

# Developing a Surface Water Asset Inventory for Municipalities

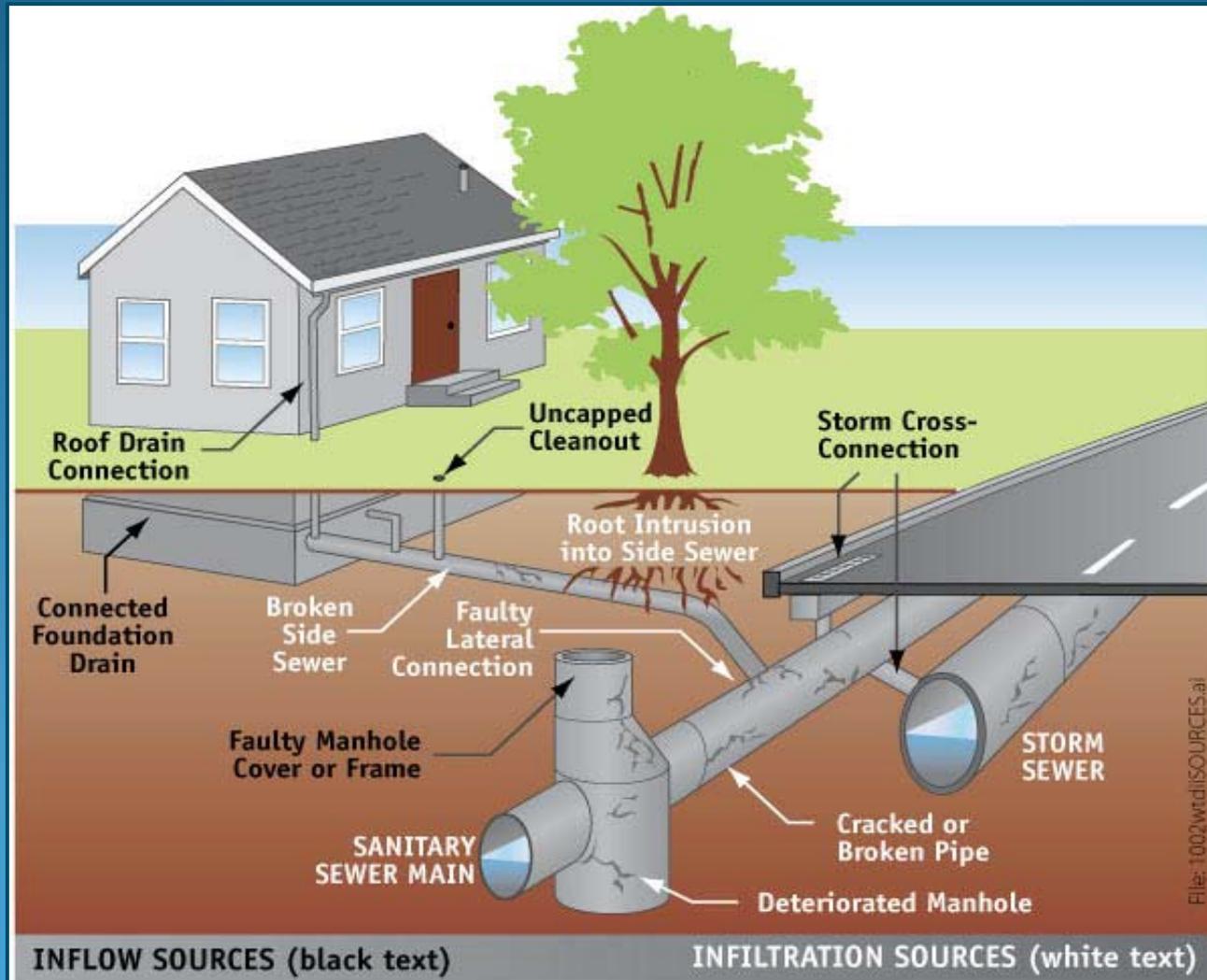


# What is a Surface Water Asset?

- Surface water assets are structures that help direct rainwater into a sub-surface, piped drainage system.



# What is a Surface Water Asset?



# Surface Water Asset Examples

- Catch basins



- Inlets



# Surface Water Asset Examples

- Ditches



- Culverts



# Surface Water Asset Examples

- Sandboxes



- Junction Boxes



# Project Drivers

- National Pollutant Discharge Elimination System (NPDES) Stormwater Permit (2007 & 2013)
  - *“No later than 24 months after the effective date of this permit each Permittee shall begin implementing a program to inspect catch basins owned or operated by the Permittee.”*
  - Penalties for non-compliance can include: \$32,000 per day per violation



# Project Drivers

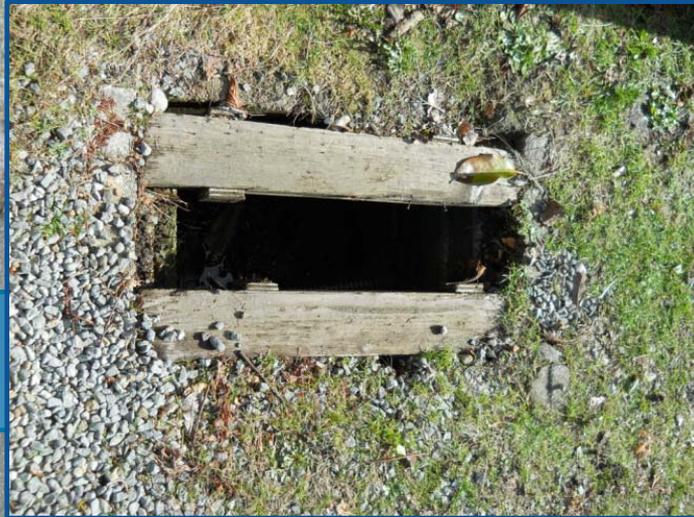
- If an asset isn't captured in GIS, it doesn't exist in SPU's Work Management System (MAXIMO).

This means:

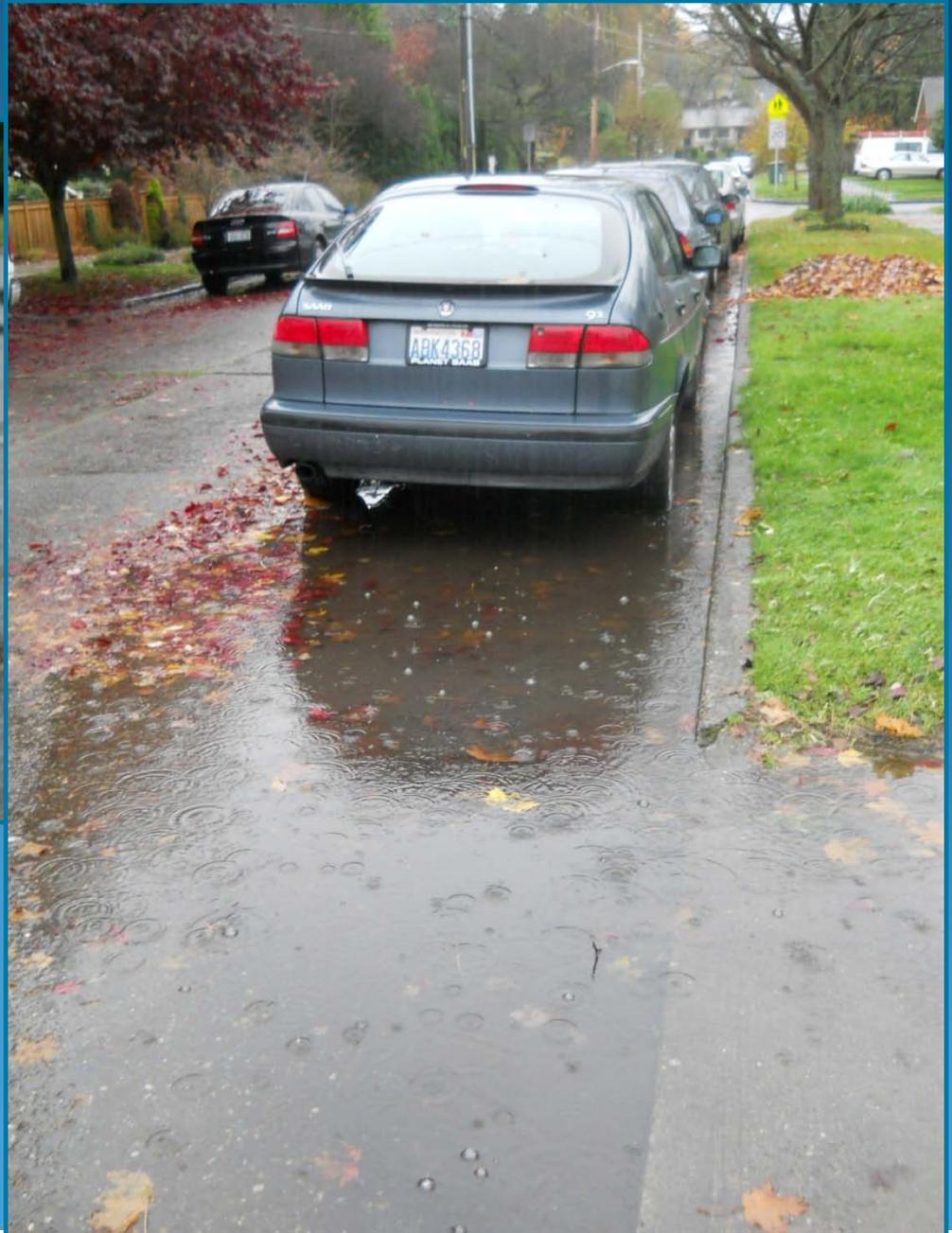
- Some assets are not being maintained
- Claims, public safety risks, etc..
- Help to identify and report possible issues



# Structures needing maintenance



# Identify Potential Flooding Issues



# Identify Potential Problem Areas



# Surface Water Asset Mapping Project (SWAMP)

- Multi-year initiative to map SPU's surface water assets
- GPS field data collection and updating the City's GIS
- 120,000 assets to verify
- Asset rehabilitation and replacement tracking



## Catch Basin – Grated Top (CBL)-

A **catch basin – grated top** has the same function as a catch basin, but has a metal grate on top to collect surface flow and usually a larger capacity. Catch basin - grated tops usually have a trap to prevent floating debris from entering and clogging the sewer or drainage line.



In-line System?	Pipe Inflow?	Pipe Outflow?	Sump?	Wooden Top?	Metal Grating	Circular Casting?	On a Maintenance Plan?	In Maximo?
Never	Sometimes	Always	Always	Never	Always	Sometimes	Yes	Yes

# Workflow – From Fieldwork to GIS

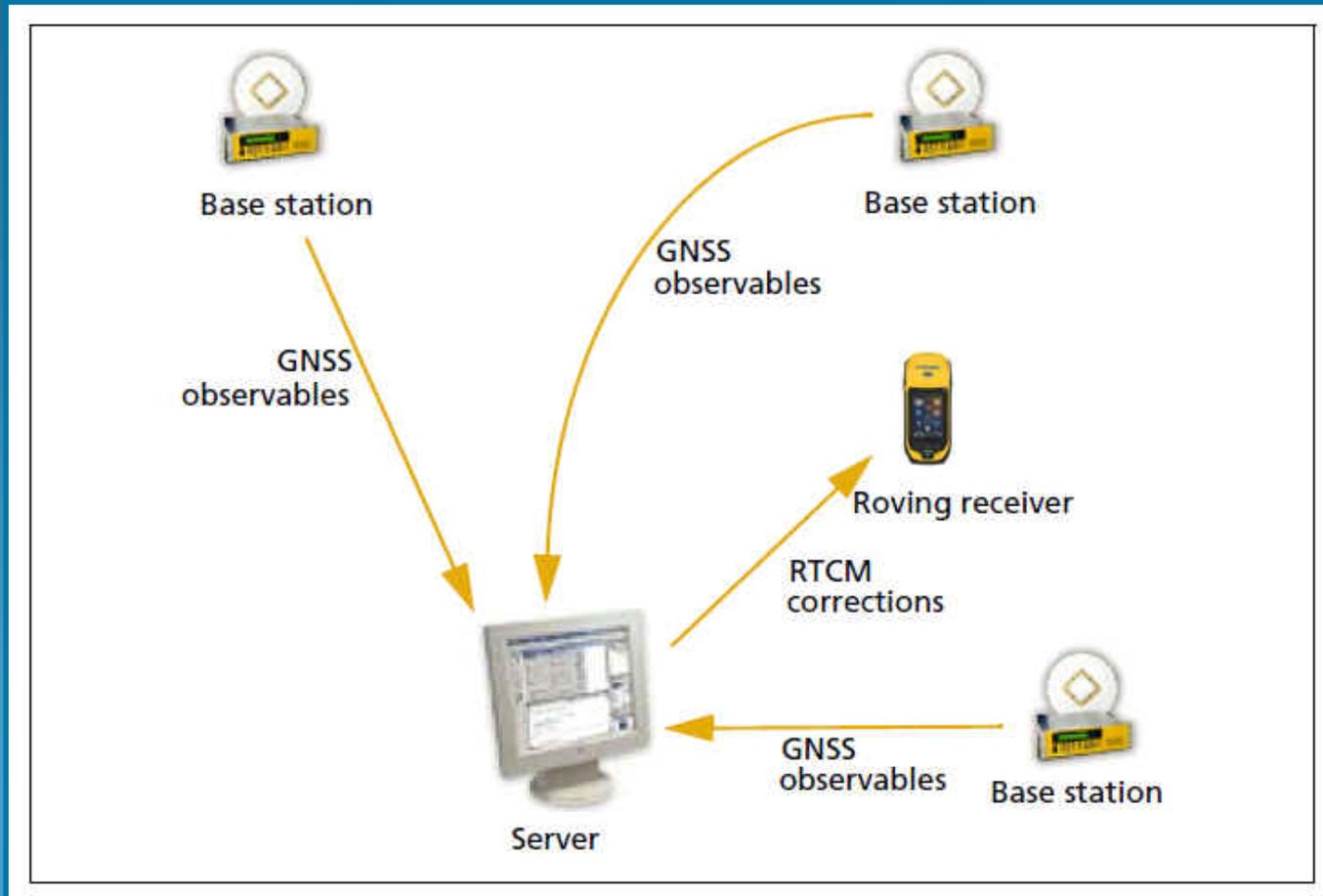


# Equipment & Software

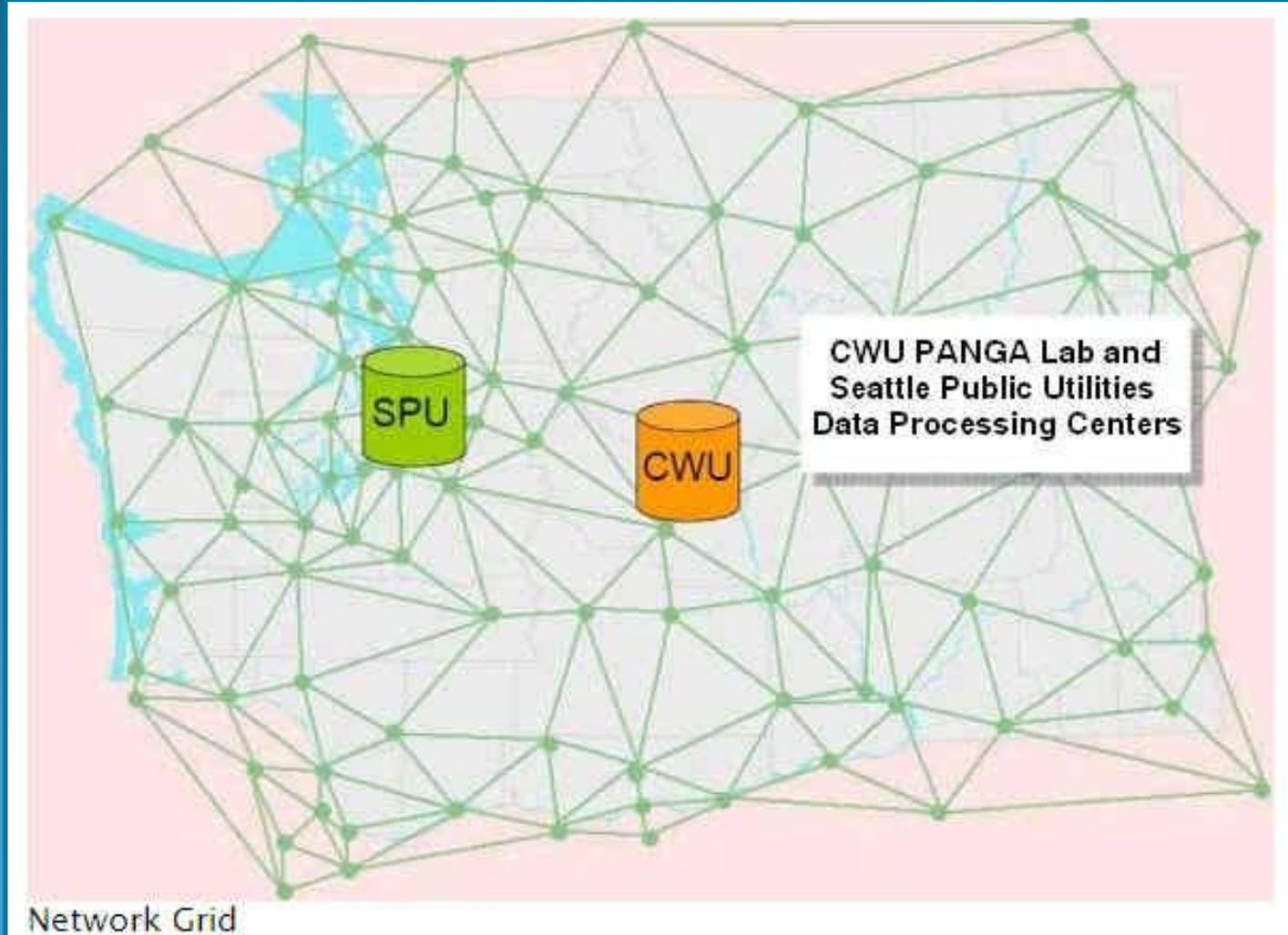
- Trimble GeoExplorer 6000 GeoXH
- Trimble Zephyr GPS antenna
- ArcPad 10.0.2
- Trimble GPS Correct 3.40
- 4G Verizon mi-fi card
- Washington State Reference Network (WSRN)
- 10 cm accuracy (no-post processing)



# Real-Time Network

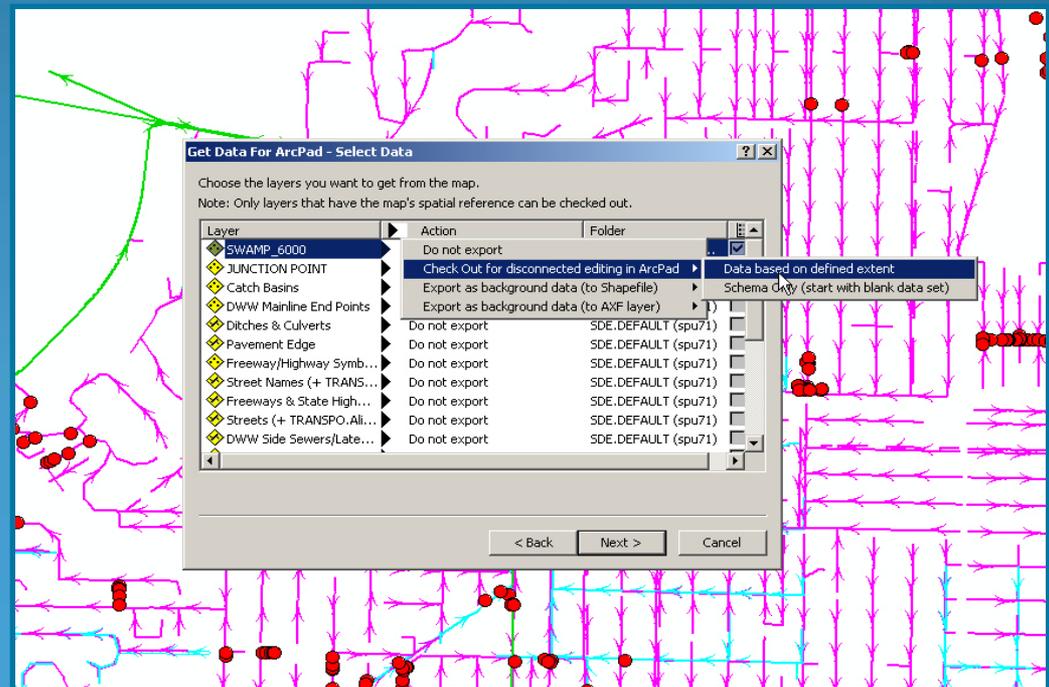


# WSRN Network Grid

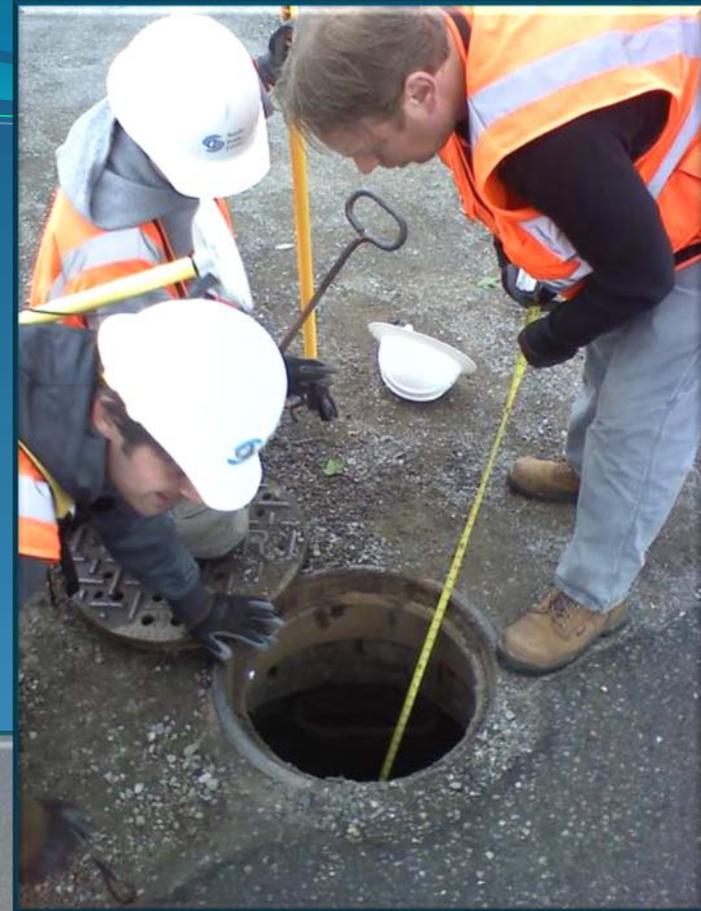


# Data Check-Out

- Check-out Feature Class through ArcPad Data Manager Extension in ArcMap
- Transfer onto GPS

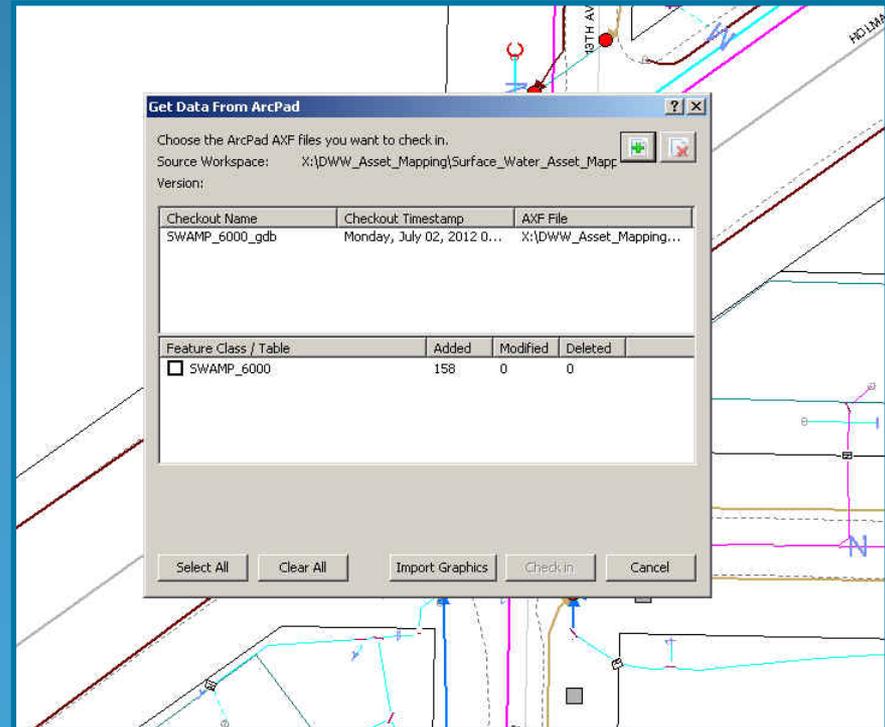


# Fieldwork and Inventory



# Data Check-In

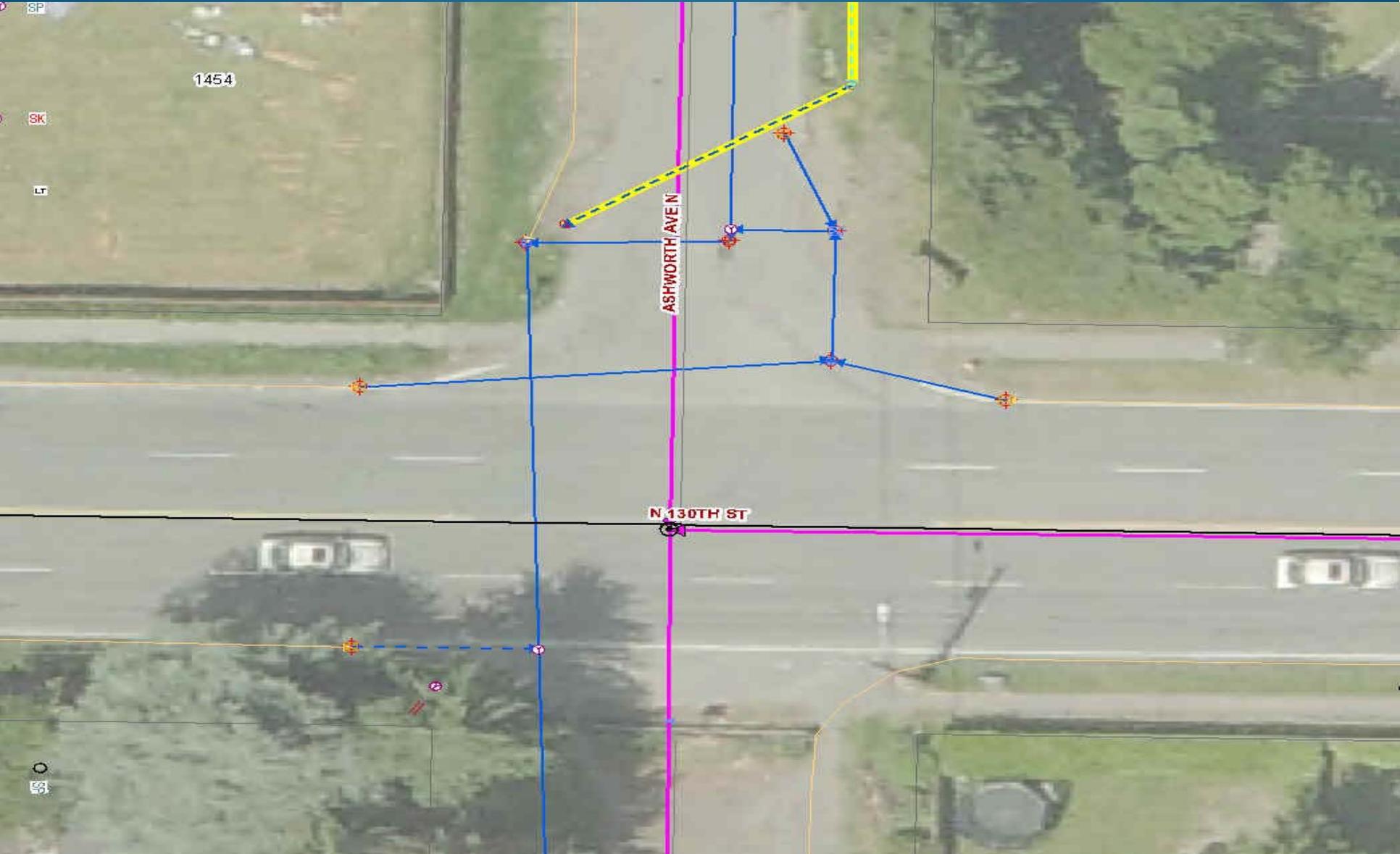
- Transfer from GPS to PC
- Check-in Feature Class through ArcPad Data Manager
- Digitize points
- QC and post to GIS



# Before SWAMP...

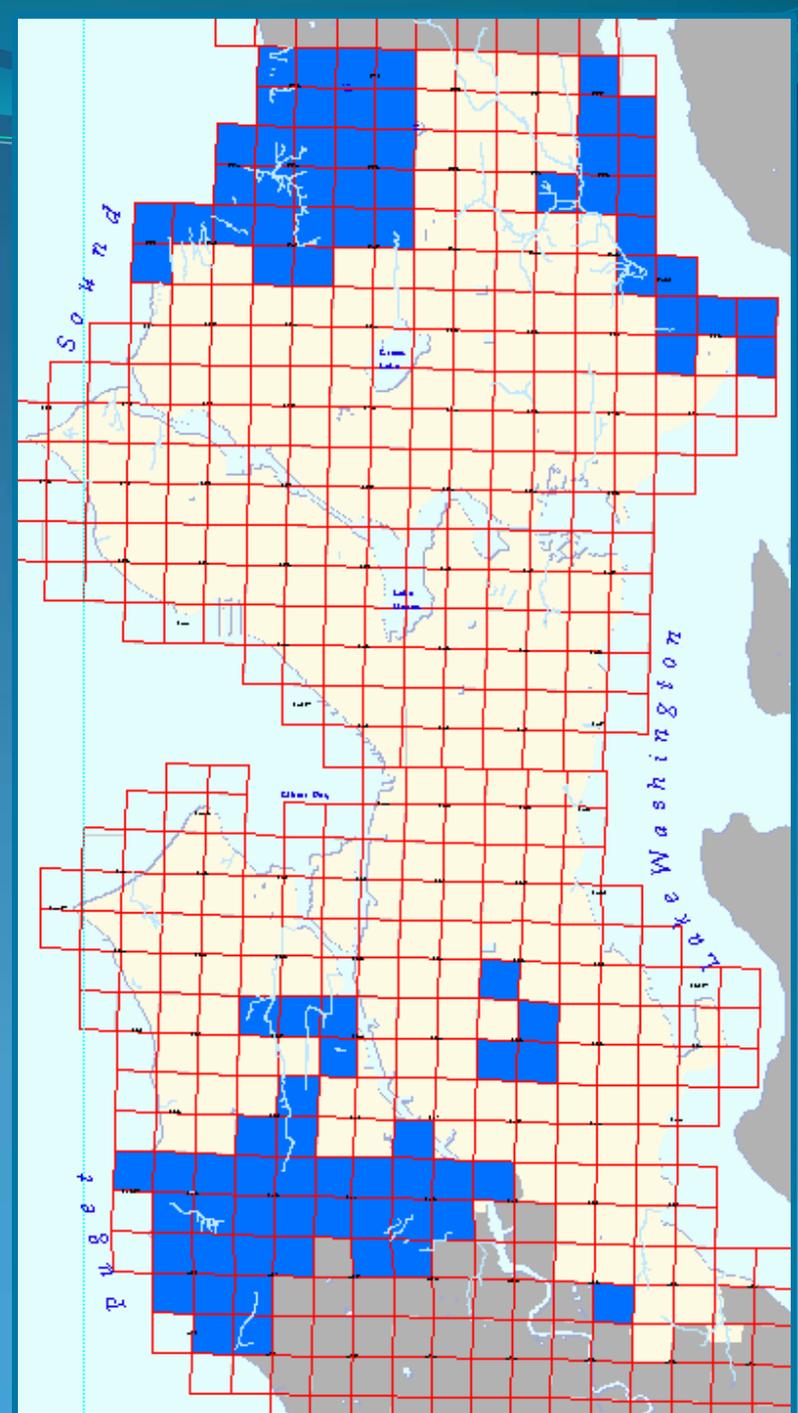


# After SWAMP...



# Project Status

- Project started on 07/2010
  - 250 miles walked
  - 25,000 assets investigated
  - 25% of the City completed





# Questions?

## Contact Information:

*Holli Brandt*  
*Seattle Public Utilities*  
[holli.brandt@seattle.gov](mailto:holli.brandt@seattle.gov)  
*(206) 684-8533*

*Adi Grcic*  
*Seattle Public Utilities*  
[adi.grcic@seattle.gov](mailto:adi.grcic@seattle.gov)  
*(206) 733-9892*

*SWAMP Project Manager, Scott Reese*  
*Seattle Public Utilities*  
[scott.reese@seattle.gov](mailto:scott.reese@seattle.gov)  
*206-228-7317*