

City of Rochester, NY Water Map Modernization



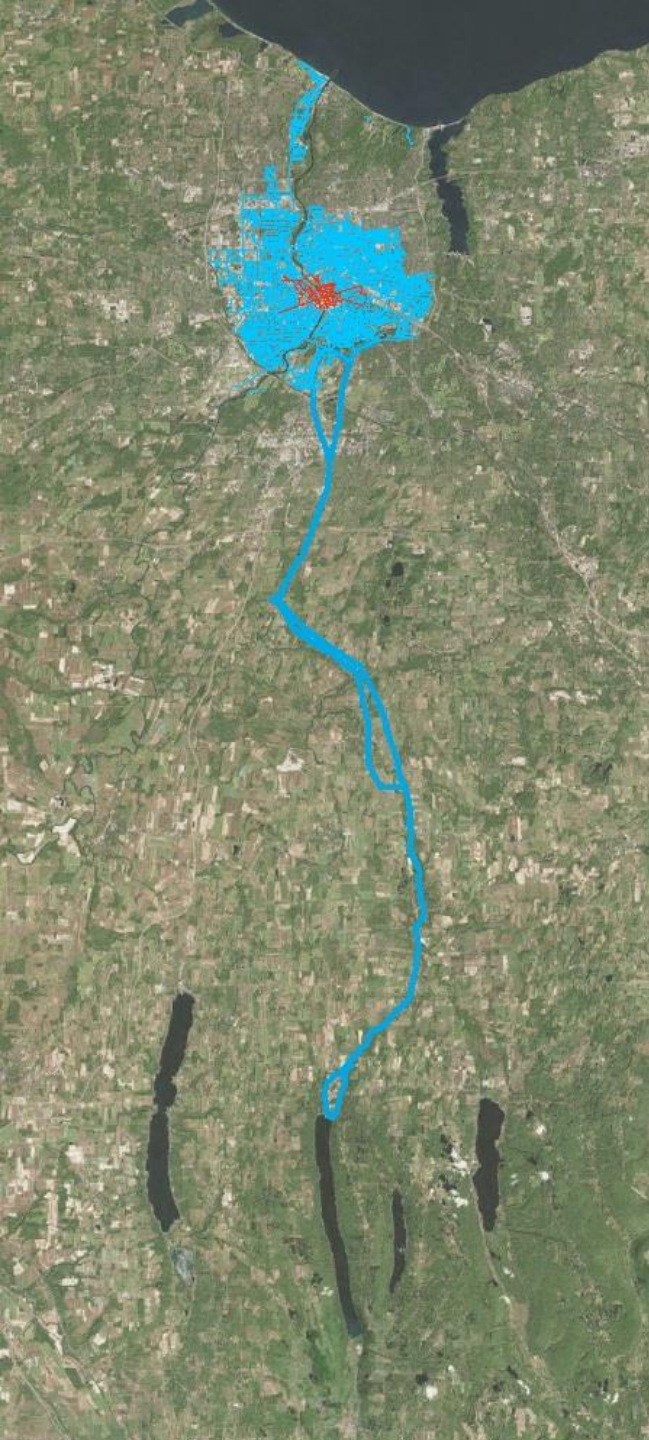
City of Rochester, NY
Lovely A. Warren, Mayor

October 19, 2017
Michael Ross
GIS Coordinator
Information Technology Department

 **Bergmann**
associates
architects // engineers // planners

System Overview

- 37 million gallons/day
- 75 miles of transmission conduit from Hemlock to Rochester
- 600 miles of distribution mains
- 7,600 fire hydrants
- 57,800 meters
- 16,700 valves
- 3 reservoirs – 230 million gallons
- Holly System: a separate, pumped, 100 psi, 5,500 gpm high-pressure system for firefighting in downtown.
- *Best tasting water in NY state!*



Background:

- The Water Bureau has maintained water system mapping in GIS for several decades.
- Mapping was done to print paper maps.
 - Poor topological connectivity
 - Heavy use of annotation
- Database and GIS data structures were grown over time, and had ballooned into something that was very difficult to manage.
- Desire to move into the 21st century: use web GIS, mobile applications, data QAQC, and network modeling.

Water Delivery

Maintain information about your water network assets, plan capital projects, respond to leaks, reduce water loss, optimize field work, communicate with customers, and more.



Foundational Solutions

Use this collection of services and maps to get started with ArcGIS for Water Utilities.

[Learn More](#)



Maintain Utility Assets

Empower your organization to be more effective in making informed decisions about asset management and help overcome the challenges with location data management.

[Learn More](#)



Respond to Emergencies

Increase productivity and decrease operational costs by improving sharing and collaboration capabilities.

[Learn More](#)



Improve Infrastructure Planning

Use this collection of maps and apps to plan, coordinate, and communicate capital improvement projects.

[Learn More](#)



ArcGIS for Water Utilities

- Geodatabase Design Template
- Network Topology Rules
- Desktop Editing Add-In
- Preconfigured Data Reviewer jobs for QAQC
- ArcGIS Online / Portal Structures
- Template Applications for Web

Request for Proposals

- Issued 8/16/2016
- Due 9/23/2016
- 8 firms responded to RFP
- Selected Bergmann Associates as consultant
- Project started February 2, 2017.
- Will close February 2018.

Tasks

1. Develop Data Migration Strategy (complete)
2. Complete Sample Migration (99% complete)
3. Complete Full Migration
4. Application Requirements Analysis (complete)
Selected applications:
 - Water Utility Network Editing and Analysis Solution (Desktop)
 - Water Quality Inspection Solution (Collector)
 - Water Distribution System Custom Web Viewer (Internal Web Application)
 - City Project Tracking (Public Web Application & Online Editing Map)
 - Data Reviewer for Water Utilities (Desktop Extension)
 - Valve Status Application (Internal Web Editing Application)
5. Solutions Implementation
6. Licensing, Security, and Server Configuration Review (complete)
7. User Training and Switchover

- GISWATER.sde
 - GISWATER.DBO.Annotation
 - GISWATER.DBO.aband_annocov_arc
 - GISWATER.DBO.aband_wanno
 - GISWATER.DBO.aband83arrow
 - GISWATER.DBO.annocov_arc
 - GISWATER.DBO.annocovline_arc
 - GISWATER.DBO.cityanno
 - GISWATER.DBO.construct
 - GISWATER.DBO.wanno
 - GISWATER.DBO.CleaningLining
 - GISWATER.DBO.AddAlternateLinemain
 - GISWATER.DBO.Bulkhead
 - GISWATER.DBO.BypassPipe
 - GISWATER.DBO.BypassReducer
 - GISWATER.DBO.CutInValve
 - GISWATER.DBO.Labels
 - GISWATER.DBO.LargeSrvConnection
 - GISWATER.DBO.Leader
 - GISWATER.DBO.LineMain
 - GISWATER.DBO.MatchLine
 - GISWATER.DBO.MatchLineAnno
 - GISWATER.DBO.Project_Sign
 - GISWATER.DBO.RAILROAD
 - GISWATER.DBO.SampleTap
 - GISWATER.DBO.Sectioning
 - GISWATER.DBO.selectedBypassPipe
 - GISWATER.DBO.selectedLgSrvConn
 - GISWATER.DBO.SelectedSmallSrvConnection
 - GISWATER.DBO.SmallSrvConnection
 - GISWATER.DBO.Stationing
 - GISWATER.DBO.TempHydrant
 - GISWATER.DBO.watermain
 - GISWATER.DBO.DomesticSystem
 - GISWATER.DBO.aband83line
 - GISWATER.DBO.aband83point
 - GISWATER.DBO.construct_2
 - GISWATER.DBO.dimension
 - GISWATER.DBO.Dimentions
 - GISWATER.DBO.domainvlv
 - GISWATER.DBO.Domestic_Tracer_Wire_Box
 - GISWATER.DBO.domhyd
 - GISWATER.DBO.domhyd_abandon
 - GISWATER.DBO.domhydbr
 - GISWATER.DBO.domhydbr_abandon
 - GISWATER.DBO.domhydvlv
 - GISWATER.DBO.domhydvlv_abandon
 - GISWATER.DBO.dommain
 - GISWATER.DBO.dommain_abandon
 - GISWATER.DBO.dommainvlv
 - GISWATER.DBO.dommainvlv_abandon
 - GISWATER.DBO.dommeter
 - GISWATER.DBO.dommeter_abandon
 - GISWATER.DBO.dompito
 - GISWATER.DBO.domsrv
 - GISWATER.DBO.domsrv_abandon

- GISWATER.DBO.domsrvOLD
- GISWATER.DBO.domsrvtap
- GISWATER.DBO.domsrvtap_abandon
- GISWATER.DBO.domsrvvlv
- GISWATER.DBO.domsrvvlv_abandon
- GISWATER.DBO.ExRoutes
- GISWATER.DBO.fittings
- GISWATER.DBO.fittings_abandon
- GISWATER.DBO.MainLines
- GISWATER.DBO.Operator
- GISWATER.DBO.OperatorValve
- GISWATER.DBO.PitoDist
- GISWATER.DBO.pitodist_polygon
- GISWATER.DBO.Engineering
 - GISWATER.DBO.Mainbreaks
- GISWATER.DBO.HollySystem
 - GISWATER.DBO.construct_1
 - GISWATER.DBO.Fittings2
 - GISWATER.DBO.Fittings2_abandon
 - GISWATER.DBO.Holly_Tracer_Wire_Box
 - GISWATER.DBO.hollyhyd
 - GISWATER.DBO.hollyhyd_abandon
 - GISWATER.DBO.hollyhyddb
 - GISWATER.DBO.hollyhyddb_abandon
 - GISWATER.DBO.hollyhydvlv
 - GISWATER.DBO.hollyhydvlv_abandon
 - GISWATER.DBO.hollymain
 - GISWATER.DBO.hollymain_abandon
 - GISWATER.DBO.hollymainvlv
 - GISWATER.DBO.hollymainvlv_abandon
 - GISWATER.DBO.hollymeter
 - GISWATER.DBO.hollypito
 - GISWATER.DBO.hollypito_abandon
 - GISWATER.DBO.hollysv
 - GISWATER.DBO.hollysvr_abandon
 - GISWATER.DBO.hollysvrOLD
 - GISWATER.DBO.hollysvrvlv
 - GISWATER.DBO.hollysvrvlv_abandon
 - GISWATER.DBO.hollysvrvlvOld
 - GISWATER.DBO.hollymainv2
- GISWATER.DBO.RFD_Hyd
- GISWATER.DBO.Upland
 - GISWATER.DBO.MonroeCountyParcels
 - GISWATER.DBO.OntarioParcels
 - GISWATER.DBO.Operator_1
 - GISWATER.DBO.OperatorValve_1
 - GISWATER.DBO.Parcels_Lima2016t
 - GISWATER.DBO.Parcels_Livonia2016t
 - GISWATER.DBO.Transmission_1
 - GISWATER.DBO.UplandParcels
 - GISWATER.DBO.wCurbStopValve
 - GISWATER.DBO.wFitting
 - GISWATER.DBO.wLateralLine
 - GISWATER.DBO.wServiceConnection
 - GISWATER.DBO.wSystemValve
 - GISWATER.DBO.wTestStation

- GISWATER.DBO.WaterFeatures
 - GISWATER.DBO.anode
 - GISWATER.DBO.cicoconn
 - GISWATER.DBO.CL2Analyzers
 - GISWATER.DBO.cpts
 - GISWATER.DBO.cwire
 - GISWATER.DBO.Detail_Drawings
 - GISWATER.DBO.distsample
 - GISWATER.DBO.FlowTracer
 - GISWATER.DBO.FlowTest
 - GISWATER.DBO.flushing_district
 - GISWATER.DBO.HWCoefficientTest
 - GISWATER.DBO.Intersections
 - GISWATER.DBO.Intersections_1
 - GISWATER.DBO.mainbreak
 - GISWATER.DBO.mcwahyd_1
 - GISWATER.DBO.mcwamain
 - GISWATER.DBO.NotifyProp
 - GISWATER.DBO.NotifyProp_1
 - GISWATER.DBO.PitoDistrict
 - GISWATER.DBO.PressureContour
 - GISWATER.DBO.PressureZone
 - GISWATER.DBO.Soil_Corrosivity
 - GISWATER.DBO.SoilBorings
 - GISWATER.DBO.Vaults
 - GISWATER.DBO.waterdime
 - GISWATER.DBO.waterdime_1
 - GISWATER.DBO.waterdime_2
 - GISWATER.DBO.yardhyd
 - GISWATER.DBO.yardmain
 - GISWATER.DBO.yardvlv
- GISWATER.DBO.CLDHYD
- GISWATER.DBO.CLDVLV1
- GISWATER.DBO.CP_Data
- GISWATER.DBO.CP_Test_Station_Field_Data
- GISWATER.DBO.CP_TStest
- GISWATER.DBO.domhyd_ATTACH
- GISWATER.DBO.domhyd_ATTACHREL
- GISWATER.DBO.hist
- GISWATER.DBO.HYDW0
- GISWATER.DBO.LeadServSector
- GISWATER.DBO.MainBreaks_MF
- GISWATER.DBO.mainbrks
- GISWATER.DBO.MCWA_MAINS
- GISWATER.DBO.MCWAHYD
- GISWATER.DBO.notify
- GISWATER.DBO.OPDAYVLV
- GISWATER.dbo.RFD_DomesticHydrantInspection
- GISWATER.dbo.RFD_HollyInspection
- GISWATER.dbo.SDE_compress_log
- GISWATER.DBO.VALVEWO
- GISWATER.dbo.VW_DomesticAddedHydrants
- GISWATER.dbo.VW_DomesticRemovedHydrants
- GISWATER.dbo.VW_HollyAddedHydrants
- GISWATER.dbo.VW_HollyRemovedHydrants

- GISWATER.DBO.WaterBilling
- GISWATER.DBO.WHYD
- GISWATER.DBO.wmeter
- GISWATER.DBO.WMTR
- GISWATER.DBO.WUSEHIST
- GISWATER.DBO.WVALV1OP
- GISWATER.DBO.WVALV2OP
- GISWATER.DBO.WVALVE1
- GISWATER.DBO.WVALVE2
- GISWATER.DBO.WVALVE3
- GISWATER.DBO.WVLV2WO

Current
data
structure

- [-] [Icon] WaterDistrubutionNetwork
 - [-] [Icon] WaterDistribution
 - [Icon] Water_Net
 - [Icon] Water_Net_Junctions
 - [Icon] wConstructionLine
 - [Icon] wControlValve
 - [Icon] wCurbStopValve
 - [Icon] wFitting
 - [Icon] wHydrant
 - [Icon] wLateralLine
 - [Icon] wMain
 - [Icon] wOperationalArea
 - [Icon] wServiceConnection
 - [Icon] wSystemValve
 - [Icon] wTestStation
 - [Icon] HistoryWaterBilling
 - [Icon] HistoryWaterBilling_wServiceConnection_Rel
 - [Icon] HistoryWaterUse
 - [Icon] HistoryWaterUse_wServiceConnection_Rel
 - [Icon] MainBreaks
 - [Icon] NotifyCustomers
 - [Icon] OperationsMainValve
 - [Icon] OperationsServiceValve
 - [Icon] wControlValve_ATTACH
 - [Icon] wControlValve_ATTACHREL
 - [Icon] wFitting_ATTACH
 - [Icon] wFitting_ATTACHREL
 - [Icon] wHydrant_ATTACH
 - [Icon] wHydrant_ATTACHREL
 - [Icon] wMain_ATTACH
 - [Icon] wMain_ATTACHREL
 - [Icon] WorkOrdersHydrant
 - [Icon] WorkOrdersMainValve
 - [Icon] WorkOrdersService
 - [Icon] wSystemValve_ATTACH
 - [Icon] wSystemValve_ATTACHREL

New data
structure