

# HRG

**Herbert, Rowland & Grubic, Inc.**  
**Engineering & Related Services**

**AN EMPLOYEE-OWNED COMPANY**

[ BUILDING RELATIONSHIPS.  
DESIGNING SOLUTIONS. ]

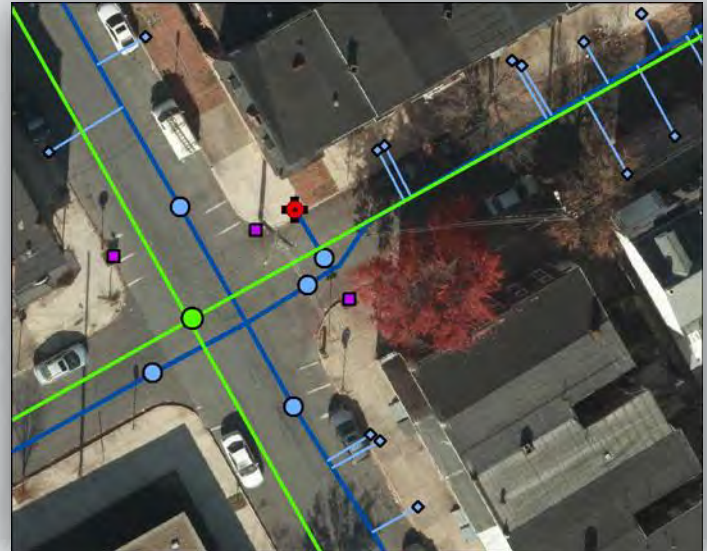
[ BUILDING RELATIONSHIPS.  
DESIGNING SOLUTIONS. ]

369 East Park Drive · Harrisburg, PA 17111 · 717.564.1121 [phone] · 717.564.1158 [fax]

## Utilizing Simple Affordable Web-based Technologies for the Inventory, Operations and Maintenance of your Assets

**Case Study: Lower Swatara Township**  
**Dauphin County, Pennsylvania**

**Howard S. Hodder, Jr., MGIS, GISP**  
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# Agenda

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- Welcome and Introduction
- Sanitary and Storm Sewer Statistics
- Project Understanding Overview
- Project Challenges
- Critical Success Factors
- Processes
- ArcGIS Online
- Results
- Thank You / Questions and Answers



# Introduction

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## Howard S. Hodder, Jr., MGIS, GISP



- HRG's Geomatics Service Group Practice Area Leader
- Bachelor's degree in Geography from Bloomsburg University
- Master's degree in GIS from Penn State University (MGIS)
- Certified GIS professional (GISP)
- President (PA-MAPPS)
- Board Member – PA State Geospatial Coordinating Board
- PA-AWWA It Committee
- Extensive experience with both municipal and private GIS application development, GPS data collection, and database development

# HERBERT, ROWLAND & GRUBIC, INC.

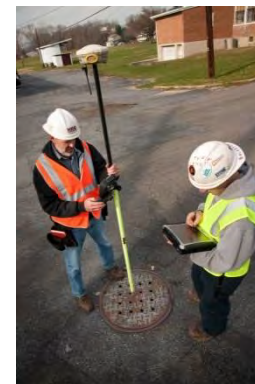
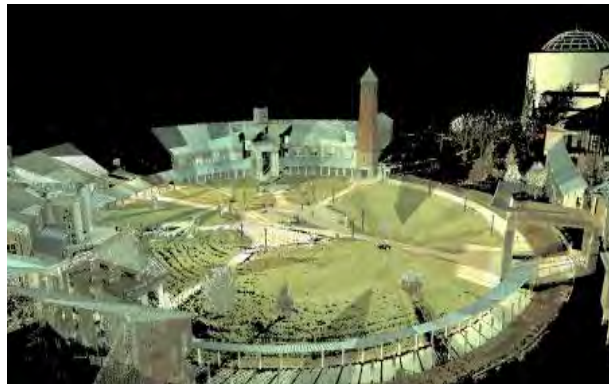
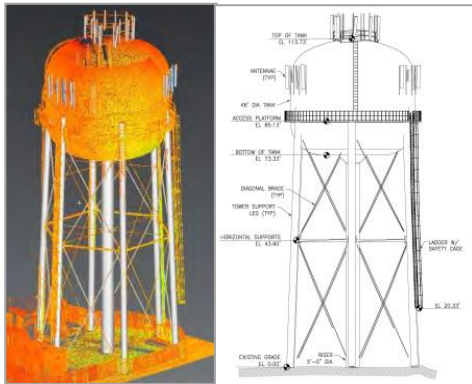
# HRG

**Herbert, Rowland & Grubic, Inc.**  
**Engineering & Related Services**

- Founded in 1962 in Harrisburg, PA
- ~200 employees
- Full Service Firm
- 7 Offices
- Over 60 Retainer Municipal Clients, some of which have been with us for 30+ years



Professional Engineers | Professional Land Surveyors | Certified GIS Professionals  
Professional Geologists | Registered Landscape Architects







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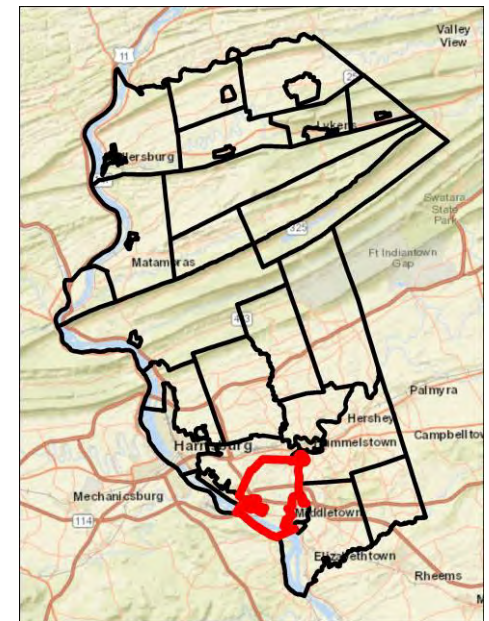


[ BUILDING RELATIONSHIPS.  
 DESIGNING SOLUTIONS. ]

# Lower Swatara Township:

## Township Statistics:

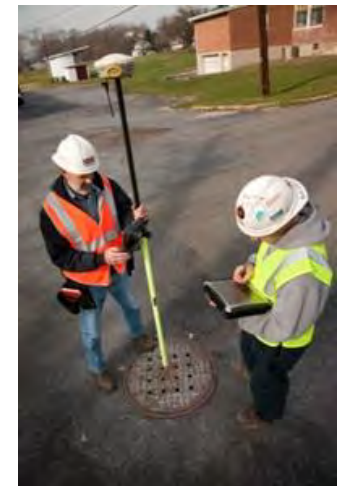
- 1<sup>st</sup> Class Township
- Southwest Dauphin County, ~6 miles outside Harrisburg
- ~40 Mile Township Roads / ~20 Miles State Roads
- Adjacent to the Susquehanna River
- ~8,268 Residents (2010)



# Lower Swatara Township:

## Sanitary Sewer Statistics:

- ~1,330 Manholes / 53 Cleanouts / 5 Air Release Valves
- 13 Pump Stations
- ~282,500 linear feet of mains
- ~4,275 EDU's (1 EDU = 217 GPD)
- System Established in 1960's



# Lower Swatara Township:

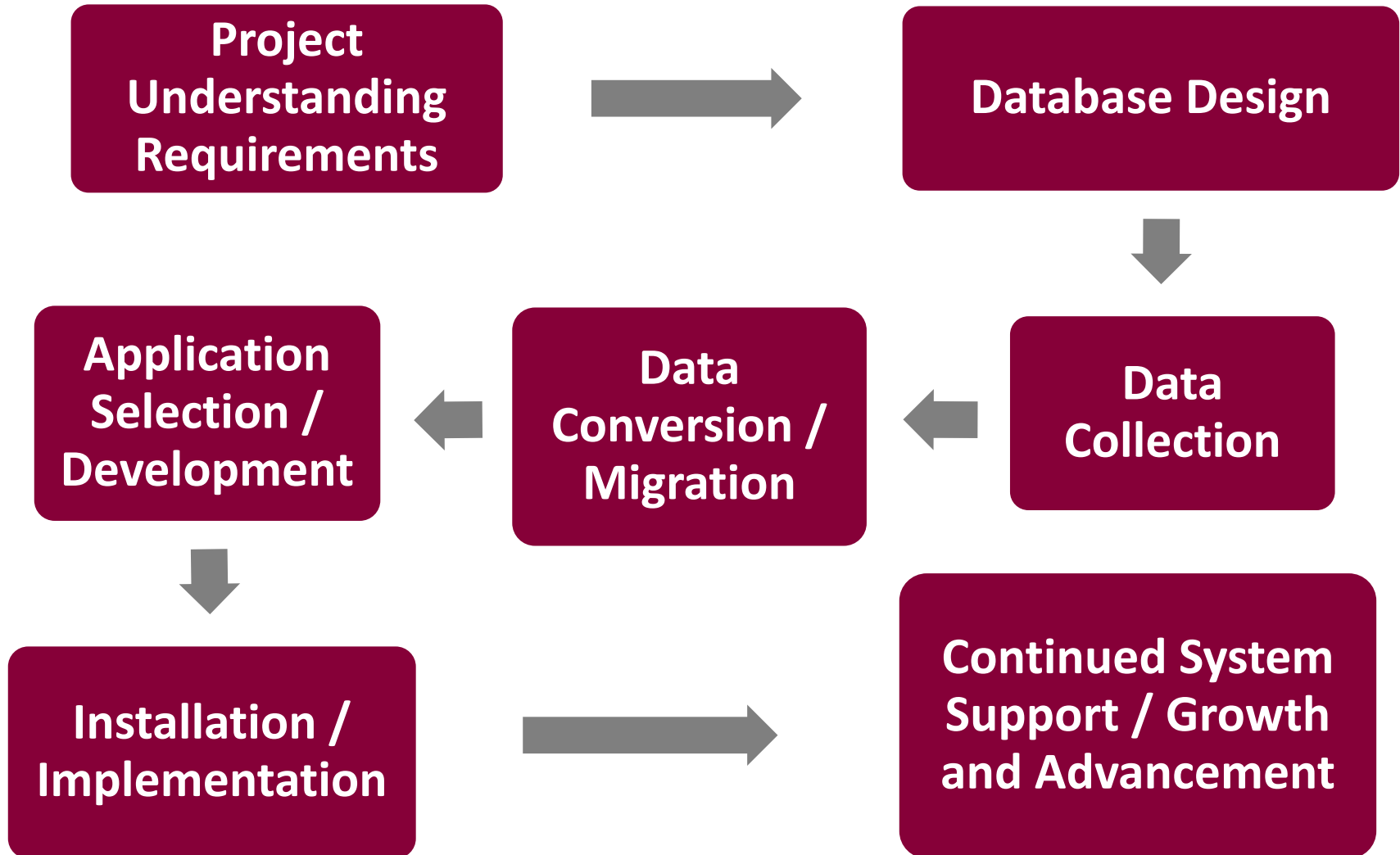
## Storm Sewer Statistics:

- ~1,200 Inlets, 44 Manholes and 236 Outfalls
- ~61 Cross Pipes
- ~112,000 Linear Feet of Pipe
- ~45 Storm Basins cover ~18 acres

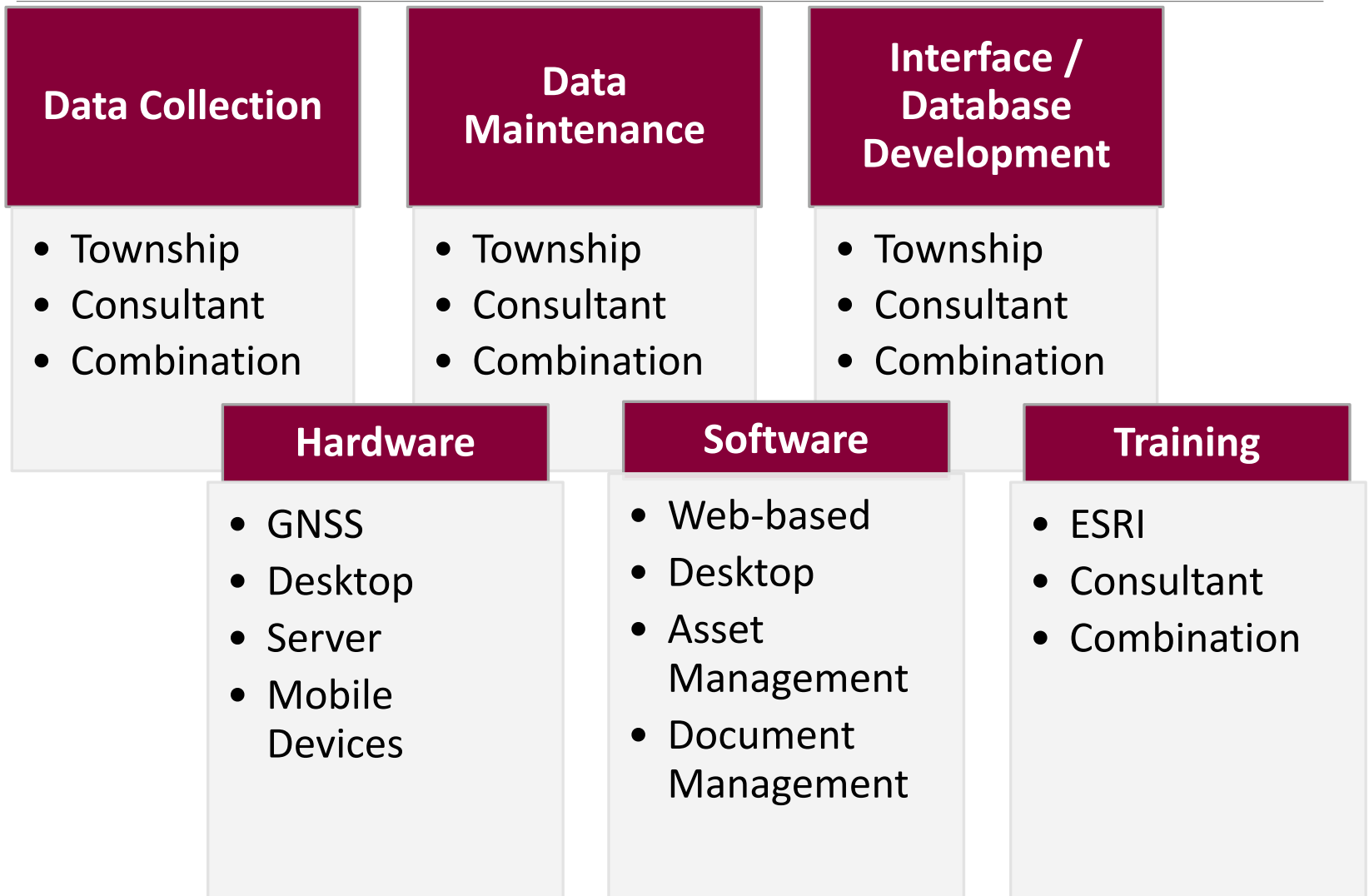




# Project Understanding Overview:



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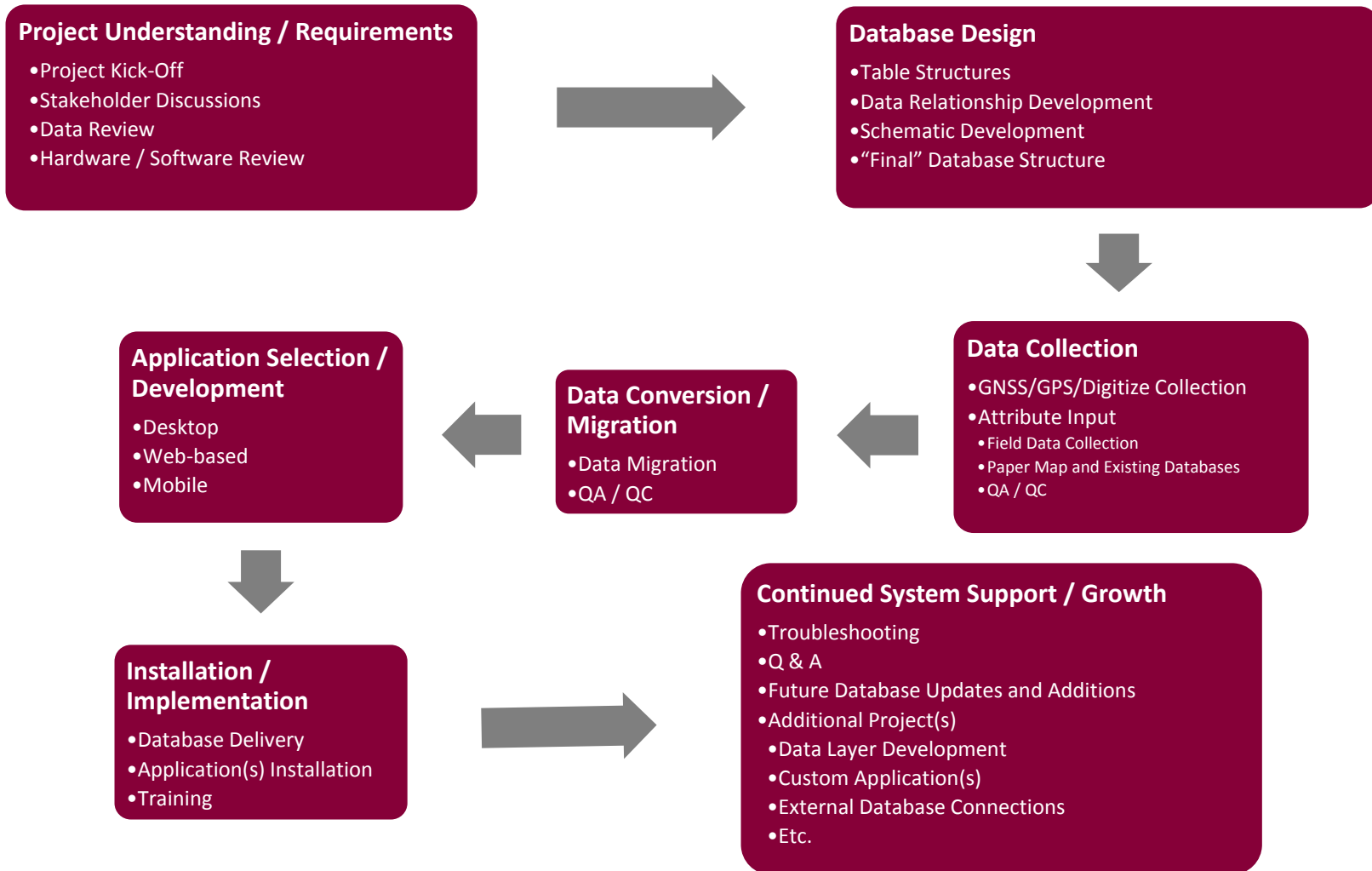
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## Aspects to Asset Management

- 1. Data Collection / Migration / Integration**
  - Collecting / Mapping / Inventorying Assets (GNSS/GPS, Digitizing - Spatial)
  - Collecting / Migrating / Inputting Data for Assets
    - (Paper Maps, Employees, Field Inspections, etc.)
- 2. Maintaining Information**
  - Updating the collected assets information
  - “History Tracking”
  - If the information is not current accurate analysis can not be performed
- 3. Analyzing Data**
  - Effective Decision Making using the inputted information
  - (Maintenance, Replacement, Budgeting, etc.)



# Project Understanding Overview:





# Project Challenges:

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## Sanitary and Storm Sewer

- Challenge #1: Tightening Regulations – i.e. MS4, Sign Retroreflectivity
- Challenge #2: Infrastructure Inventory and Assessment
- Challenge #3: Limited Budget and Timeframe
- Challenge #4: New Staff with Limited Systems Knowledge
- Challenge #5: Technology?



# Critical Success Factors:

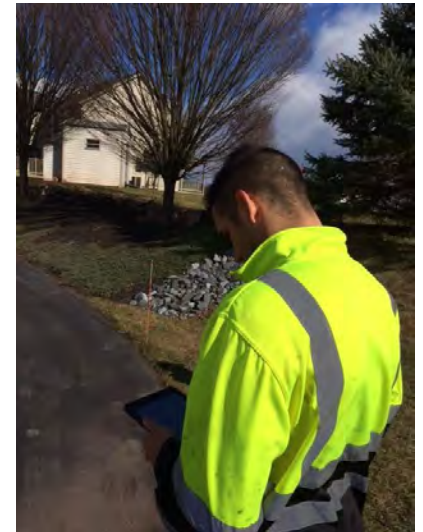
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## Budget

- Limited Budget – hardware, software and data collection
- Township / HRG Cooperation and Work Share
- Return On Investment (ROI)

## Technology

- Ease of Use – Implementation and Deployment
- Flexible and Dynamic for Expansion
- On-going Support



# Critical Success Factors:

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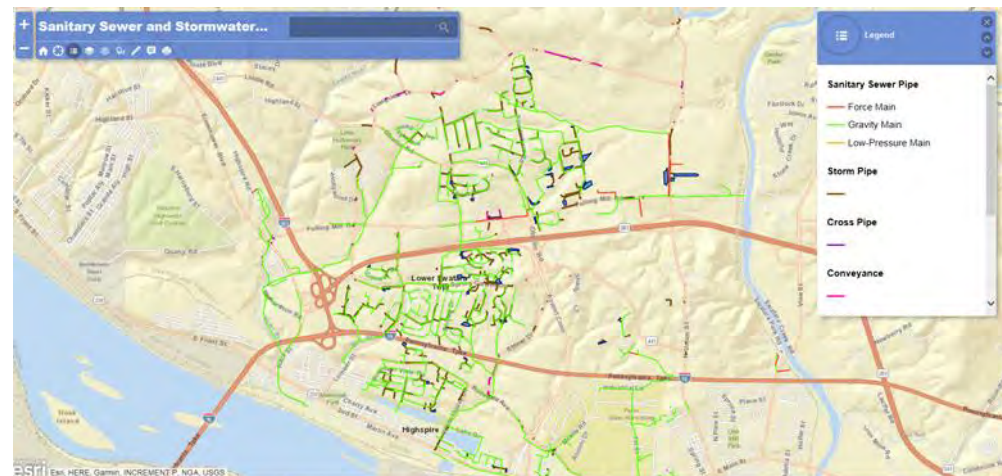
## Quality

- Planned for more than one purpose and use
  - “Do it correct the first time”
- Limited Reference Materials
- Aged Staff and Turn-Over in Personnel and Knowledge
- QA/QC and On-Going Support
- Continued Use – Trust in the End Product Deliverables
- Meet/Exceed Required Mandate(s)

# Critical Success Factors:

## Holistic Approach To Operations and Maintenance

- Township Staff Actively Involved
- Ability for Capital Improvement Project Identification
- Future Planning – Proactive vs Reactive
- Mandate Fulfillment and Reporting
- History Tracking
- Solutions Expansion
- Asset Management

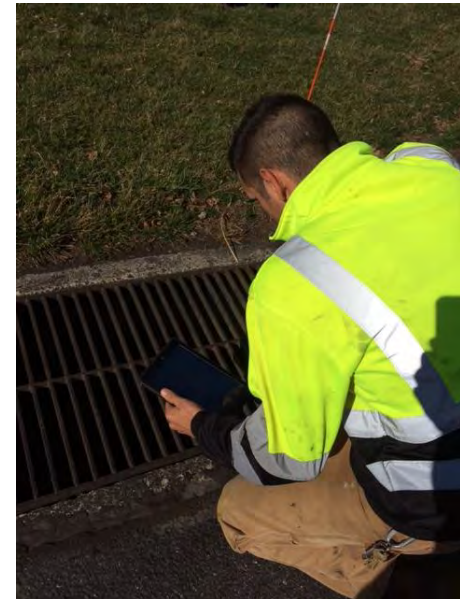




# Processes:

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- Solution(s) Selection
- Geodatabase Development / Configuration
- Township vs HRG Roles
  - Storm Water
  - Sanitary Sewer
- Training / Deployment
- Spatial Data Enhancement
- QA/QC and Continued Support



# ESRI ArcGIS Online:

ArcGIS ▾ Features Plans Gallery Map Scene Help

🔍 Search

👤 Sign In



## Mapping Without Limits

ArcGIS Online is a Complete, Cloud-Based Mapping Platform

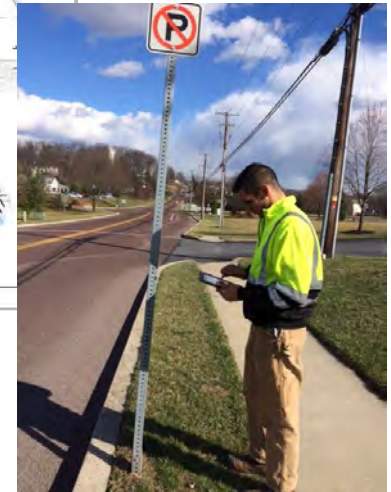
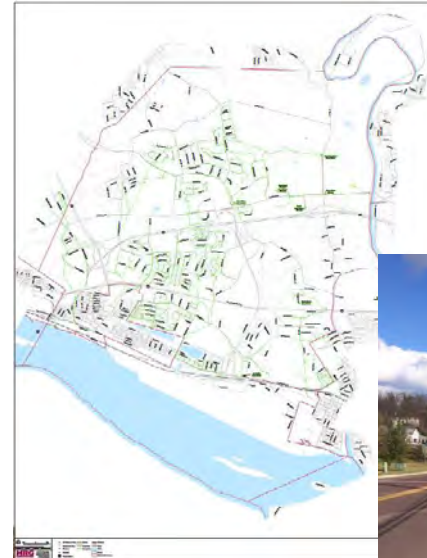
Try ArcGIS

▶ What Is ArcGIS?

<http://www.arcgis.com/home/webscene/viewer.html>

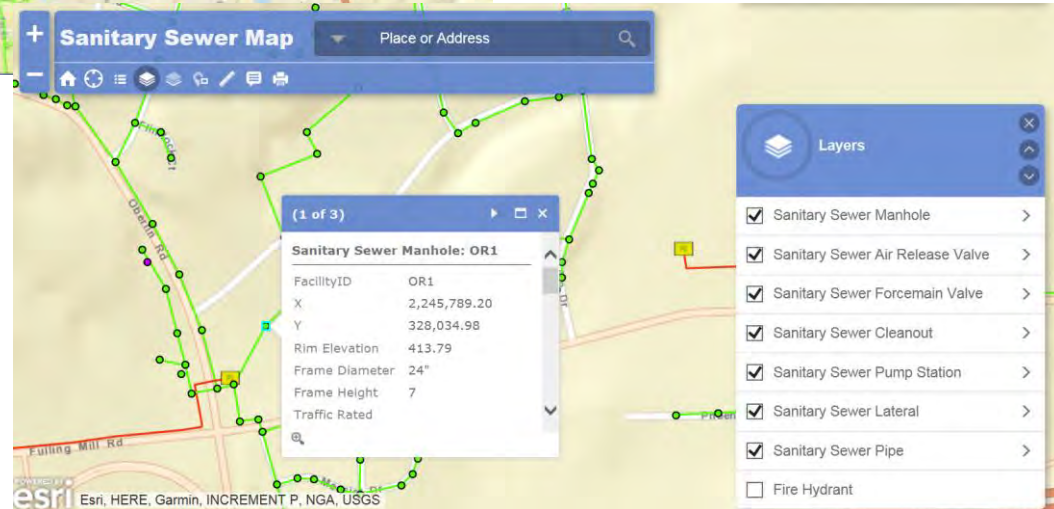
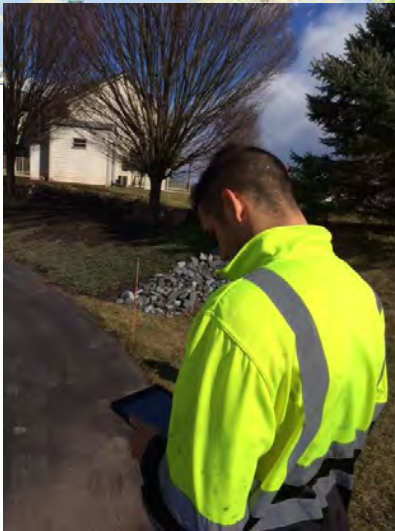
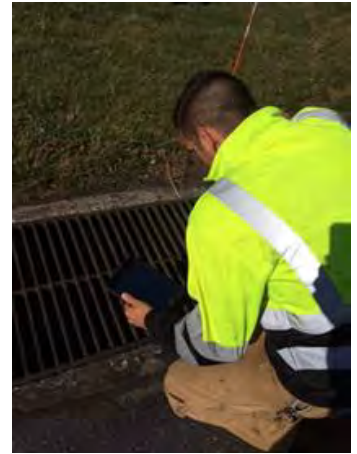
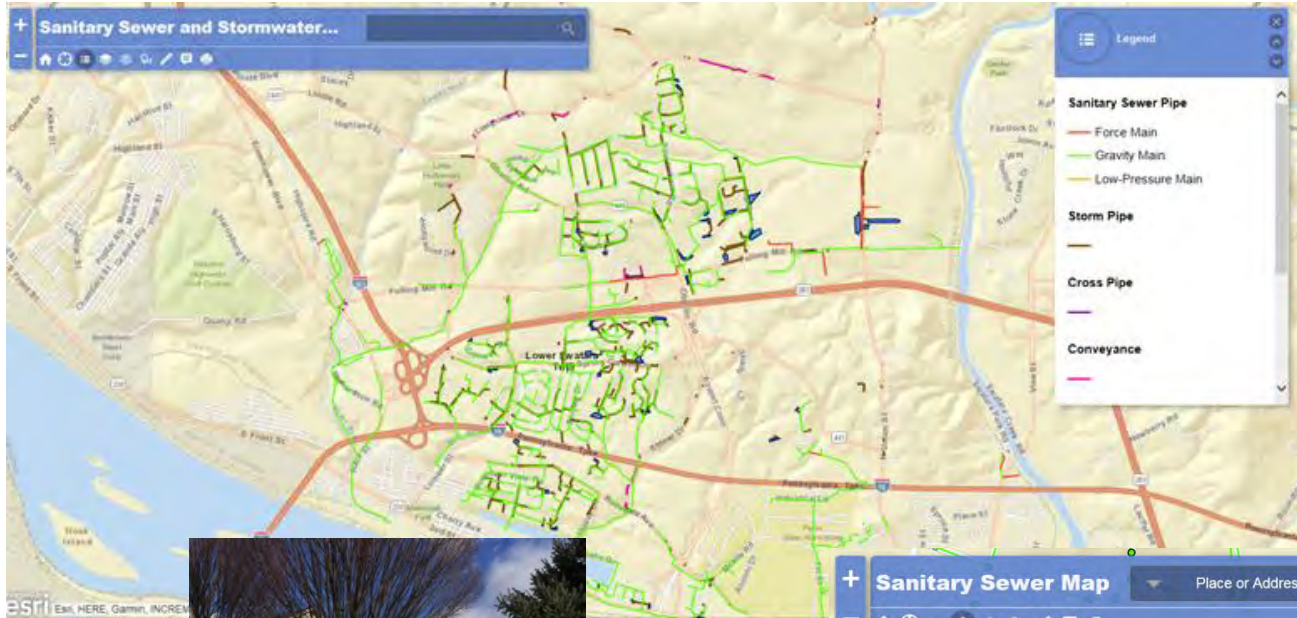
# Results:

- Highly Detailed Systems Mapping
- Ability for Continued Enhancement and Expansion
- Actively Involved Staff with “Buy-In”
- Adopted Adaptive Technologies
- Time Savings / Money Savings
- Meet / Exceed Mandate Requirements
- Continued Expansion and Daily Use
  - Not just another tool
  - History Tracking
  - Other Infrastructure (i.e. Signage)





# Results:





# Results:

**Sanitary Sewer and Stormwater...**

**Legend**

- Sanitary Sewer Manhole
- Sanitary Sewer Air Release Valve
- Sanitary Sewer Forcemain Valve
- Sanitary Sewer Cleanout

**(1 of 3)**

**Outfall: OUT0011**

FacilityID	OUT0011
Type	Wing wall
Elevation	388.23
Memo	
X	2,247,071.40
Y	329,347.77
Owner	LSTMA

**Sign Support**

Support Material	Steel
Breakaway	Yes
InstalledDate	
OwnedBy	Township
MaintainedBy	Township
Notes	
Attachments	Photo1.jpg
Edited by LSTMAstorm on 1/13/17 at 10:24 AM	
Zoom to Get Directions Edit	
Show Related Records	

**Signs (1257 features, 0 selected)**

MUTCD	Sign Text (MPH, Road Name, etc)	Sheeting Material	Backing Material	Sign Width (in)	Sign Height (in)	Bottom Sign Height From Ground (Feet)	Which Side Of Road?	Cardinal Facing Direction
(R1-3W) - 3 Way Stop	stop	Type III (High Intensity)	Aluminum	30.00	30.00	6.61	Right	
(R1-1) - Stop Sign		Unknown		30.00	30.00	6.80	Right	South
(R1-1) - Stop Sign		Type I (Engineer Grade)	Aluminum	36.00	36.00	7.10	Right	South

**Photo:** A man in a yellow safety vest is standing next to a stop sign on a road, looking at a device.

**Map Photo:** A photo of a sanitary sewer manhole opening in a grassy area, partially obscured by debris.

**Map:** Shows a network of pipes and structures on a map. Labels include 'Kreider Dr', 'Longview Dr', and 'Longview'. A scale bar indicates 0, 150, and 300 feet.

**Footer:** Esri, HERE, Garmin, INCREMENT P, NGA, USGS

# Thank You For Your Time Questions and Discussions?

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