

Water Chemistry Monitoring for Water Quality Model Calibration and Biological Evaluation of the Fox River

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CONSULTING ENGINEERS



Fox Metro
Water Reclamation District

PURPOSE OF STUDY

- **Support of Fox River Study Group**
- **Fulfill Requirements of CSO Long-Term Control Plan**
- **Prepare for Future Wastewater Treatment Plant Improvements**
- **Response to New Environmental Regulations**



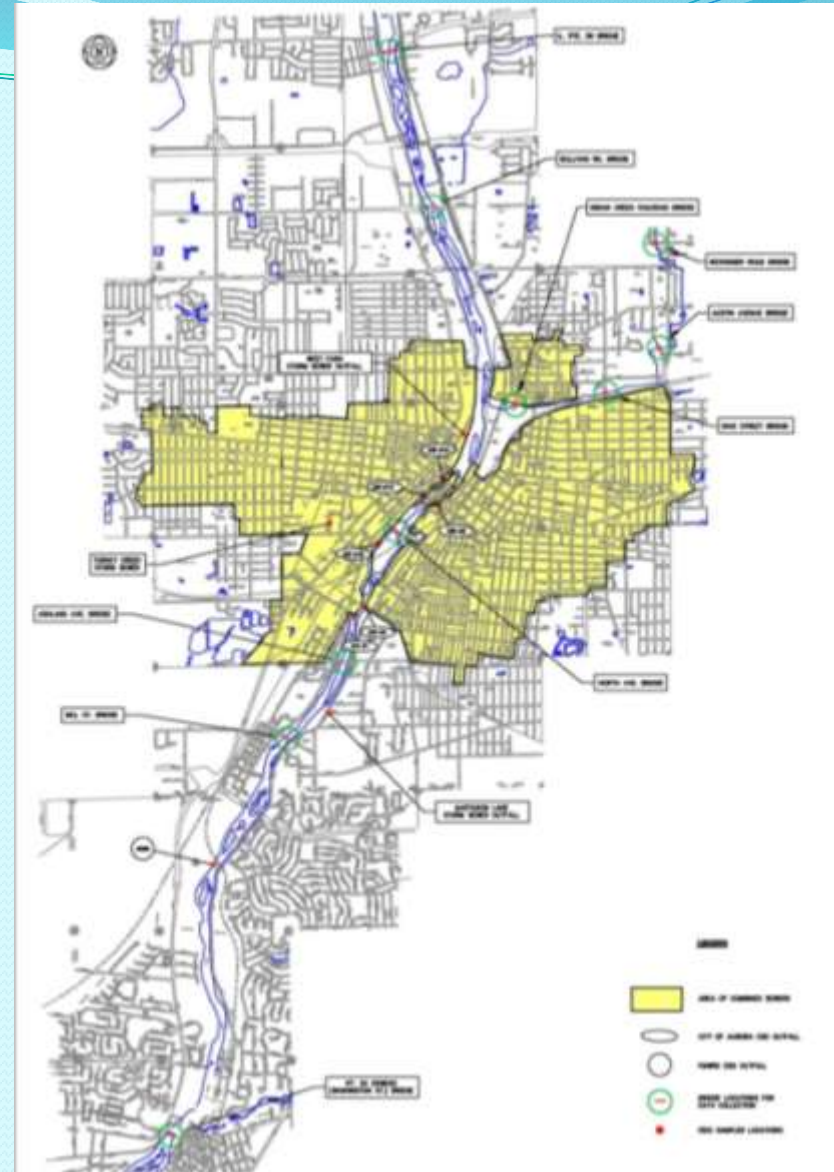
Project Limits

Fox River

- Sullivan Road Bridge in Aurora to U.S. Route 34 Bridge in Oswego

Indian Creek

- Reckinger Road Bridge in Aurora to Indian Creek outfall



Existing Data Inventory

- **FMWRD sonde data from 2005+**
- **Fox DB data courtesy of ISWS**
- **Fox River Study Group data**



YSI 6600EDS V2 SONDES



Quality Assurance Project Plan (QAPP)

Document developed to establish policies and procedures for completing the various CSO and stream monitoring tasks. Identifies:

- **Sampling Locations**
- **Sampling Frequency and Duration**
- **Sampling Methods**
- **Sampling Handling**
- **Analytical Methods**
- **Instruments and Equipment**
- **Quality Control**
- **Data Management**



Water Quality Sampling Equipment



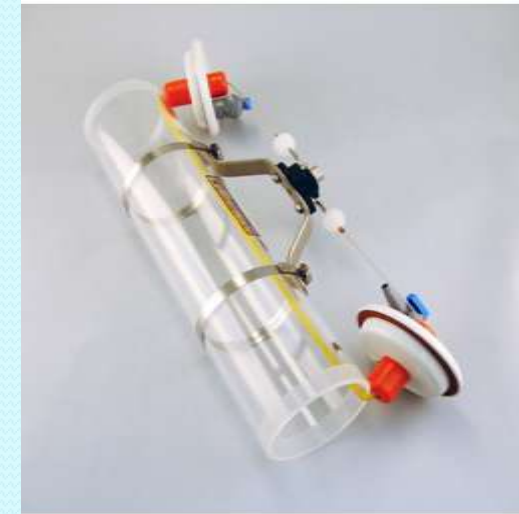
**HUMMER
SAMPLER**



US DH-2A SAMPLER



**YSI HANDHELD
MULTIPARAMETER
PROBE**



**VAN-DORN BETA
SAMPLER**



WATER CHEMISTRY SAMPLING PARAMETERS

Laboratory Analysis

Fecal Coliform
CBOD₅
Total Suspended Solids
Ammonia Nitrogen
Nitrate
Nitrite
Total Phosphorus
Dissolved Phosphorus
Total Kjeldahl Nitrogen
Chloride
Fluoride
Chlorophyll a (bridges only)

Field Measurements

Dissolved Oxygen (bridges only)
Temperature (bridges only)
pH
Specific Conductivity



Stream Gauging Stations

- **2 gauges in North Aurora**
- **1 gauge on Indian Creek**



Photo courtesy of ISWS



CSO AND STORM SEWER SAMPLING

CSO and storm sewer outfall samples collected using programmable, automated Isco samplers triggered by Isco flow meters



Intensive Rain Event Sampling

- **Intensive sampling of bridges, CSOs and storm sewer outfalls during and immediately after significant rain events following a dry weather period of 7-10 days**
- **1 large event sampling in 2009 and several other rain sampling events from 2008-2010**



WATER CHEMISTRY SAMPLING MODELING

Results were utilized in development of long-term water quality model simulation and provided to IEPA in April 2010



**EPA
WASP
MODEL**

Illinois State Water Survey
Illinois at Urbana-Champaign



Other Facets of Project

- **Macroinvertebrate Surveys from 2006 to present**
- **Mussel Surveys from 2008 to present**
- **Fish Surveys from 2008 to present**



Questions?

