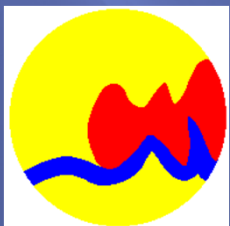


City of Grand Rapids Grand River Water Quality Monitoring



Green CiTTS Webinar
November 9, 2011
Carrie Rivette



Great Lakes & St. Lawrence Cities Initiative
Alliance des villes des Grands Lacs et du Saint-Laurent

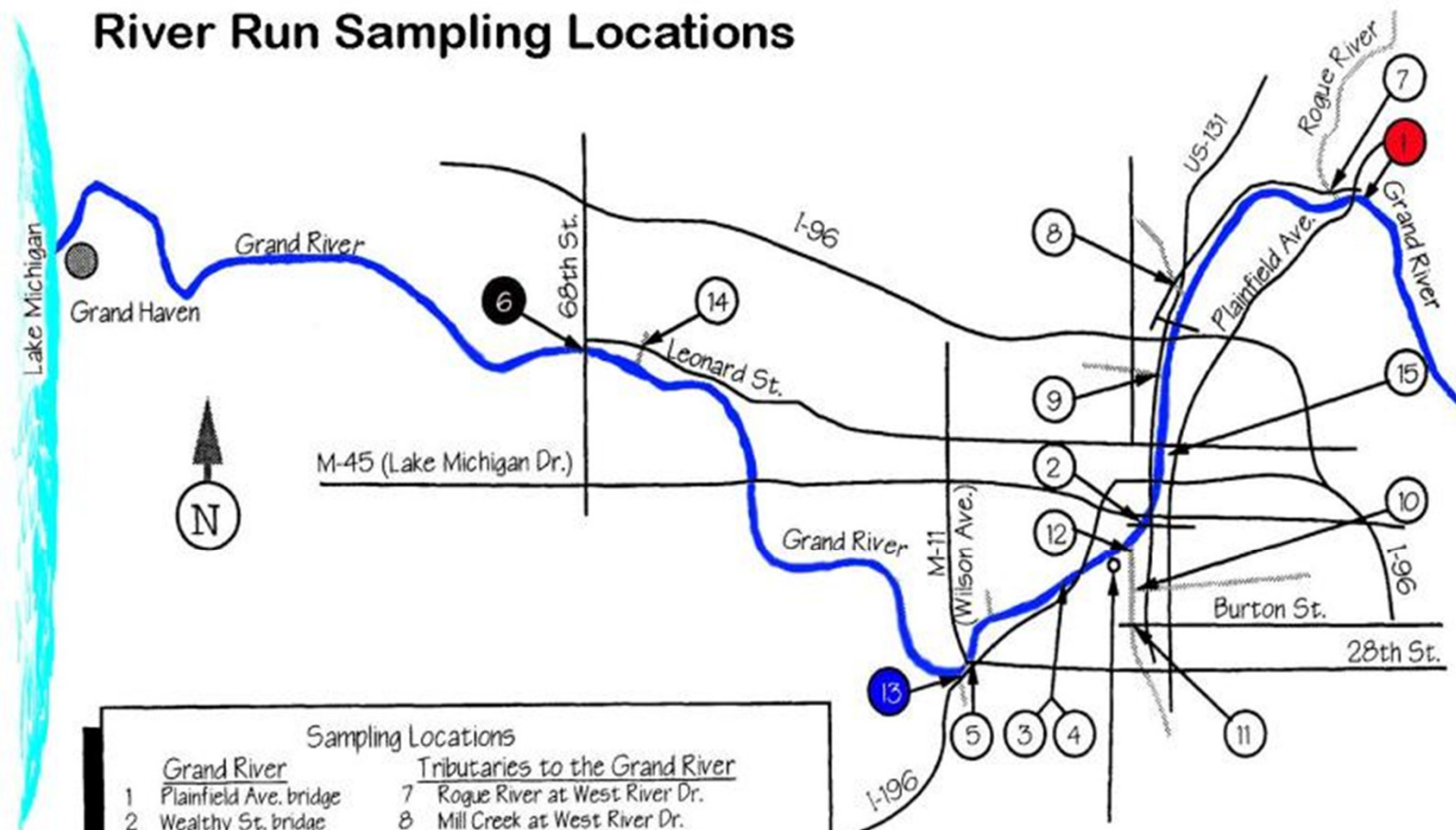


History

- ▣ Program began in 1969
- ▣ Partnership of communities, universities, colleges and the Center For Environmental Study.



River Run Sampling Locations



Sampling Locations

Grand River

- 1 Plainfield Ave. bridge
- 2 Wealthy St. bridge
- 3 Railroad bridge south
- 4 Railroad bridge north
- 5 M-11, Wilson Ave. bridge
- 6 68th St. bridge

Tributaries to the Grand River

- 7 Rogue River at West River Dr.
- 8 Mill Creek at West River Dr.
- 9 Indian Mill Creek at Turner Ave.
- 10 Silver Creek at Crofton St. & Roy Ave.
- 11 Plaster Creek 1 at Burton St.
- 12 Plaster Creek 2 at Market Ave.
- 13 Buck Creek at Chicago Dr.
- 14 Deer Creek at Leonard St.
- 15 Storm #1, Coldbrook storm drain

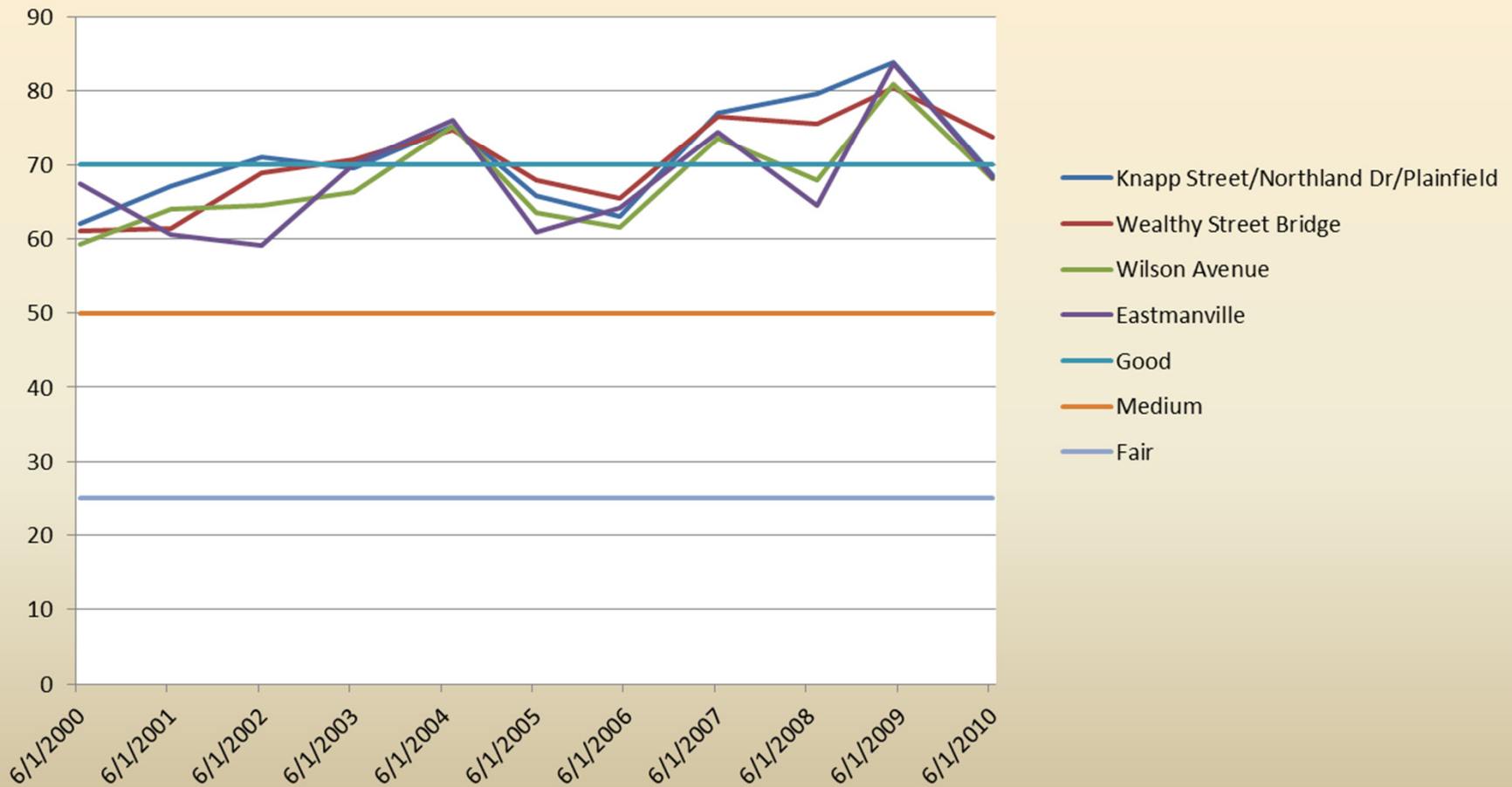


**Environmental Protection
Services Department
City of Grand Rapids**

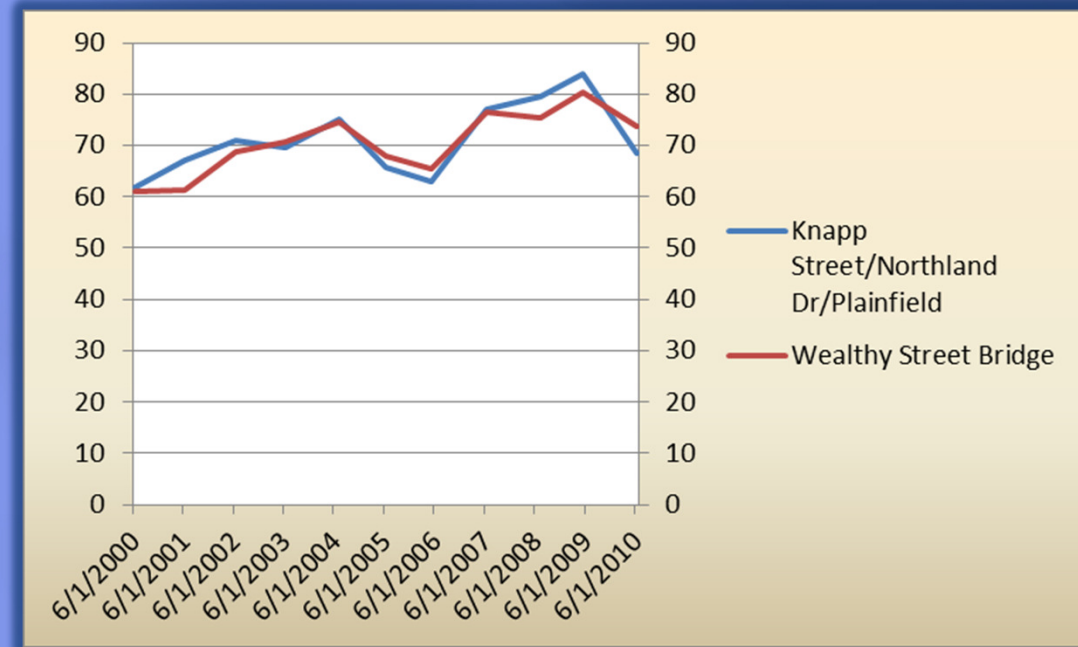
Monitoring Parameters

- ▣ Sample temperature (°C)
- ▣ Dissolved oxygen (mg/L)
- ▣ pH (pH units)
- ▣ BOD-5 (mg/L)
- ▣ Total suspended solids (mg/L)
- ▣ Fecal coliform (#FC/100mL)
- ▣ E. coli (#EC/100mL)
- ▣ Chlorides (mg/L)
- ▣ Conductivity (uS/cm)
- ▣ Total phosphorus (mg/L)
- ▣ Ammonia as nitrogen (mg/L)
- ▣ Nitrites as nitrogen (mg/L)
- ▣ Nitrates as nitrogen (mg/L)
- ▣ Total chromium (ug/L)
- ▣ Total Copper (ug/L)
- ▣ Total iron (ug/L)
- ▣ Total mercury (ug/L)
- ▣ Total nickel (ug/L)
- ▣ Total silver (ug/L)
- ▣ Total zinc (ug/L)
- ▣ Hardness (mg/L CaCO₃)


Grand River Water Quality Index Spring Sampling 2000 - 2010



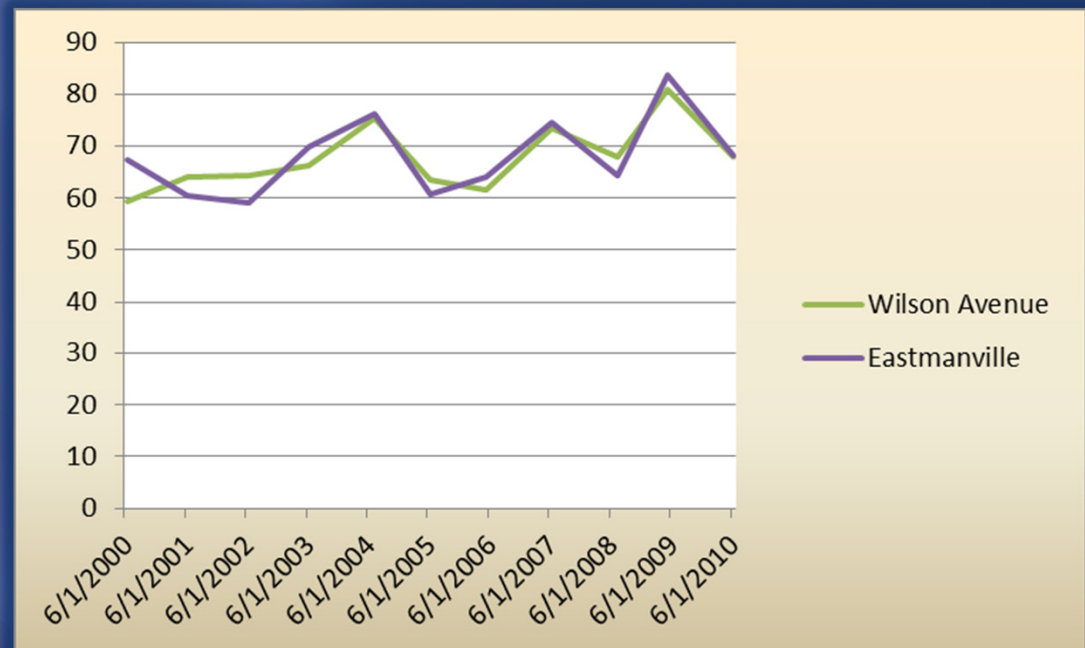
WQI is a weighted calculation based on the measurements of Dissolved Oxygen, Temperature, pH, BOD, Total Suspended Solids, Chloride, Fecal Coliform, Phosphate, and Nitrate.



Upstream
Monitoring
Points



Downstream
Monitoring
Points



Data Uses

- ▣ Data Trends
- ▣ IDEP – Illicit Discharge Elimination Program
- ▣ TMDL Tracking
- ▣ Other Anomalies

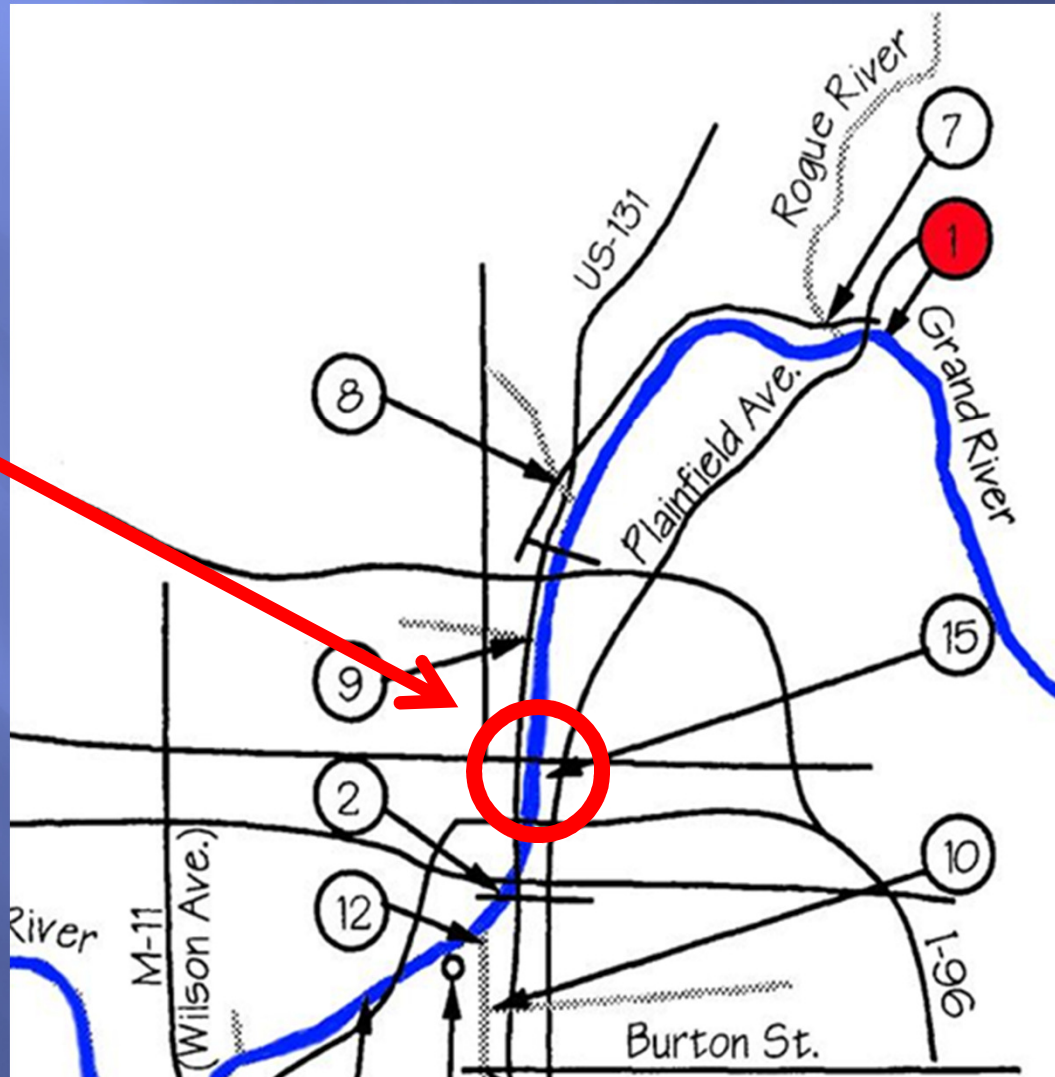


Grand Rapids Area Water Quality Index

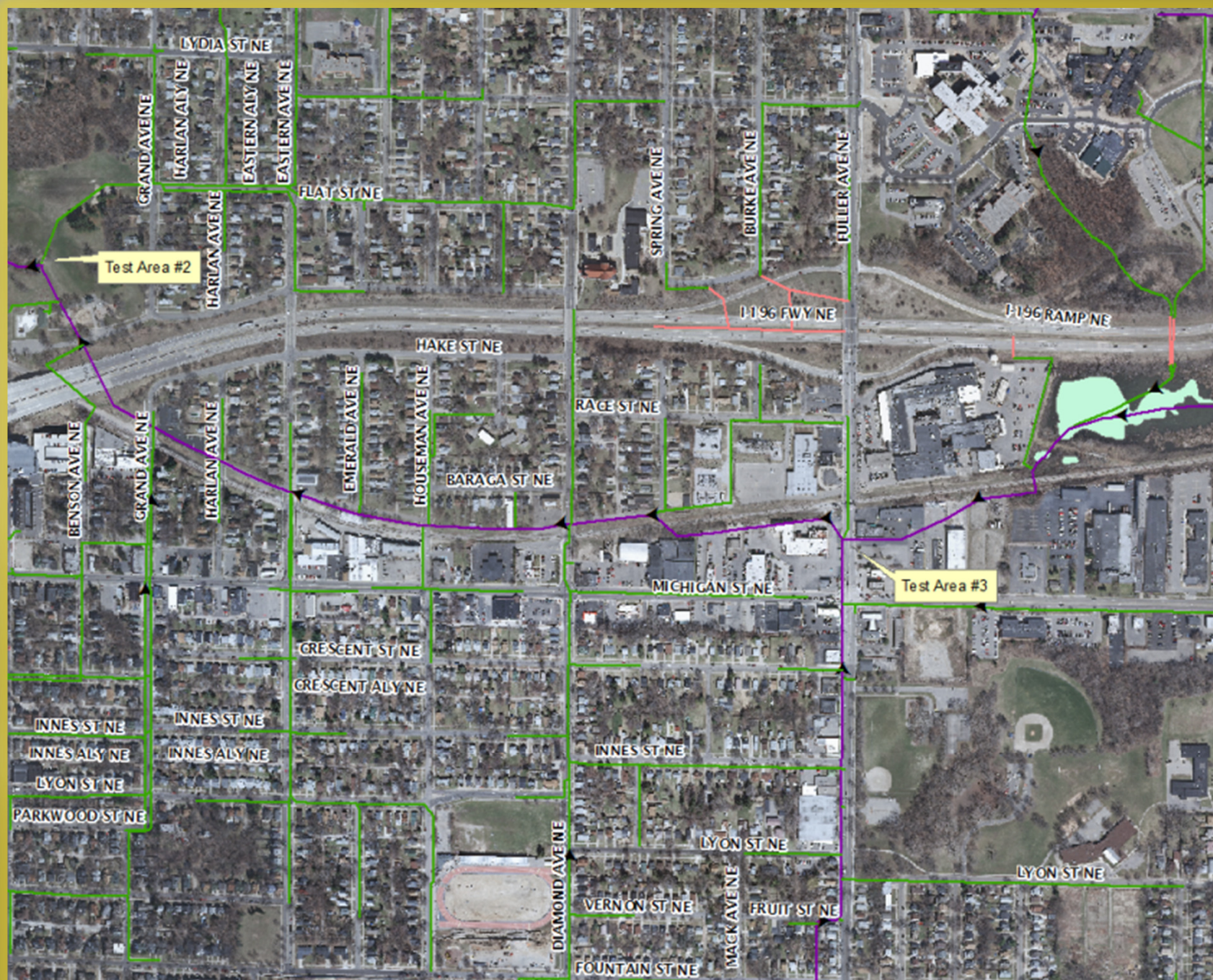
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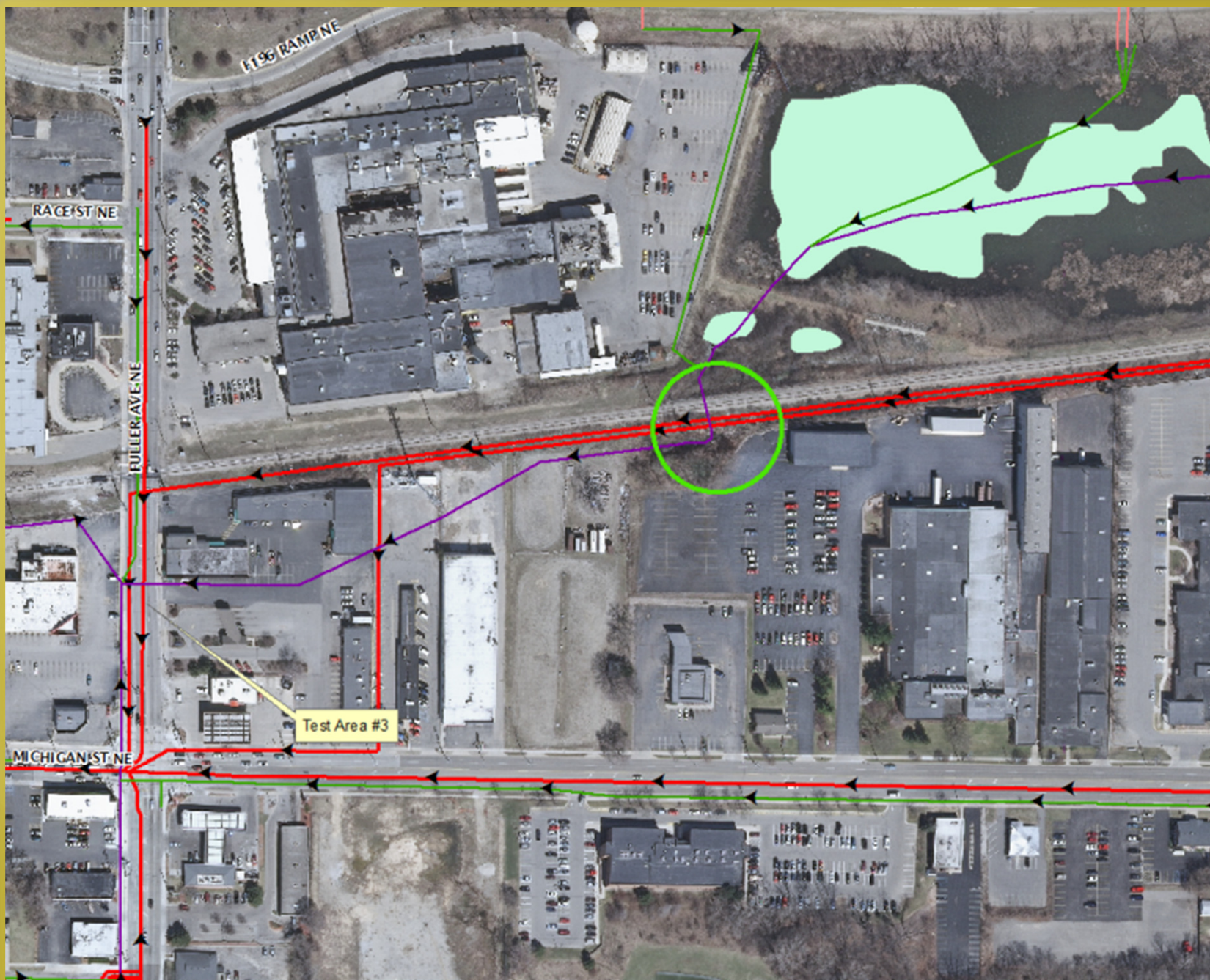
November 2006

Fecal
Coliforms
>15,000
colonies per
100 mL









Results

- ▣ Historical Trends
- ▣ IDEPs
- ▣ Anomalies
- ▣ Upstream/Downstream Comparison
- ▣ Regional Cooperation

