

Utility Modeling Using Autodesk SSA

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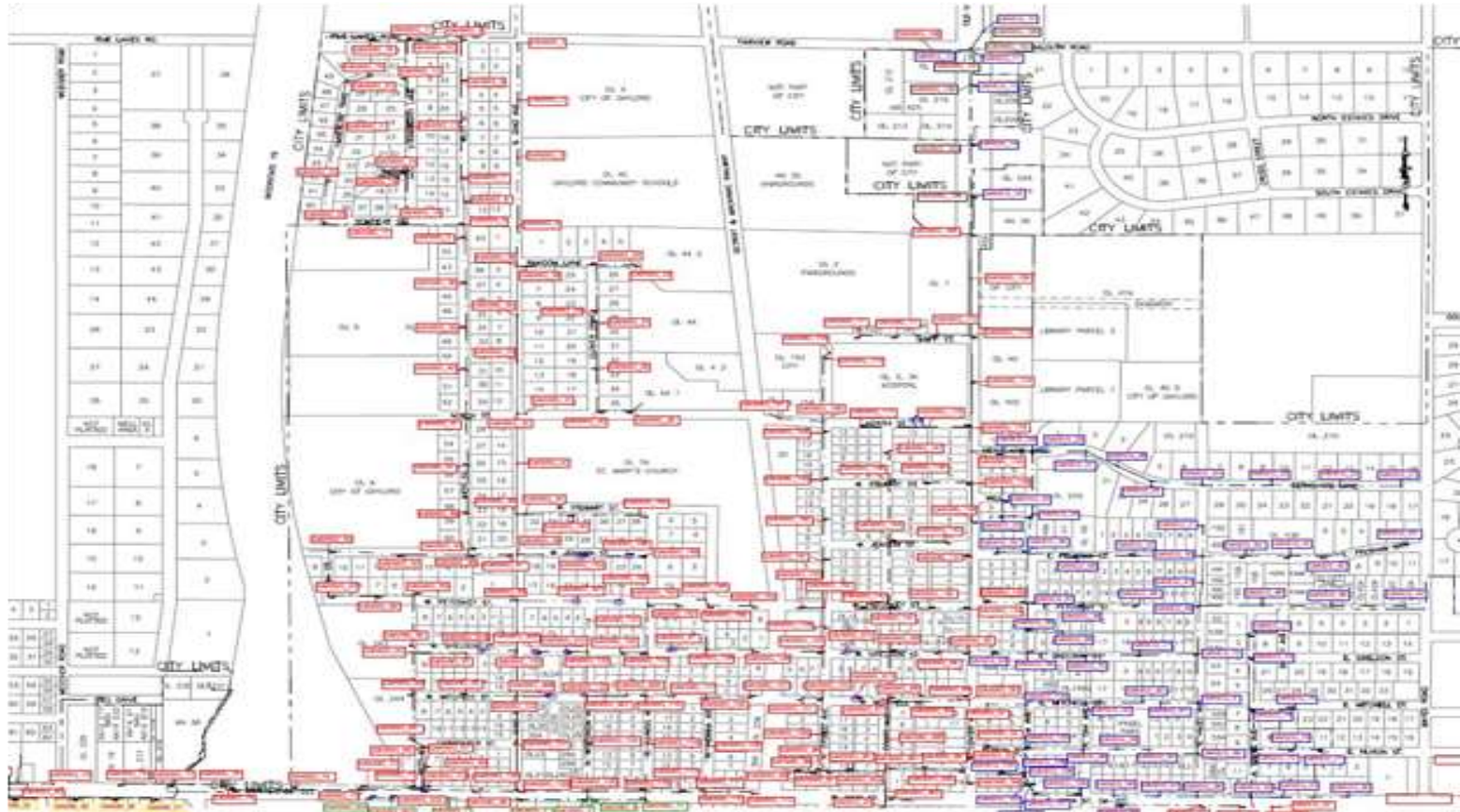
WHAT IS AUTODESK STORM AND SANITARY ANALYSIS (SSA)?

- Comprehensive, hydrodynamic hydrology and hydraulic analysis software application.
- Used for planning and design of storm sewers and sanitary sewers, also urban drainage systems.
- First stand-alone version of SSA appeared in April, 2010 after Autodesk acquired the assets of BOSS International including StormNET, RiverCAD and WaterNetworld.
- Multiple hydrological methods, used only SCS TR-55 method to date.
- There are other uses, but we have only used it to model storm and sanitary systems for 28 SAW projects throughout the state.

IMPORTANT STEPS TO DEVELOP A MODEL THAT MIRRORS THE ACTUAL SYSTEM

- GPS survey of all structures.
- Individual manhole inspections.
- CCTV inspections of pipe greater than 20 years old.
- Additional field inspection may be required.
- The model is only as good as the information input into the software.

RAW MAP EXAMPLE



INFORMAITON GATHERED DURING EXISITNG MANHOLE INSPECTIONS

- ArcPad software used during existing manhole inspections.
- Identify existing structure ID, specific structure information (diameter) & condition.
- Pipe ID's in/out of structure, diameter, material, cross sections.
- Upstream manhole ID's and invert elevations.
- Downstream manhole ID's and invert elevations.
- Other miscellaneous information.

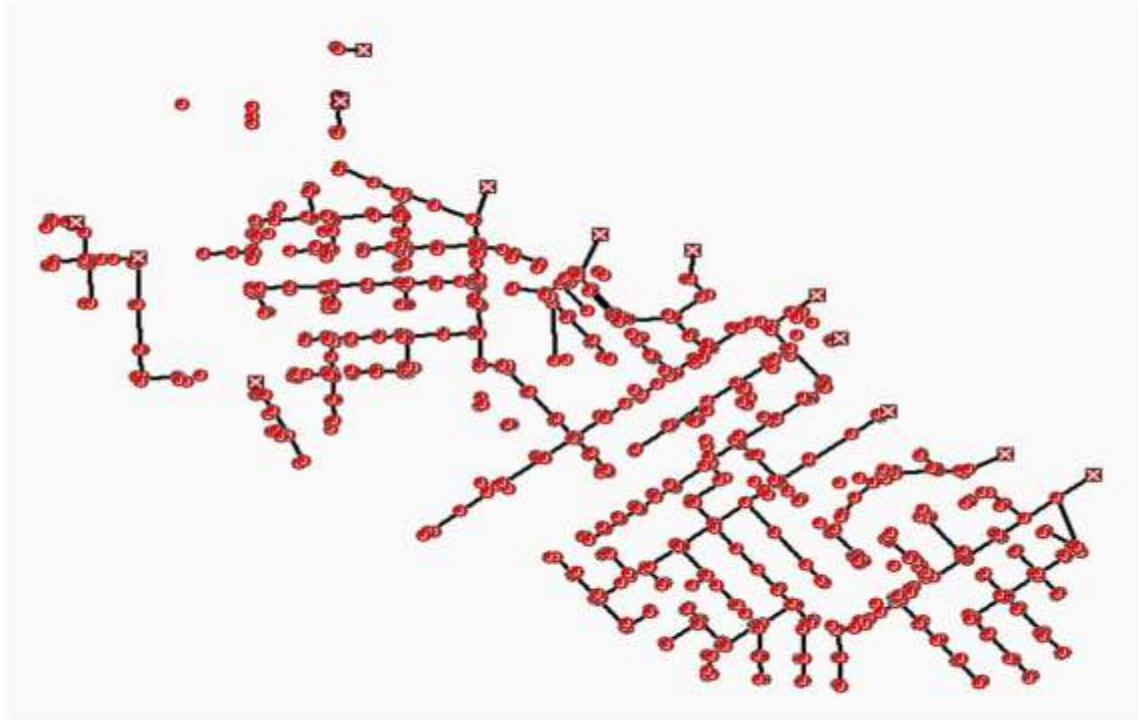
EXISTING MANHOLE INVENTORIES



CONVERTING INFORMATION FROM ARCPAD TO SSA

- InfoGeographics assisted in developing the background to the working database in ArcMap.
- Shapefiles from ArcMap were then exported to SSA.
- Work out the “bugs.”
- Creation of either storm or sanitary systems were the same to this point.

STORM SEWER MODELING



STORM SEWER MODELING



STORM SEWER MODELING



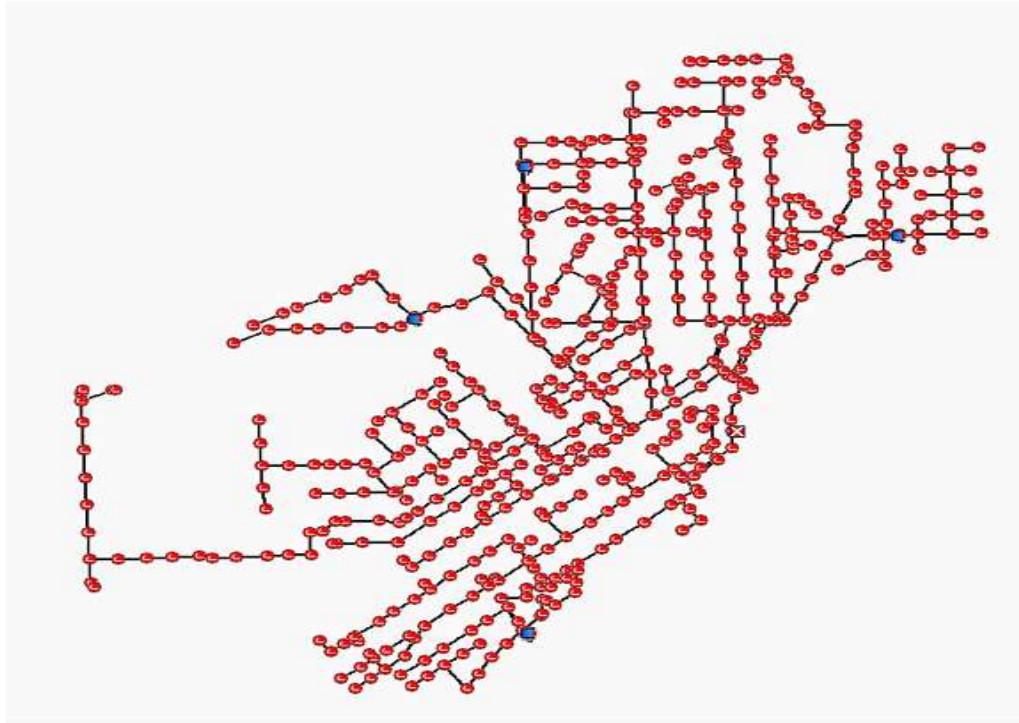
STORM SEWER MODELING

[RC Storm Plan PipeCapacity Movie](#)

STORM SEWER MODELING

[RC Storm Huron Profile Movie](#)

SANITARY SEWER MODELING



SANITARY SEWER MODELING



ROGERS CITY SANITARY SEWER MODEL
EXHIBIT 2

PIPE CAPACITY RATIO
BASE FLOW + 25yr - 24hr STORM
(NO SCALE)



SANITARY SEWER MODELING

[RC Sanitary Plan PipeCapacity Movie.](#)

SANITARY SEWER MODELING

[RC Sanitary CalcitePS Profile Movie](#)

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Questions?

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