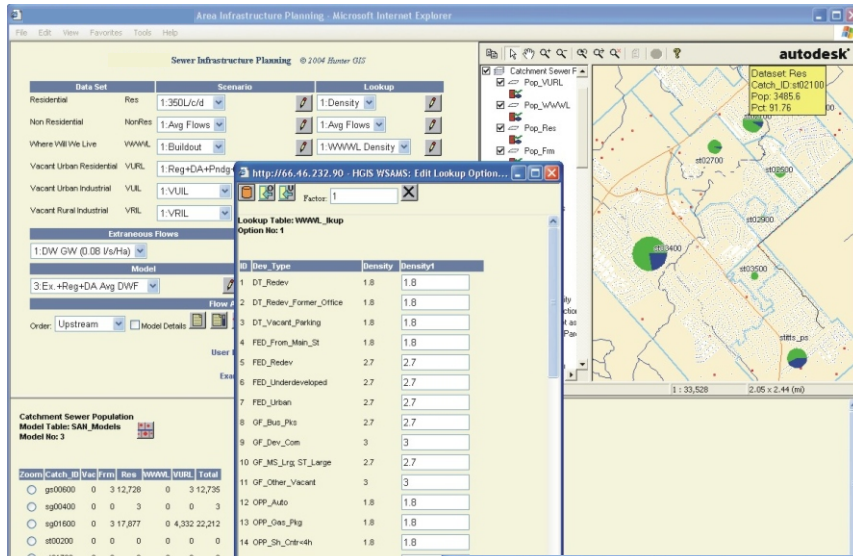


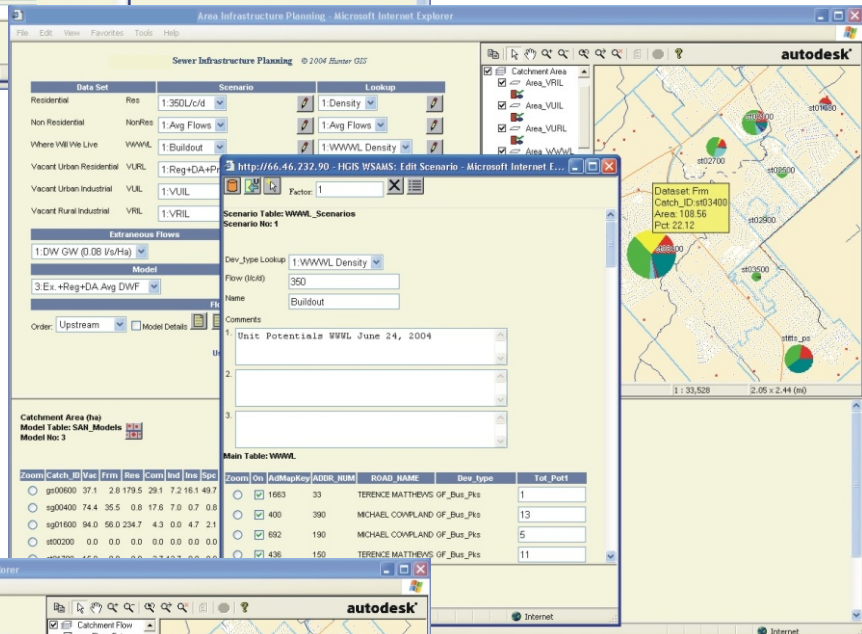
Where will we live and work?

Wastewater Flow Demand

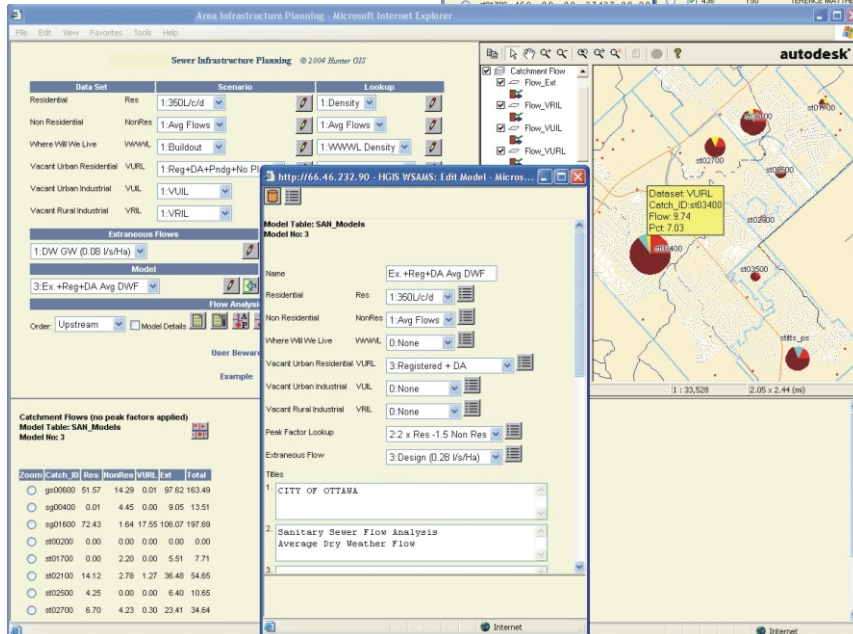


- Analyze sewage system flow performance for planning and budgetary purposes
- Integration with parcel tax assessment databases
- Define Residential and Non-Residential (industrial, commercial, etc.) datasets containing existing or proposed development
- Set daily flow per capita for each Residential dataset
- Population density and daily flow lookup by property type
- Adjust unit potential and daily flow on a parcel basis
- Associate parcels common to datasets to reduce overlap

- Create topology from existing manhole and pipe referencing and assign parcels to catchment areas
- Set extraneous flow rates on a catchment basis to account for inflow and infiltration into maintenance holes and pipes
- Incorporate standards and guidelines
- Compute peak flows using constants or equations
- Summarize sewer population, area and flows by catchment, maintenance holes and reach



- Analyze 'Where will we grow, live and work?'
- Analyze land use intensification scenarios
- Assess demand for expanded sewer infrastructure
- Compute existing pipe capacity
- Graphically compare computed flows to existing pipe capacity
- Compute hydraulic grade line (HGL)
- Save model parameters and comments
- Append model details to reports
- Browser-based (MS IE)
- Customizable templates and reports
- Built on Autodesk MapGuide



Where will we grow?

Demand for Sewer Capacity

The Hunter GIS Wastewater Flow Analysis Solution enables managers and planners to evaluate the performance of a sewer network under various land development scenarios in order to determine the budget and timing of capital works to support growth.

The solution revolves around a topological sewer network, catchment basins, and parcels defining residential and non-residential developments, both existing and proposed. The parcels are assigned to catchment basins, which in turn are associated with a node on the sewer network. The flow emanating from a parcel may be adjusted to account for changes in density or type of development.

Extraneous flow factors are assigned to catchment areas to reflect inflow and infiltration into manholes and pipes. Peak factors may be applied as a constant or an equation. The sewer population, area and flows are reported on a catchment, node and reach basis. The hydraulic grade line (HGL) is computed for each pipe segment.

The solution is designed to permit the specification of a series of development scenarios for each dataset, thereby allowing the user to track the performance of the sewer system as the catchment areas are built-out. Model parameters are saved to permit subsequent runs.

The Wastewater Flow Analysis Solution consists of a suite of database tables and Cold Fusion templates that may be customized to suit the particular requirements of a municipality. The solution utilizes Autodesk's MapGuide and is database independent.

The software interface displays various configuration options and data tables. The top screenshot shows the main configuration window with sections for Data Set, Scenario, Lookup, Extraneous Flows, and Peak Factors. The middle screenshot shows a detailed view of a specific node with its associated data, including Node ID, Last ID, Vac, Firm, Res, Com, Ind, Ins, Size, Spc, WWWW, VURL, VURL, VURL, TotFlow, Extraneous Flows, Total Flow, Q-cap, Manning's, TotLoad, Q-cap, HGLUS, and HGLUS. The bottom screenshot shows a comprehensive data table for the entire system, including columns for Node Identifiers, Consumption Flow (lps), Extraneous Flows (lps), Total Flow (lps), Q-cap, Manning's, TotLoad, Q-cap, HGLUS, and HGLUS.

Node Identifiers	Consumption Flow (lps)	Extraneous Flows (lps)	Total Flow (lps)	Q-cap	Manning's	TotLoad	Q-cap	HGLUS	HGLUS
MHTR01509	300200 0.00 0.08 143.08 15.29 4.02 0.86 0.47 0.16	0.00 34.56 0.00 0.00 198.52	202.48 202.48	401.00	1,077.04	37.23	90.30		
MHTR01510	300300 0.00 0.08 143.08 15.29 4.02 0.86 0.47 0.16	0.00 34.56 0.00 0.00 198.52	202.48 202.48	401.00	1,019.13	39.35	92.14		
MHTR01511	300400 0.00 0.08 143.08 15.29 4.02 0.86 0.47 0.16	0.00 34.56 0.00 0.00 198.52	202.48 202.48	401.00	1,038.79	38.60	94.09		
MHTR01512	300500 0.00 0.08 143.08 15.29 4.02 0.86 0.47 0.16	0.00 34.56 0.00 0.00 198.52	202.48 202.48	401.00	1,854.82	21.62	95.24		
MHTR01513	300600 0.00 0.08 143.08 15.29 4.02 0.86 0.47 0.16	0.00 34.56 0.00 0.00 198.52	202.48 202.48	401.00	978.82	40.98	96.25		
MHTR01514	300700 0.00 0.08 143.08 15.29 4.02 0.86 0.47 0.16	0.00 34.56 0.00 0.00 198.52	202.48 202.48	401.00	957.72	41.87	97.22		
MHTR01515	300800 0.00 0.08 143.08 15.29 4.02 0.86 0.47 0.16	0.00 34.56 0.00 0.00 198.52	202.48 202.48	401.00	636.13	63.04	97.64		
MHTR01516	300900 0.00 0.08 143.08 15.29 4.02 0.86 0.47 0.16	0.00 34.56 0.00 0.00 198.52	202.48 202.48	401.00	625.43	64.12	98.06		
MHTR01517	301000 0.00 0.08 143.08 15.29 4.02 0.86 0.47 0.16	0.00 34.56 0.00 0.00 198.52	202.48 202.48	401.00	636.13	63.04	98.48		
MHTR01518	301100 0.00 0.08 143.08 15.29 4.02 0.86 0.47 0.16	0.00 34.56 0.00 0.00 198.52	202.48 202.48	401.00	636.13	63.04	98.91		