

# LESSONS LEARNED FROM GIS DATA SYNCHRONIZATIONS WITH ASSET MANAGEMENT

Jeremy Williams GISP, CPTM | City of Clearwater  
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# WHERE IS THE CITY OF CLEARWATER AND WHAT DO WE DO?

- Located in Pinellas County, Florida
- 108000 Residents
- Celebrated 100yrs in 2015
- Manage Utilities Including:
  - Wastewater, Stormwater, Potable, Raw and Reclaimed Water Systems
  - Natural Gas Utility Infrastructure, Serving Multiple Counties
- Manage Road Ways and Traffic Infrastructure
  - Traffic Devices, Signs and Poles
  - Roadways, Bridges, Sidewalks



# CLEARWATER'S HISTORY WITH ASSET MANAGEMENT

- Synergen was implemented in 2003
  - Implemented as Enterprise System
  - Initial Focus was on Utilities
  - Implemented using a “Plant” model
  - Currently have 7 Plants
- Now an Oracle Product
  - Oracle Utilities Work and Asset Management (OWAM or WAM)
- Integrations with Multiple Enterprise Systems
  - GIS
  - CIS
  - Payroll
  - Infrastructure Inspections



# WHAT IS ASSET MANAGEMENT?

- Many types of industries
- Focus on enterprise asset management of public assets
  - Municipal Jurisdiction
  - Physical Assets – Buildings, Power/Water Plants, Distribution Networks...
  - Infrastructure – Utilities, Sidewalks, Traffic Devices...
  - Fixed Assets – Financial Accounting
- Tracks tangible assets
- Integration with GIS

# GIS WITH ASSET MANAGEMENT

- Allows of better visualization and analyzation
- Location of assets
- Assets share proximity
- Interoperability



# PHASES OF GIS DATA INTEGRATION WITH ASSET MANAGEMENT

- Version 1 (2003-2006): Custom PLSQL scripts – scheduled to run as batches inside asset management system
- Version 2 (2006-2015): Custom PLSQL script modifications to allow for increased data and number of assets brought over due to new plant implementation
- Version 3 (2015+): Replaced PLSQL with COTS solution from GeoNexus

# DEVELOPMENT AND MAINTENANCE TIMES DECREASED SIGNIFICANTLY

## **Custom PLSQL**

- Difficult to Configure
- Unreliable
- Long Run Times
- Painful Change Process
- Difficult Testing/UAT
- Limited Reporting
- Batch Data Loading

## **GeoNexus Sync**

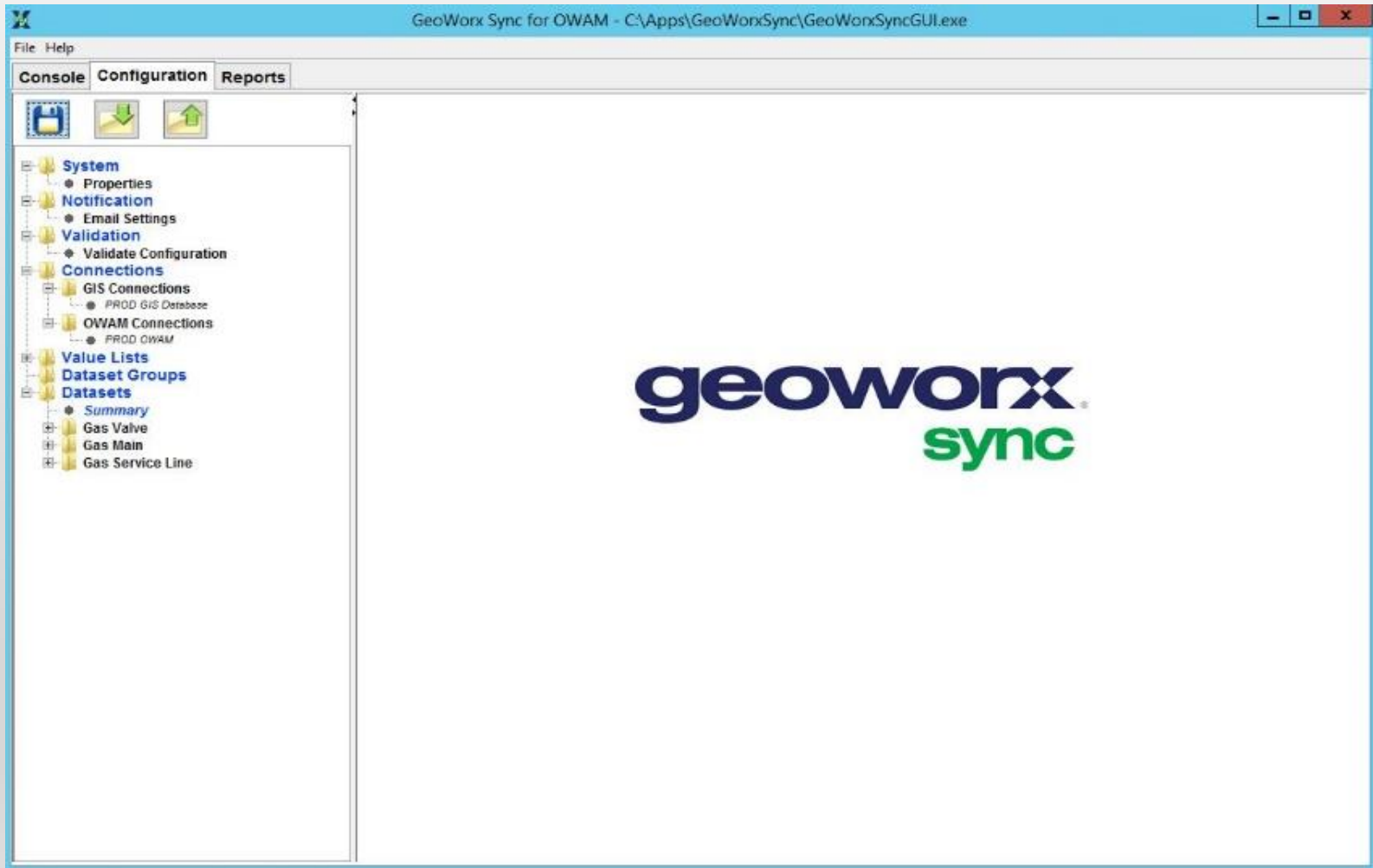
- Easy GUI Interface / Easily Configurable
- Reliable
- Very Fast Running
- Changes are Easy
- Easy Testing
- Robust Reporting
- Leverages API's

# 6076 LINES OF PLSQL

```
26 if v_Duplicate_Count = 0 then
27     Populate_Assets_And_Log('SAN_PIPE');
28 end if;
29
30
31 -- Check if there are duplicates of the SYNERGENID in SAN_STRUCTURE
32 -- Run the interface if no duplicates are found.
33
34 v_Duplicate_Count := 0;
35 select count(DUPLICATES)
36 into v_Duplicate_Count
37 from
38     (select count(SYNERGENID) AS DUPLICATES
39      from gisadmin.mv_view_san_structure@gis
40      group by SYNERGENID
41      having (count(SYNERGENID) > 1 AND (SYNERGENID IS NOT NULL AND SYNERGENID != ' ')));
42
43 if v_Duplicate_Count = 0 then
44     Populate_Assets_And_Log('SAN_STRUCTURE');
45 end if;
46
47
48 -- Check if there are duplicates of the SYNERGENID in LATERALS
49 -- Run the interface if no duplicates are found.
50
51 v_Duplicate_Count := 0;
52
53 select count(DUPLICATES)
54 into v_Duplicate_Count
55 from
56     (select count(SYNERGENID) AS DUPLICATES
57      from gisadmin.mv_view_lateral@gis
58      group by SYNERGENID
59      having (count(SYNERGENID) > 1 AND (SYNERGENID IS NOT NULL AND SYNERGENID != ' ')));
60
61 if v_Duplicate_Count = 0 then
62     Populate_Assets_And_Log('LATERALS');
63 end if;
64
65 -- Check if there are duplicates of the SYNERGENID in POTABLE_WATER_FIXTURES
66 -- Run the interface if no duplicates are found.
67
68 v_Duplicate_Count := 0;
69
70 select count(DUPLICATES)
71 into v_Duplicate_Count
72 from
73     (select count(SYNERGENID) AS DUPLICATES
74      from gisadmin.mv_view_potable_water_fixtures@gis
75      group by SYNERGENID
76      having (count(SYNERGENID) > 1 AND (SYNERGENID IS NOT NULL AND SYNERGENID != ' ')));
77
78 if v_Duplicate_Count = 0 then
79     Populate_Assets_And_Log('POTABLE_WATER_FIXTURES');
80 end if;
```



# GUI



# BETTER REPORTS:

## Sync Report

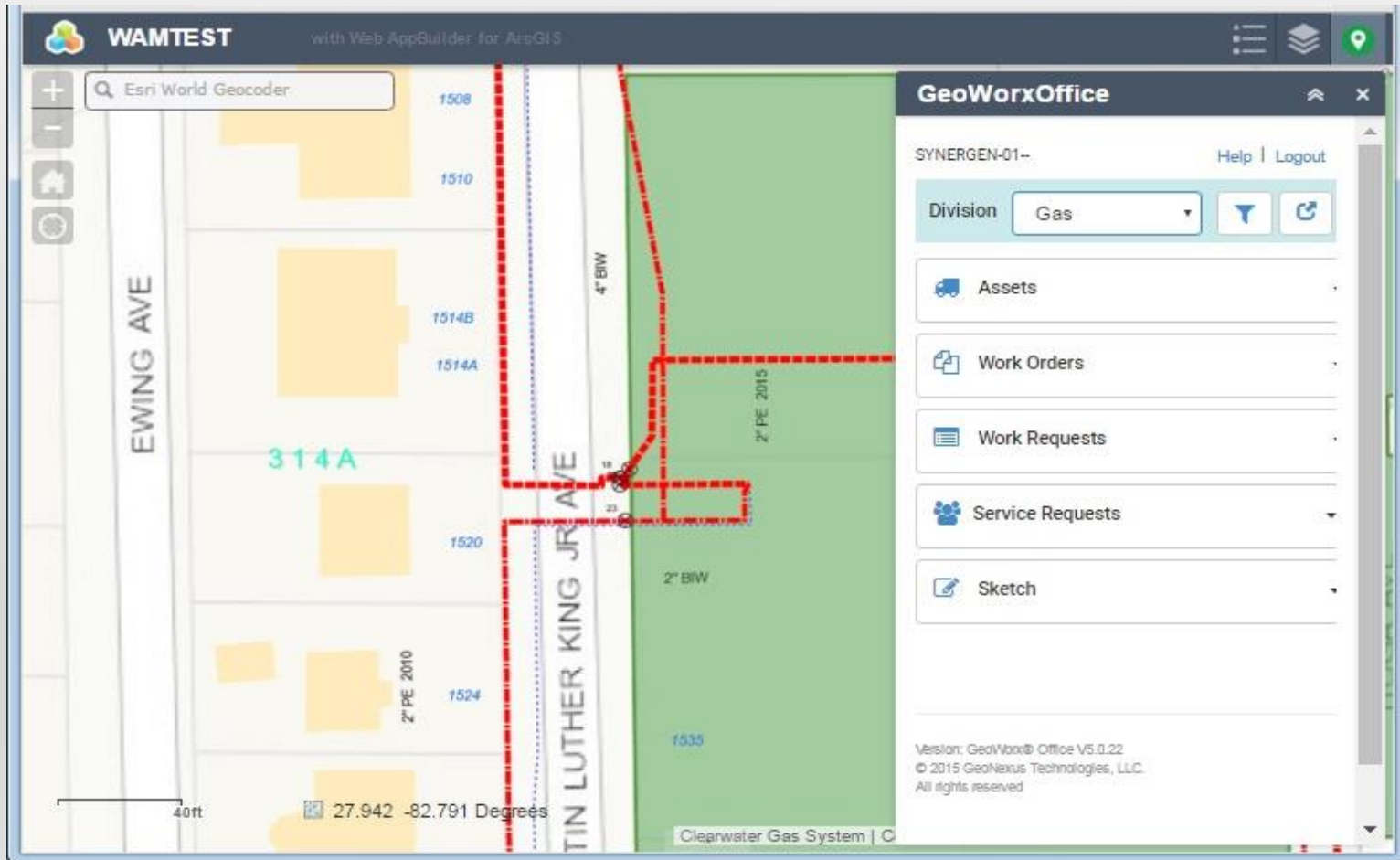


Date: April 29, 2016, 5:42:20 AM (EDT)  
Execution ID: 1461922203230

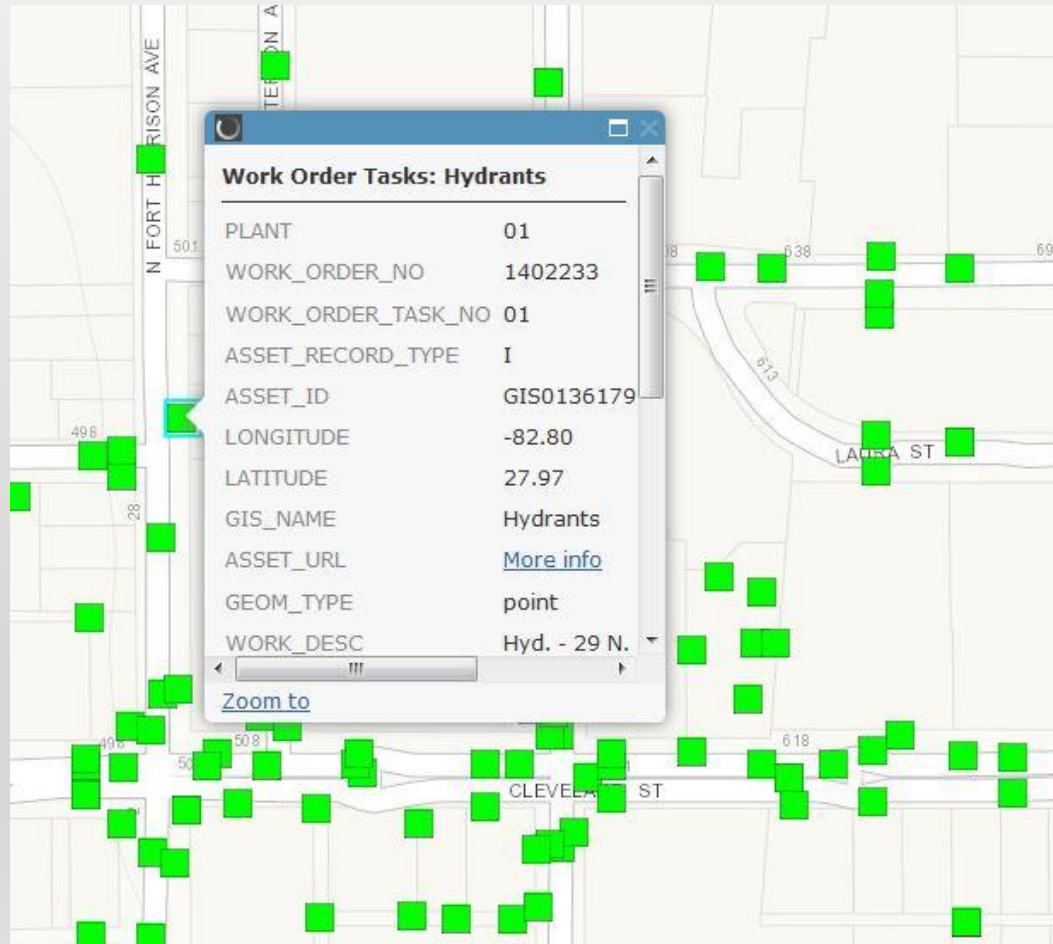
Summary Statistics		
Total Feature Count (GIS-Edit)	106155	
Total Time (H:M:S)	00:10:29 *includes configuration load and validation	
DataSet Statistics		
Sanitary Pipe	Total Feature Count (GIS-Edit) Total Time (H:M:S)	9126 00:01:09
Sanitary Structure	Total Feature Count (GIS-Edit) Total Time (H:M:S)	9017 00:00:55
Sanitary Laterals	Total Feature Count (GIS-Edit) Total Time (H:M:S)	30740 00:02:00
Water Potable Fixture	Total Feature Count (GIS-Edit) Total Time (H:M:S)	9706 00:00:31
Water Raw Fixture	Total Feature Count (GIS-Edit) Total Time (H:M:S)	176 00:00:10
Water Hydrants	Total Feature Count (GIS-Edit) Total Time (H:M:S)	4017 00:00:23
Water Potable Line	Total Feature Count (GIS-Edit) Total Time (H:M:S)	19446 00:02:21
Water Raw Line	Total Feature Count (GIS-Edit) Total Time (H:M:S)	426 00:00:33
Storm Pond - Ditch	Total Feature Count (GIS-Edit) Total Time (H:M:S)	281 00:00:06
Storm Pond - Lake	Total Feature Count (GIS-Edit) Total Time (H:M:S)	13 00:00:02
Storm Pond - Pond	Total Feature Count (GIS-Edit) Total Time (H:M:S)	158 00:00:05
Storm Structure	Total Feature Count (GIS-Edit) Total Time (H:M:S)	9934 00:00:43
Storm Pipe	Total Feature Count (GIS-Edit) Total Time (H:M:S)	10718 00:00:58
Reclaimed Water Line	Total Feature Count (GIS-Edit) Total Time (H:M:S)	2397 00:00:14

- How Many
- How Long
- Errors?

# REAL-TIME BI-DIRECTIONAL SYNCHRONIZATIONS BETWEEN GIS AND WAM



# REAL-TIME ASSET DATA



# BETTER DECISION MAKING

- Identification of Issue
- Relevant Information
- Alternative Identification
- Gather Evidence
- Take Action



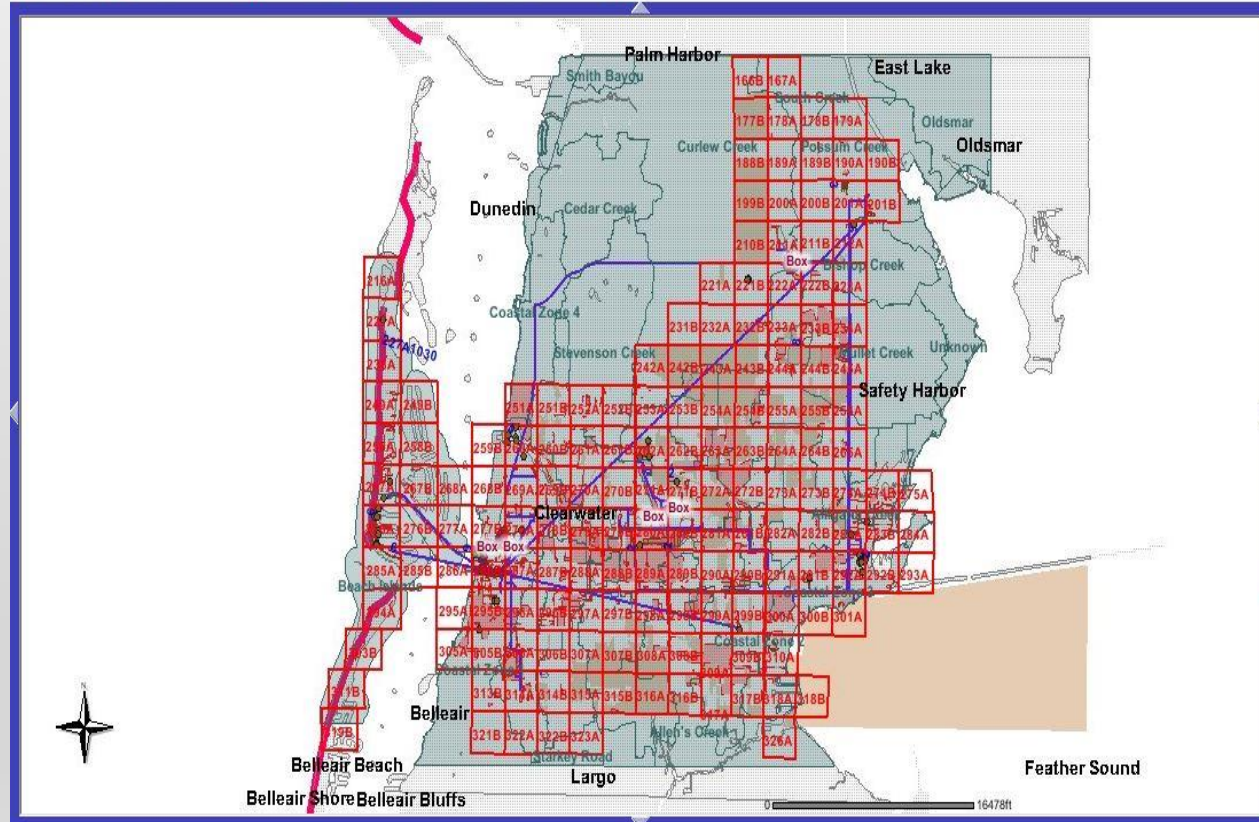


# VISUALIZATION TOOLS - OLD

## Clearwater Public Works



Content	Legend	Print
Locate	Find	Query
Filter	Buffer	Map Tips

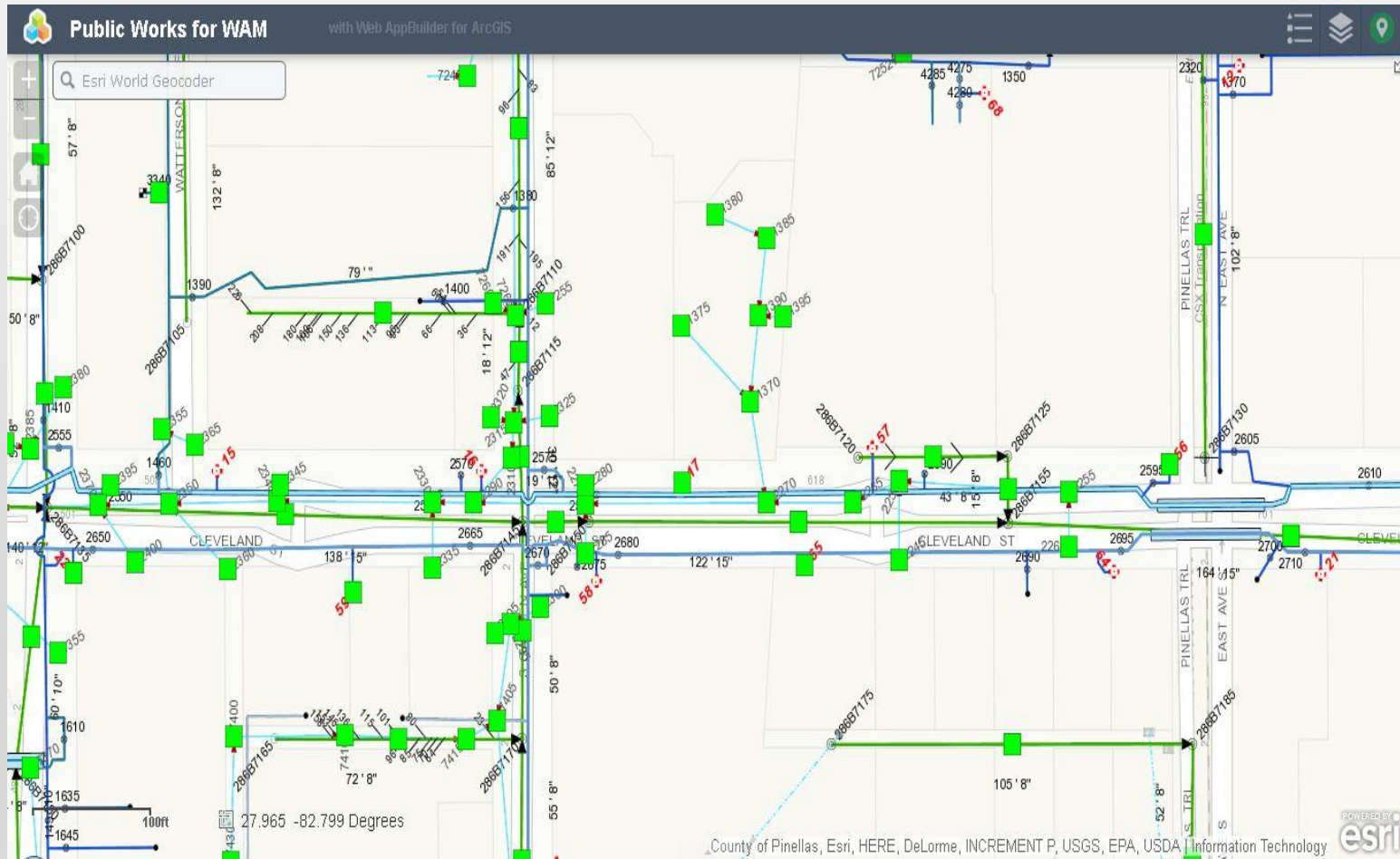


### Layers

- All Layers
- Atlas Grid
- UMS Water Service Locations
- Sanitary Sewer
  - Sanitary Sewer Data
    - Sanitary Structures
    - Sanitary Laterals
    - Sanitary Pipe
  - Abandoned Sanitary Sewer
- Storm Water
  - Storm Water Data
    - Storm Structure
    - Storm Pond
    - Storm Pipe
    - Storm Basins
- Potable Water
  - Potable Water
  - Abandoned Potable Water
- Reclaimed Water
  - Reclaimed Water Fixtures
  - Reclaimed Water Lines
- Trace



# VISUALIZATION TOOLS - NEW



# CONCLUSION

- Integration of GIS with asset management can be difficult
- GIS and Asset Management should be utilized with each other
- Real-Time system data
- Bi-directional relationships
- Asset data should be easy for staff to access
- Asset management aids in the decision making process
- Better system integration makes this possible



# THANK YOU

Jeremy Williams GISP, CPTM

Information Technology  
Manager

City of Clearwater

[Jeremy.Williams@myClearwater.com](mailto:Jeremy.Williams@myClearwater.com)



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