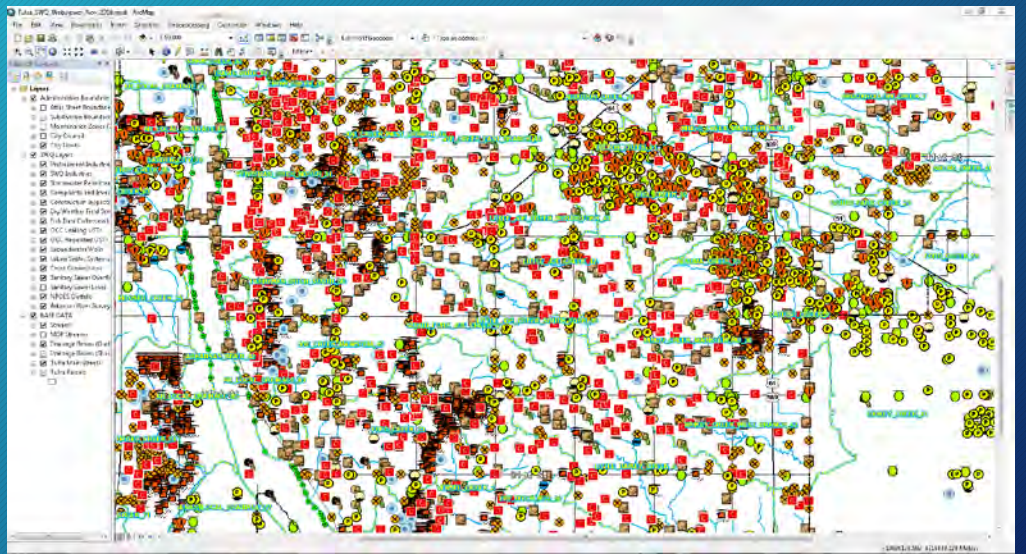
- Full paper copies of all work.
  - This leads to …
    - Filing cabinets full of data
    - Lost data
    - Data that is hard to utilize
    - Data that is forgotten
  - Prevents easy access, and utilization

Where did we come from?

- No digital data collection.
  - Cumbersome to collect data
    - Carrying extra equipment
    - Lack of ability to take pictures and directly attach to location/ data being collected
  - Causes data to be collected via unusual means
    - Cell phone pictures of instrument read outs to fill out paper work later.

Where did we come from?

- No useable interactive maps.
  - Had a map prepared by a contractor.
    - Limited data analysis.
- Not utilizing the spatial data available.
  - Not even using the limited analysis available.



Where did we come from?

- Using what has always worked.
  - Not necessarily a bad thing
  - Sometimes things are done a certain way for specific reasons
  - It is comfortable for people already trained
  - This can lead to working harder not smarter

What was the process to get started?

- Looked through what had been created.
- Assessed the data needs of the group
- Assessed the data needs per our permit
- Assessed the available technology
- Assembled the data that was readily available in city databases
- Collected open source data needed
- Started contacting people to address missing data needs

What was the process to get started?

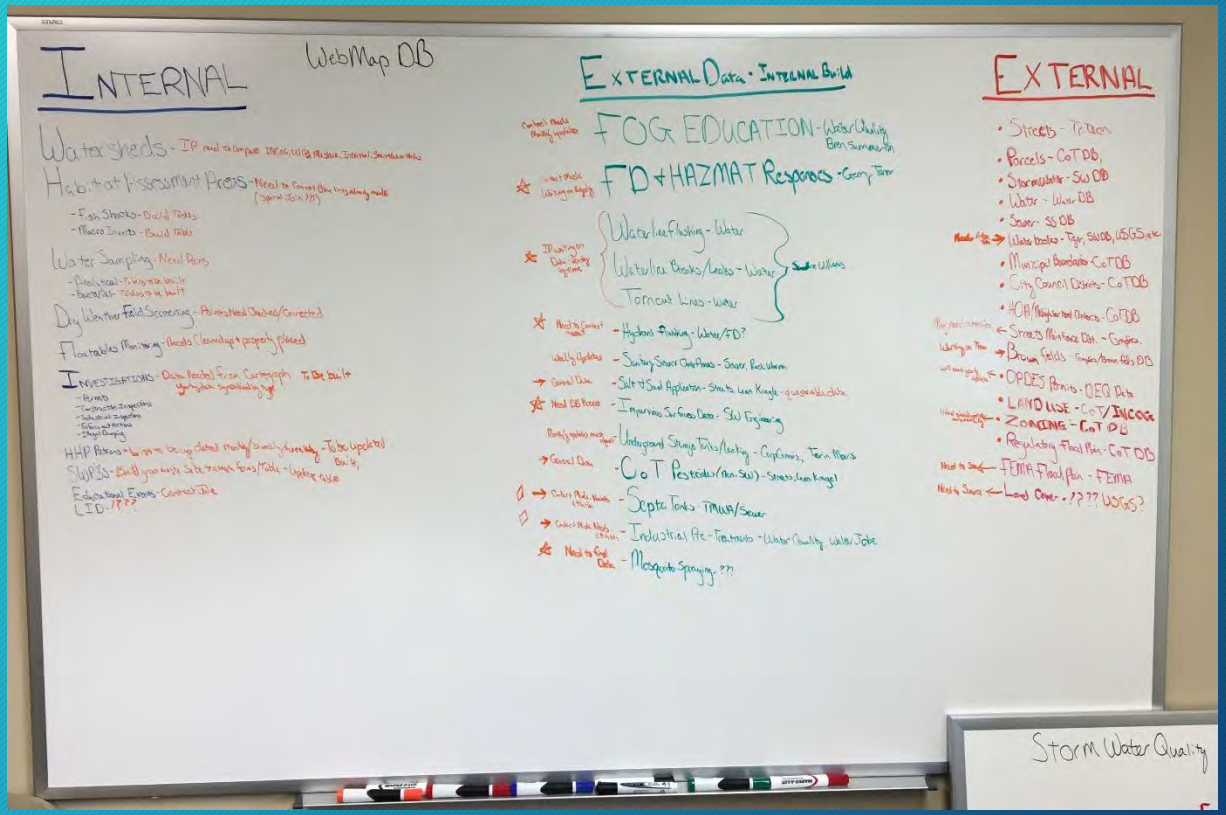
- Looked through what had been created.
  - Looked at the contractor map
  - Looked at in house created data
  - Looked at how things were stored and formatted

What was the process to get Started?

- Assessed the data needs of the group
  - What will help my field personnel?
  - How can I make their job easier or more efficient?
  - The smarter not harder mentality

What was the process to get started?

- Assessed the data needs per our permit

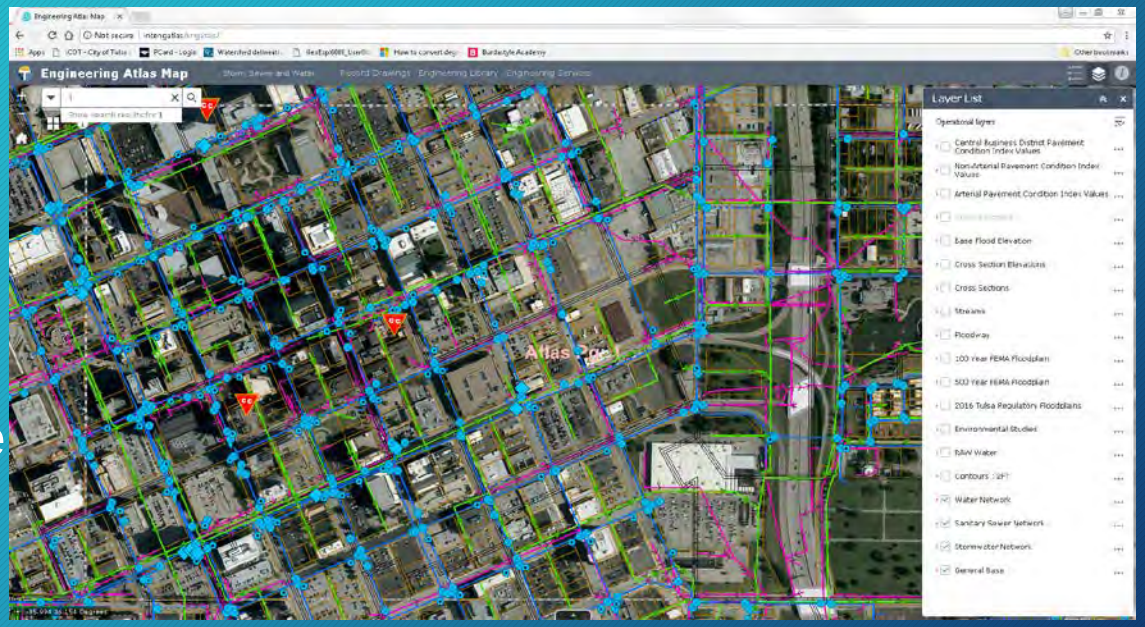


What was the process to get started?

- Assessed the available technology
  - What do we have at our disposal to use?
    - Computers
    - Cell Phones
    - GPS Units
  - What all will we need training on to be able to use easily?
    - Consider personnel
    - Consider previous training

What was the process to get started?

- Assembled the data that was readily available in city databases
  - Streets Data
  - Water Infrastructure
  - Sanitary Sewer Infrastructure
  - Stormwater Infrastructure
  - Municipal districts
  - City Council Districts
  - Parcel Data
  - ETC.



What was the process to get started?

- Collected open source data needed
  - FEMA Flood Plain
  - Land Cover data – USGS
  - Soils Data – USDA
  - DEQ Data
    - PDES Discharges
    - TMDL's
    - Etc.

What was the process to get started?

- Started contacting people to address missing data needs
  - Sewer Dept.- Sanitary Sewer Overflows, Fats Oils and Grease Contacts
  - Water Dept. – Flushing, Breaks, Leaks, TOL's
  - Fire Dept. – Hydrant Flushing, Calls, and HAZMAT responses
  - Streets Dept. – Salt & Sand Application, Mowing Collections
  - OK Corp. Commission – UST's leaking and otherwise

What are we doing now?

- Implementing GIS
  - Using Collector Apps in the field
  - Using spatial Analysis to find what is going on in the areas we work in.
- Causing less paper waste
- Moving toward a robust GIS data set for Analysis
- Implementing an Asset management system to track our Investigations, and Inspections.

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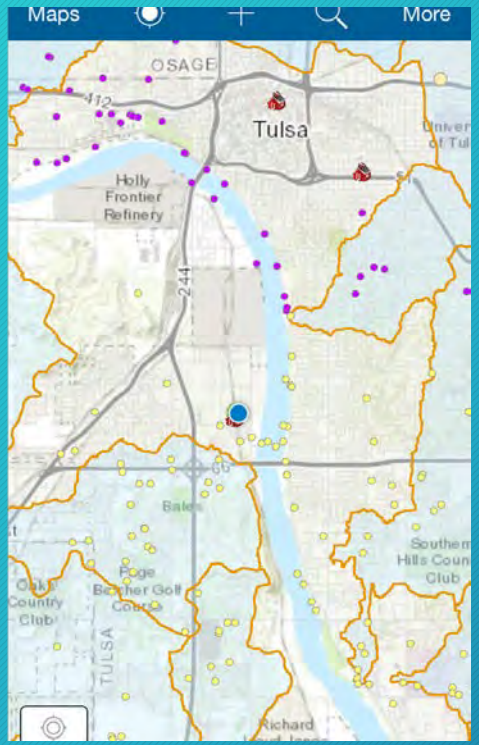
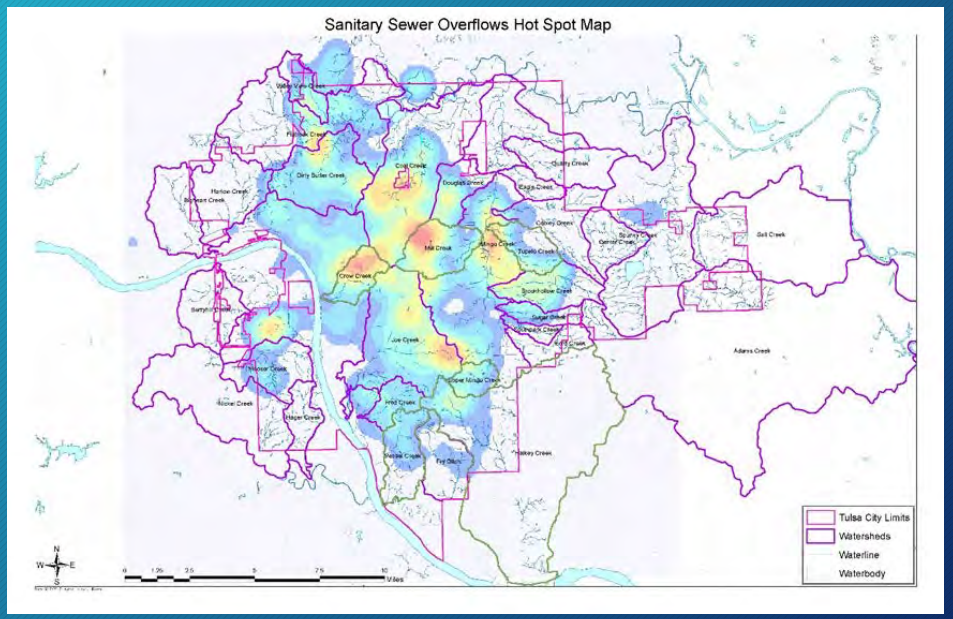
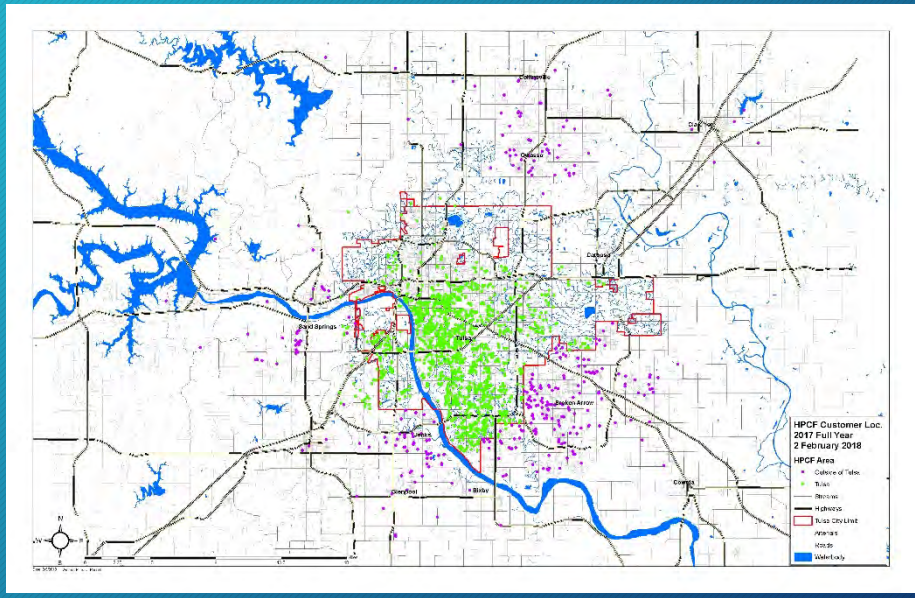
  - Using Collector Apps in the field
  - Using spatial Analysis to find what is going on in the areas we work in.





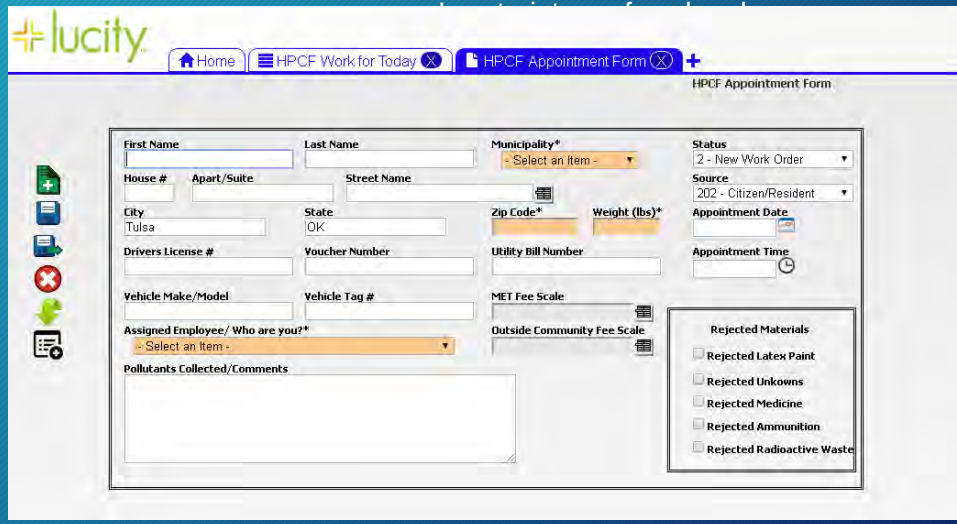
What are we doing now?

- Moving toward a robust GIS data set for Analysis
  - Collecting data in the field
    - Dry Weather Field Screening
    - Habitat Assessments
    - Macro Collections
    - HPCF Patrons
  - Inputting old data and tying to geographic locations
    - Floatables data



What are we doing now?

- Implementing an Asset management system to track our Investigations, and Inspections.
  - Lucity
    - Investigations work order
    - Inspection forms
      - IHRR
      - Construction
    - HPCF – Household Pollution Collection Facility work order



Where are we going?

- Full Digital Data Collection (barring things required by law)
- Using Spatial Analysis to explain and possibly predict what is going on in individual watersheds.
  - Help target Education activities
  - Help Target Enforcement activities.
- Fully implementing our asset management program for job functions that are able to utilize it.

Where are we going?

- Creating an Illicit Discharge trace map for the Stormwater infrastructure.
  - Utility for
    - Investigations
    - DWFS
    - Finding Point Source Pollution

  - http://tryitlive.arcgis.com/illicitdischarge/

Any Questions?