

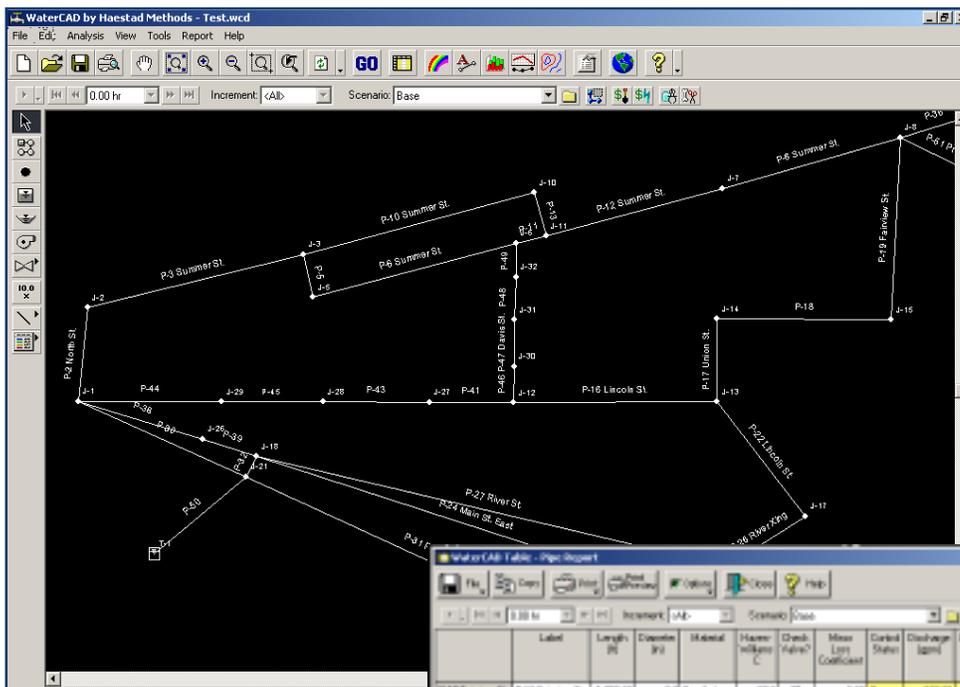
Municipal Utility GIS Services

Developing a geographic information system for municipal government is probably the most diverse and challenging type of GIS implementation. The needs of municipal users cross a broad spectrum from large-scale regional demographic analysis to precise locations of property corners. To accommodate these varied needs, the system must be designed to operate at many scales with a feature set that supports a multitude of applications.

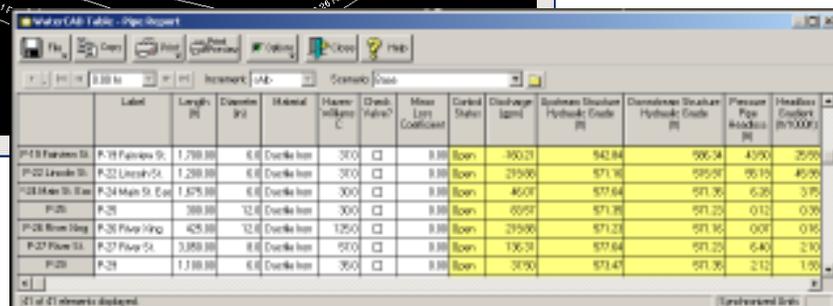
Municipal GIS systems are often built with feature sets and core functionality designed for traditional polygonal analysis, such as health, social service, and cadastral assessment. Municipal utilities, however, usually require complicated databases that support everything from model analysis to asset valuation. As a result, the needs of municipal utilities have been overlooked during the design of many municipal GIS systems.

To produce full value, a municipal GIS must meet all users' requirements, including a sophisticated database structure that accurately models water, sewer, and stormwater systems. Ideally, it should seamlessly integrate with third-party utility analysis products and accommodate NPDES II and GASB 34 reporting requirements. Municipal engineers have a broad range of spatial data sets to use for such diverse applications as studying water system hydraulic capacity, analyzing floodplains and buffers, or automatically locating critical shut-off valves. A well-designed

municipal GIS utilizes the power of a geodatabase central data structure that integrates the many computing requirements of municipal utilities, eliminating reliance on redundant data sets. A centralized data source facilitates data maintenance, increases data integrity, and streamlines work order management. These benefits are directly realized in improved public services and strengthened constituency support.



Integrating GIS with WaterCAD modeling software to analyze existing water system supply and to determine water quantity and demand requirements for proposed municipal expansion.



Label	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Check Factor?	Mass Loss Coefficient	Control Status	Discharge Input	System Status	Station Hydraulic Grade (ft)	Diameter Station Hydraulic Grade (ft)	Pressure Pipe Analysis	Headloss Station (ft/100ft)
P-18 Fairview St.	1,280.00	6.0	Ductile Iron	300		0.00	Open	-300.21	542.84	596.24	4390	2500	
P-22 Lincoln St.	1,280.00	6.0	Ductile Iron	300		0.00	Open	219.00	571.36	595.20	9610	4500	
P-24 Main St. East	1,675.00	6.0	Ductile Iron	300		0.00	Open	46.07	573.64	571.36	6,20	3,75	
P-25	388.00	12.0	Ductile Iron	300		0.00	Open	605.7	571.36	571.25	0.12	0.00	
P-26 River St.	425.00	12.0	Ductile Iron	300		0.00	Open	219.00	571.21	571.36	0.00	0.00	
P-27 River St.	3,850.00	8.0	Ductile Iron	500		0.00	Open	136.31	573.64	571.25	6.40	2.00	
P-29	1,180.00	6.0	Ductile Iron	300		0.00	Open	37.90	573.45	571.36	2.12	1.00	

To help municipal utilities build systems that perform at peak efficiency, James W. Sewall Company has formed the Municipal Utilities Group. This group is comprised of both professional engineers and GIS experts experienced in all aspects of GIS integration. The mission of this group is to close the gap between GIS and municipal engineering by providing municipal utilities with a comprehensive range of services, including data collection, asset management, analytical modeling, and GIS integration.

INTEGRATED SERVICES

Utility Location, Mapping, and Data Collection. Sewall has experience in a variety of data development approaches for building municipal utilities GIS layers, including:

Traditional data conversion. Digitizing information from existing paper sources

Photogrammetric utility location. Using low-altitude photogrammetry to capture the location of visible facility features. Sewall is a pioneer in this cost-effective and accurate approach to utility location

Geodatabase migration. Migrating legacy utility data from CAD or GIS systems to the ESRI geodatabase

GPS field location. Using GPS in the field to capture accurate facility location and attribute information

Infrastructure Management. Sewall assists municipal utilities in setting up infrastructure management systems and integrating them with an existing GIS for performing work order management, asset inventory, and asset valuation in support of NPDES II and GASB 34 requirements.

Engineering Analysis Modeling. With specific expertise in WaterCAD, HydroCAD, and HEC-RAS, Sewall engineers have created, calibrated, and maintained analytical models for water, sanitary, and stormwater systems.

GIS and Model Integration. Sewall implements the software and systems necessary to link an existing GIS to the engineering analysis model, eliminating redundant data entry and maintenance. This traditional approach to integrating GIS with the model requires middleware to reformat GIS information as input data for the modeling software.

GIS and Model Integration with Geodatabase. In this leading-edge approach to GIS-model integration, Sewall migrates legacy data to a centralized repository called the geodatabase. In the geodatabase, all data is transparently accessible to both the GIS and model simultaneously.

Master Address File Creation. Sewall is experienced in reconciling address records between two or more legacy systems, such as the assessor file and the utility billing system. An accurate master address file with geocoded address locations allows users to exploit the full power of GIS for legacy data analysis.

For more information on our GIS services for municipal utilities, please contact: Clarence Young, Project Manager, at (207) 827 4456; Email: youc@jws.com



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