

Remote flow monitoring and use of real time data for evaluation of collection system performance

Lucas Streicher

Director of Operations

Thorn Creek Basin Sanitary District

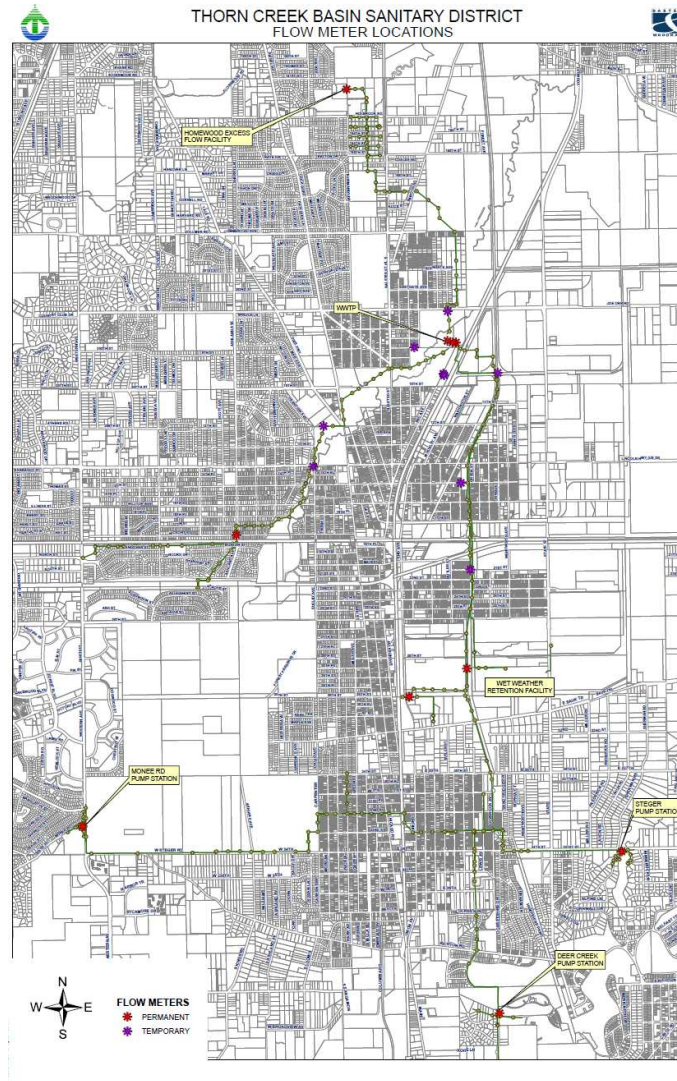
District Background

- Founded in 1928 the District now serves over 100,000 people and 30,000 accounts in 6 communities in the south suburbs
- Average flows of 15 mgd
- Consists of the 20 acre main plant, a separate 5 acre excess flow plant, a 50 acre annex containing three large lagoons for sludge storage and wet weather retention and three lift stations

District Collection System

- Owns 14.2 miles of interceptor sewer lines but does not own local sewers
- Three large diameter trunk sewers ranging in size from 36-inch to 48-inch diameter
- Two local sewers from one community including 15-inch and 18-inch diameter
- Monitoring locations remote from Main Plant at distances ranging from 2 to 6 miles

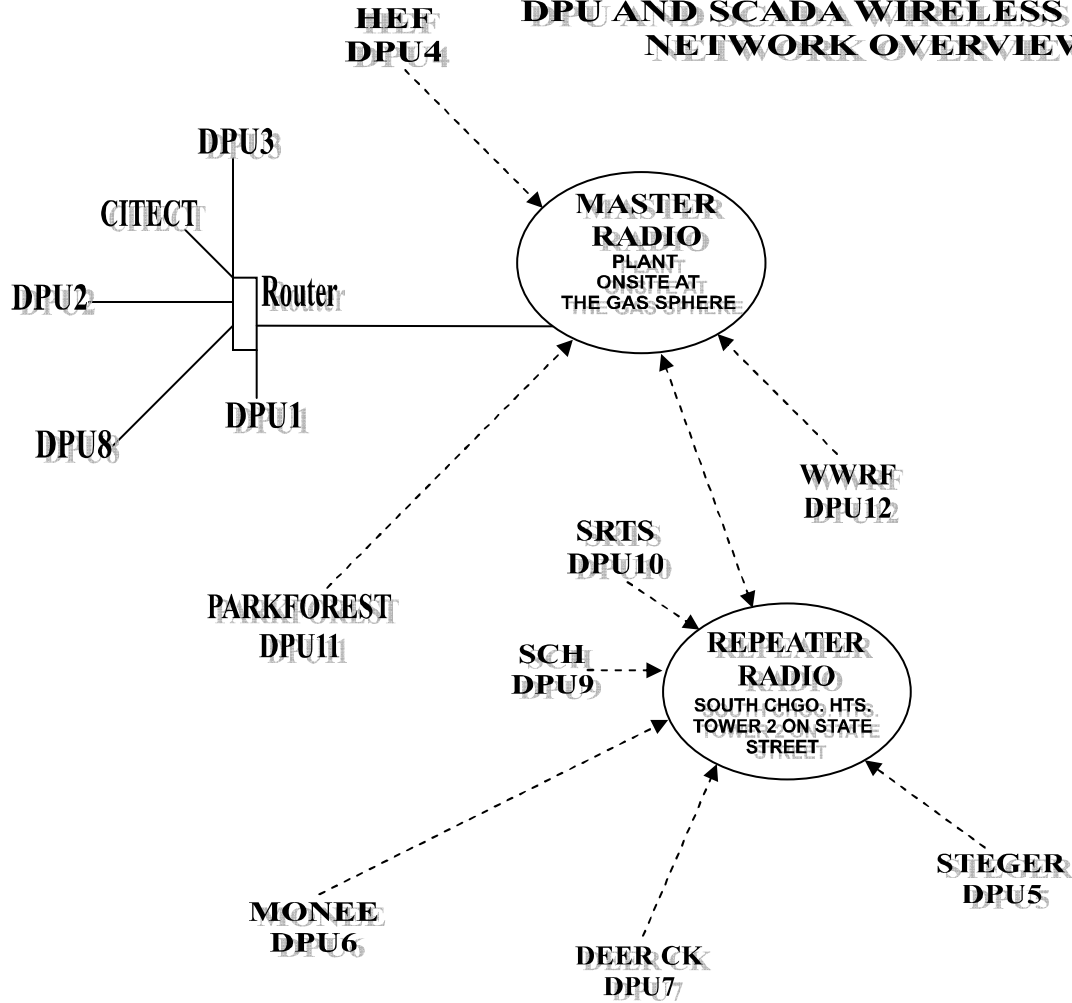
Map of Collection System



Need for remote flow monitoring

- Normal flow 12 mgd, Storm Flow 120 mgd
- Implementation of District's Infiltration / Inflow Ordinance in 2006
- Monitor system performance
- Real time data allows operating staff to make operational decisions at remote lift stations, wet weather retention facility, and satellite excess flow facility

DPU AND SCADA WIRELESS RADIO NETWORK OVERVIEW



Flow Monitoring Device



FLO-DAR

- Velocity and level measured using Doppler radar
- Equipment mounted at crown of pipe
- Same FLO-DAR model used at each location
- Surcharge sensor allows continuous flow data as pipe begins to flow full

Remote Installation



Remote Installation

- Locked metal enclosure on concrete pad that houses the following components
- Flow monitoring device
- Ethernet radio connection to directional antenna
- Back up battery
- DPU
- Electric meter

Flow monitoring device



Ethernet radio



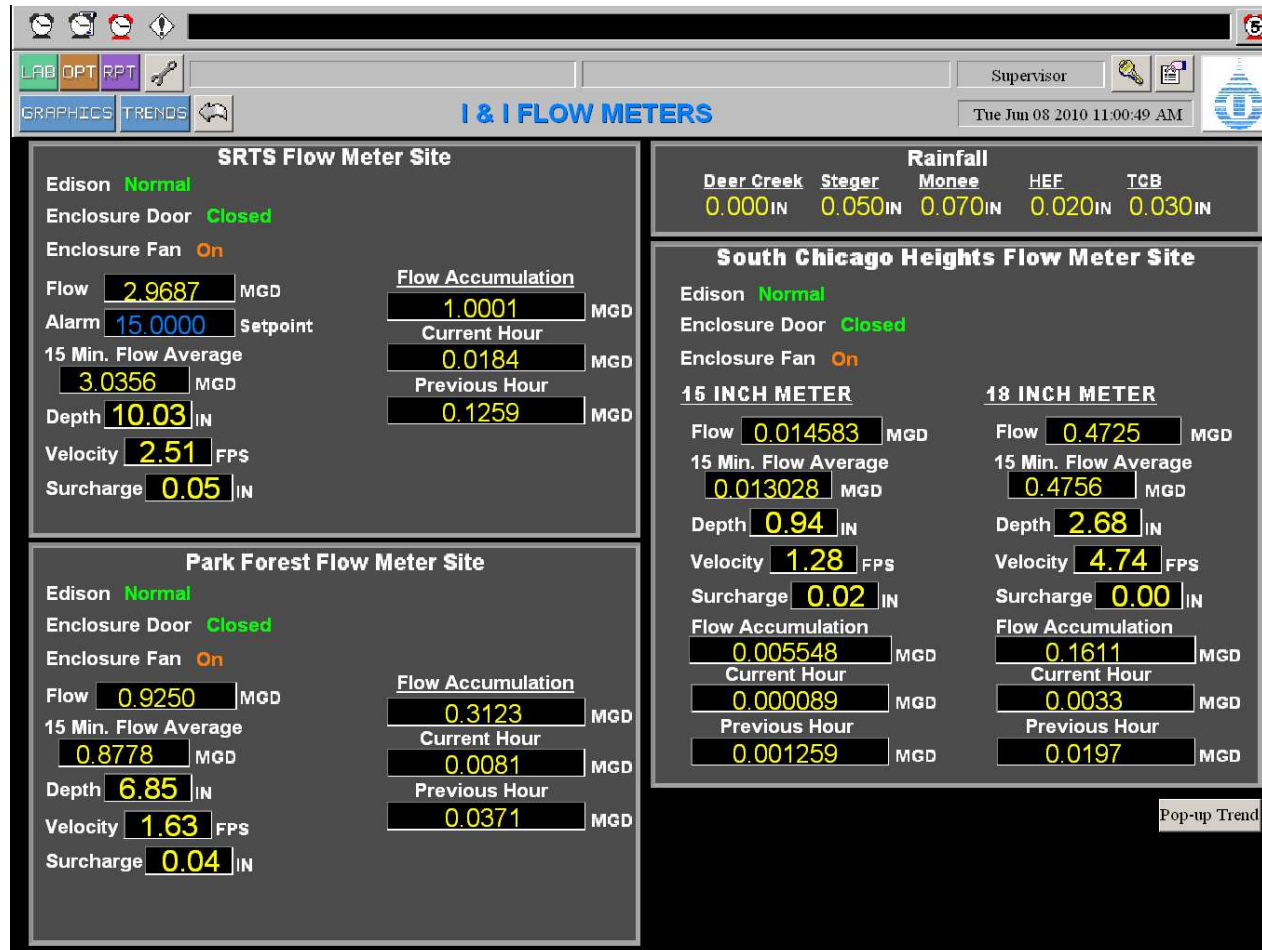
Back up battery



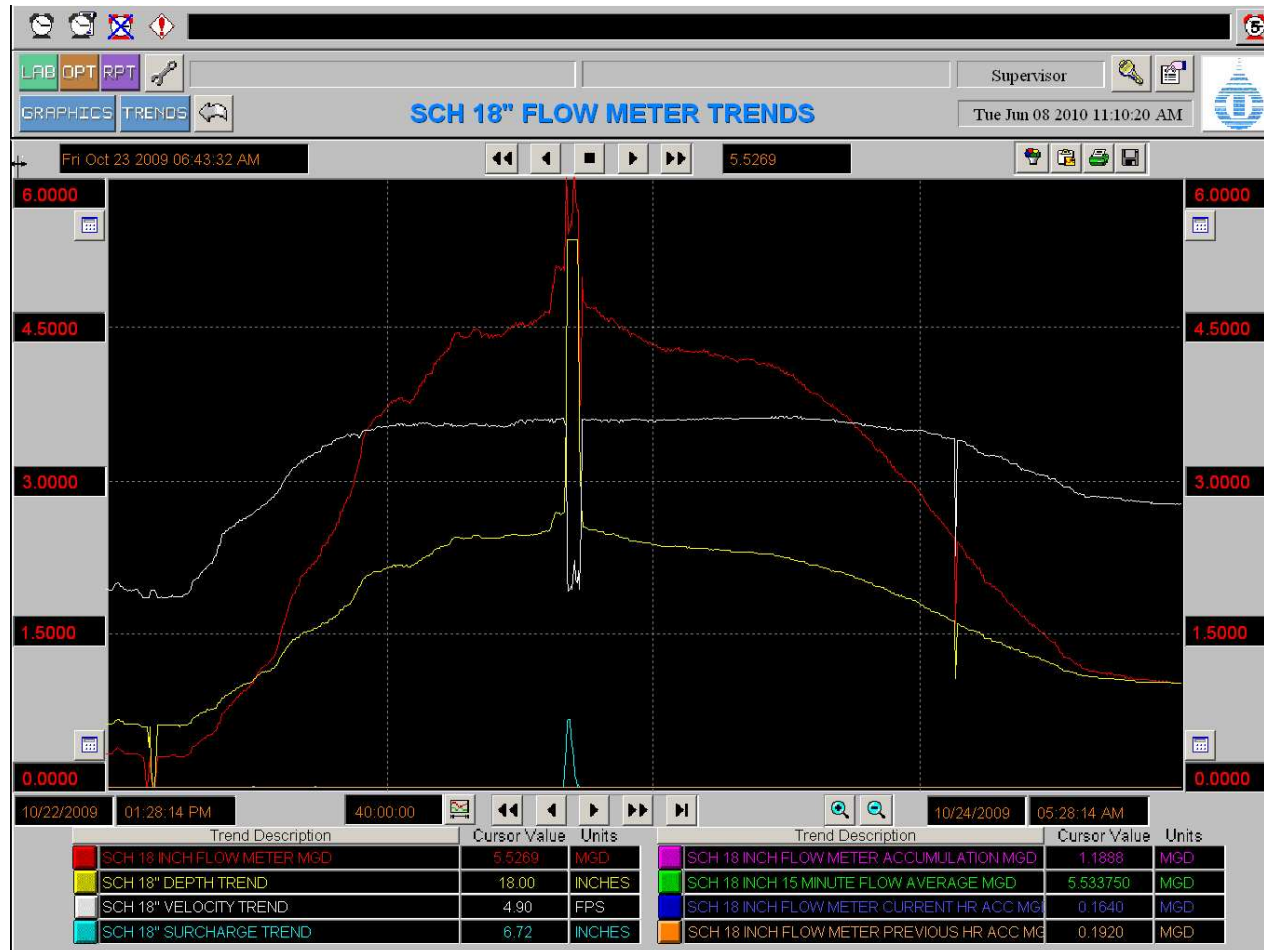
Electric meter



Sample SCADA Screen Shot



Sample SCADA Screen Trend



Data used to assess I / I compliance



Data used to operate wet weather retention facility



Maintenance & Operation

- Proper installation critical
- Device may be retrieved from installation bracket without having to enter manhole
- Real time data review allows quick response if meter fails or provides inconsistent data
- Low maintenance

Acknowledgement

- John McDonnell, District Engineer

Questions

- Istreicher@thorncreekbasin.org