Background

This project was started three summers ago (2009) with the goal of providing Nazareth Borough Municipal Authority (NBMA) with a fully functioning Geographic Information System (GIS) map to assist with the management and daily operations of the wastewater treatment facility.

Goals for Summer 2013

- Add new sewer sections to GIS and scan relevant maps and drawings
- Optimize root treatment layer to facilitate simpler updating and easier viewing
- Create hyperlink folders to query multiple documents for a specific area
- Fix hyperlinks to reference correct objects
- Reformat data management
  - Consolidate GIS files
  - Create a single personal geodatabase
- Create step-by-step instructions
- Implement new or existing software to enable NBMA use of Trimble without Lafayette assistance
- Teach NBMA employees to properly and effectively use Trimble GPS device to collect new data points and update layers
- Develop a computer-based model for flow in a small area of the collection system

GIS Map

All goals set forth in May of 2013 for the GIS map of the NBMA collection system were met over the ten week period of work. Additionally, underlying problems relating to data recall, management, symbology, and referencing were also addressed.

Added Sewer Lines:
- Christian Springs Road
- Trio Farms
- Eagle's Landing Phase III

Added Capabilities
- Hyperlinks to folders
- Complete referencing of all digitized data
- Simplified user interface
- Higher accuracy data acquisition
- Increased reliability regarding data security
- Full Integration with Trimble GeoExplorer
- Full Trimble configuration
  - Real-time corrections
  - GNSS sampling
  - Layer import/export
  - Software updates
  - NBMA employee training

Flow Model

A flow model was created for the Eagle's Landing and Creekside Apartments portions of the collection system. It was decided to only build a partial model due to time constraints and testing purposes.

Model Capabilities:
- Predict manhole surcharges
- Predict system performance given:
  - New developments
  - Roadway construction
  - Sewer main or manhole failure/maintenance.
- Track contaminants through the system
- Subbasin delineation to model inflow and infiltration into the system