MINNESOTA POLLUTION CONTROL AGENCY

Overview of Community Water Profiles

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January 16, 2019

Agenda

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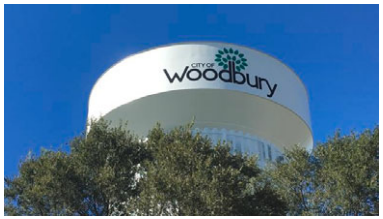
❖ Overview of Community Water Profiles

A. Objectives – Why do we need this information?

- Community water system profiles and modeling are essential to determining the right fit for drinking water plan solutions.
- The technical team needs to understand the layout, extent, and operating parameters of the drinking water systems for each of the 13 communities.
- A hydraulic model for the water systems must be developed so that we can determine how the systems work, and how any changes will affect them.
- The model is essential for the development and evaluation of alternatives for individual or combined community water system solutions.



❖ Overview of Community Water Profiles

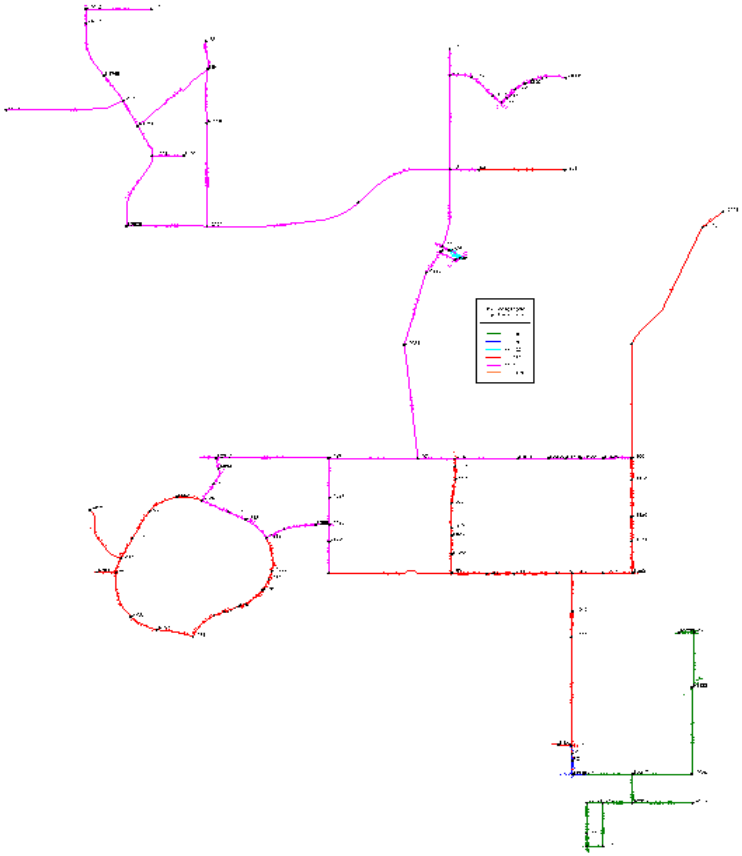
B. System Profiles - What information is important?

- Models must include locations of all water supply system assets including wells, water mains, booster pumps, tanks, etc.
- Physical parameters such as size, material type, bend locations, etc. are required to develop an accurate model of the system.
- Operating parameters such as capacities, flow, pressure, etc. are essential to establish the dynamics of the model.
- Historical and future demand forecasts and infrastructure plans will be necessary to match need.
- It is understood that not all communities have the same level of available information.

❖ Overview of Community Water Profiles

C. Data Request – What type of information is needed?

- Asset information – treatment facilities, pipelines, storage tanks, pump stations, valve stations, well sites
- Planning information – existing master plans, hydraulic models, historical and projected demand growth.
- Other documentation – record drawings, system maps, service connection records, etc.



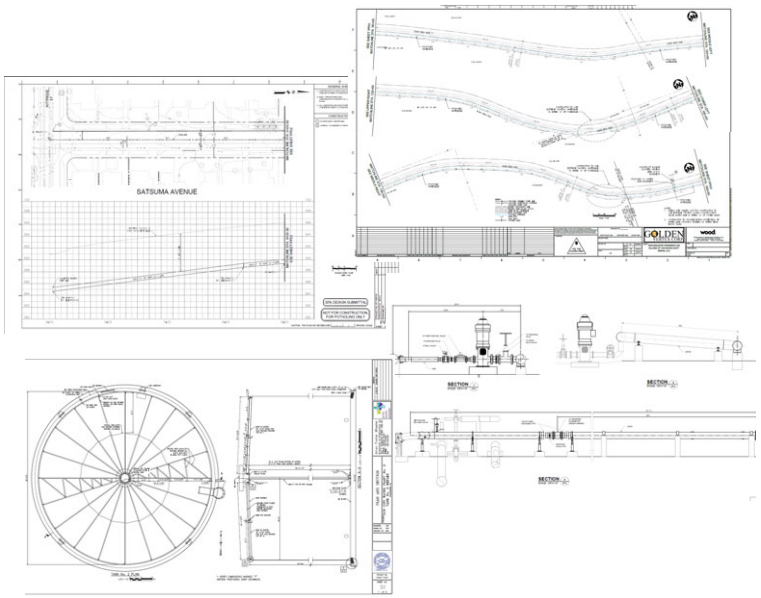
❖ Overview of Community Water Profiles

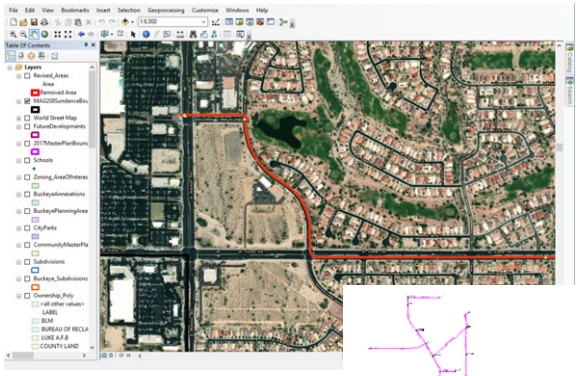
D. Modeling - How will the information be used?

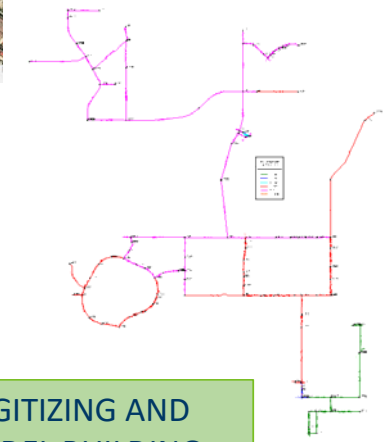
- Determine the feasibility of proposed drinking water system improvements.
- Model the hydraulic effects of potential inter-community connections between systems.
- Evaluate alternatives based on hydraulic impacts

❖ Summary of Community Data Request

E. Methodology – Gathering, processing, implementation of information







KNOWN ASSETS → AVAILABLE RECORD DRAWINGS & DATA → DIGITIZING AND MODEL BUILDING

❖ Summary of Community Data Request

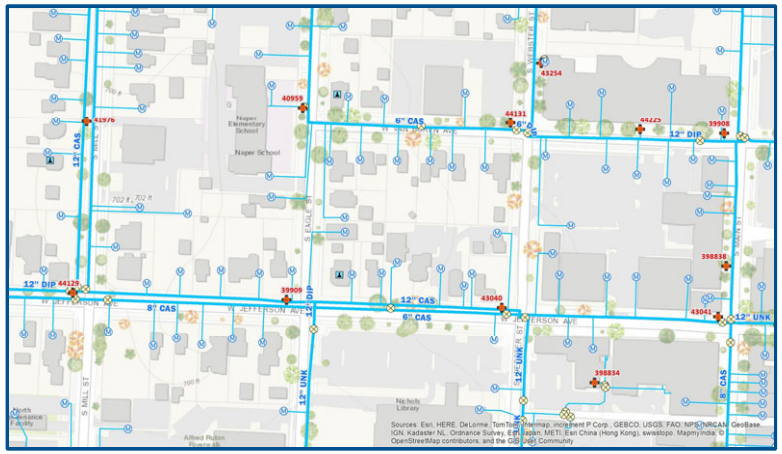
E. Methodology (cont.)

- It is understood that not all communities have the same level of available information.
- Wood will work specifically with each community regarding available information and format. (Brian McBride and Erin Daugherty)
- The Wood technical team will help determine the optimal way to extract or approximate the required data.

❖ Summary of Community Data Request

A. Prioritizing Required Information

- Ideal: previously compiled information:
  - Planning studies – need source data
  - Electronic files – GIS, system maps
  - Previous hydraulic models - including calibration
  - Asset management system outputs
  - Historical and projected service growth
  - Identification of un-served areas within jurisdiction



- If necessary: manual records
  - Community and service connection records
  - Record drawings for water system infrastructure.
  - Hard copy maps – geographic locations and elevations.
  - Equipment data for pumps, wells, valve stations, etc.

❖ Summary of Community Data Request

B. Specific Information Required for the Model

1. Waterlines and Appurtenances
   - Includes:
     - Pipelines
     - PRV stations, system interconnections
     - Air/vacuum release valves and blow-offs
     - Fire hydrants
   - Information required for entire distribution system:
     - Location and elevations
     - Size and material
     - Age/installation date

❖ Summary of Community Data Request

B. Specific Information Required for the Model (cont.)

2. Water Tanks
   - Includes:
     - Elevated storage tanks
     - At-grade storage tanks
     - Below-grade storage tanks
     - Hydro-pneumatic tanks
   - Information required :
     - Location and elevations
     - Size, capacity and material
     - Operating levels and pressure range
     - Age/installation date

❖ Summary of Community Data Request

B. Specific Information Required for the Model (cont.)

3. Booster Pump Stations
   - Includes:
     - Distribution system booster pumps
     - Fire flow booster pumps
   - Information required :
     - Pump data sheets
     - Location, size, type, and capacity
     - Operating flows and pressures
     - Age/installation date

❖ Summary of Community Data Request

B. Specific Information Required for the Model (cont.)

4. Wells/Well Pumps
   - Includes:
     - Direct-connection wells
     - Water tank supply wells
   - Information required :
     - Well pump data sheets
     - Location, size, type, and capacity
     - Operating elevations, flows and pressures
     - Historical well and groundwater data
     - Age/installation date

❖ Summary of Community Data Request

B. Specific Information Required for the Model (cont.)

5. Treatment Facilities
   - Includes:
     - Surface water treatment plants
     - Groundwater treatment plants
     - Wellhead treatment systems
   - Information required :
     - Location, capacity, footprint
     - Facility history and basis of design
     - Treatment unit processes

❖ The Next Steps

✓High-level review of approach to alternatives:

- Previously Identified Alternatives for LGUs
  - Non-potable and potable reuse of treated 3M containment water
  - New surface water treatment plant on Mississippi or St. Croix rivers
  - Connection of subsets of communities to St. Paul Regional Water Supply
  - Drill new wells in optimized locations
- Other Proposed Alternatives
  - Drinking Water treatment of existing water supply
  - Well hookups to existing systems
  - Rural drinking water systems
  - Smaller expedited projects
  - Others? Suggestions are encouraged – deadline February 12, 2019.

❖ Key Take-Away Messages

Why is this relevant?

- Community water system profiles and modeling are essential to determining the right fit for solutions.
- A hydraulic model simulates how the systems work, and how any changes will affect them.
- Previously compiled information with source data is ideal.
- A collaborative process is key. Wood will work specifically with each community regarding available information and format.

Thank you!

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