
Uninterruptible Utility Improvements: Narrow Timeframes, Hard Deadlines, and Overcoming Challenges

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Illinois American Water: Engineering Functions

□ **Asset & Capital Planning**

- Identify needs
- Prioritize projects
- Provide preliminary design

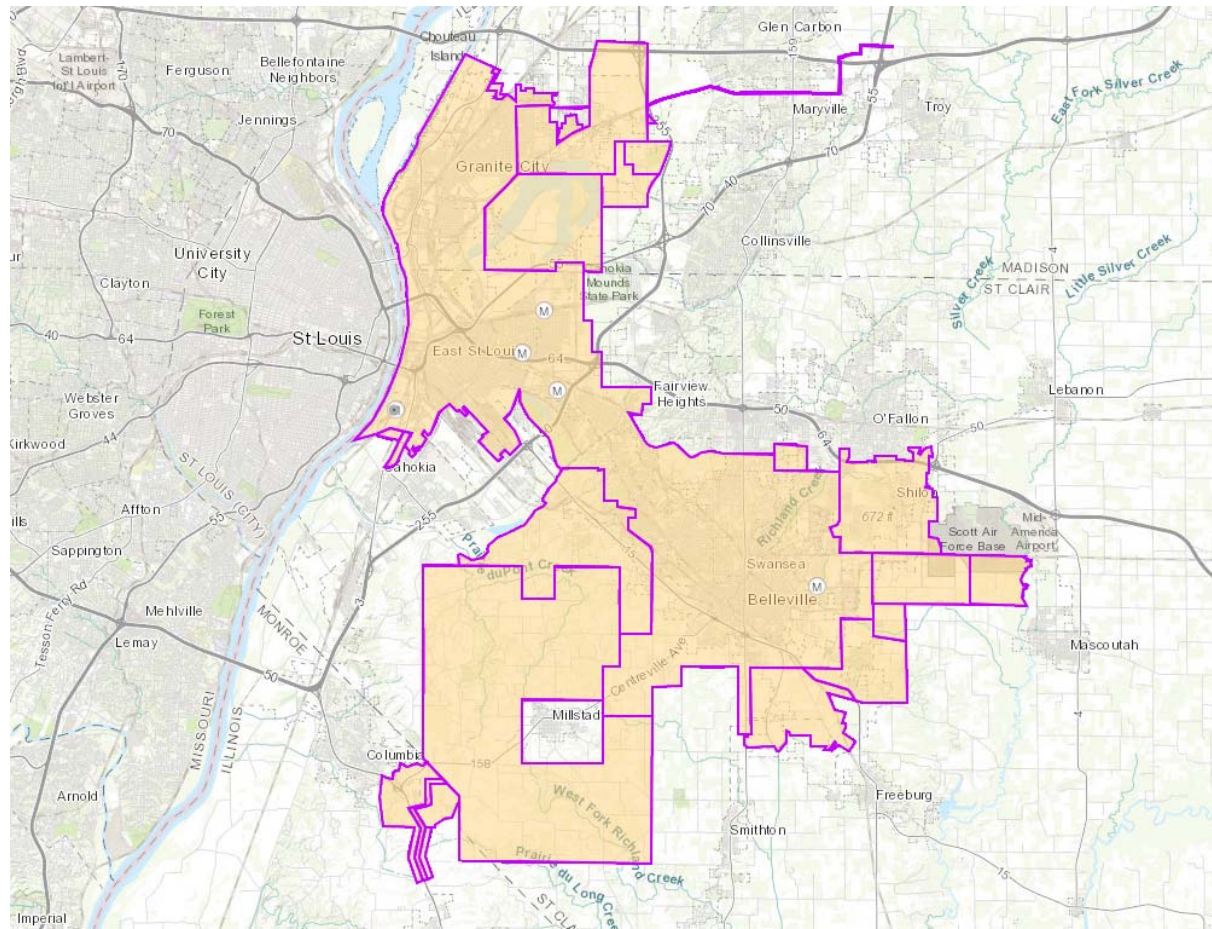
□ **Capital Project Delivery**

- Oversee design
- Oversee the bidding and awarding process
- Oversee construction

Illinois American Water: East St. Louis Water Treatment Facility

- **55 million gallons per day plant capacity**
 - App. 35 million gallons per day demand
- **Serves the Metro East Area**
 - ~156,000 people directly
 - ~57,000 people indirectly
 - ~213,000 people in total
- **Age**
 - 1887 & 1906 (Basins 1 & 2, 4 & 5)
 - 1900 & 1918 (Clearwells 1 & 2)
 - 1917 – 1967 (Conventional Filters)
 - 2016 (Grit Removal System)

East St. Louis Water Treatment Facility: Service Area



East St. Louis Water Treatment Facility: Only Utility You Ingest

□ Regulatory Environment

■ Drinking Water Act - 1974

□ US Environmental Protection Agency

■ Illinois Pollution Control Board

▪ Illinois EPA

□ 10 States

□ Stringent standards for water quality

East St. Louis Water Treatment Facility: Overview



East St. Louis Water Treatment Facility: Process Flow Diagram



East St. Louis Water Treatment Facility: Water Quality Examples



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□ Project Need



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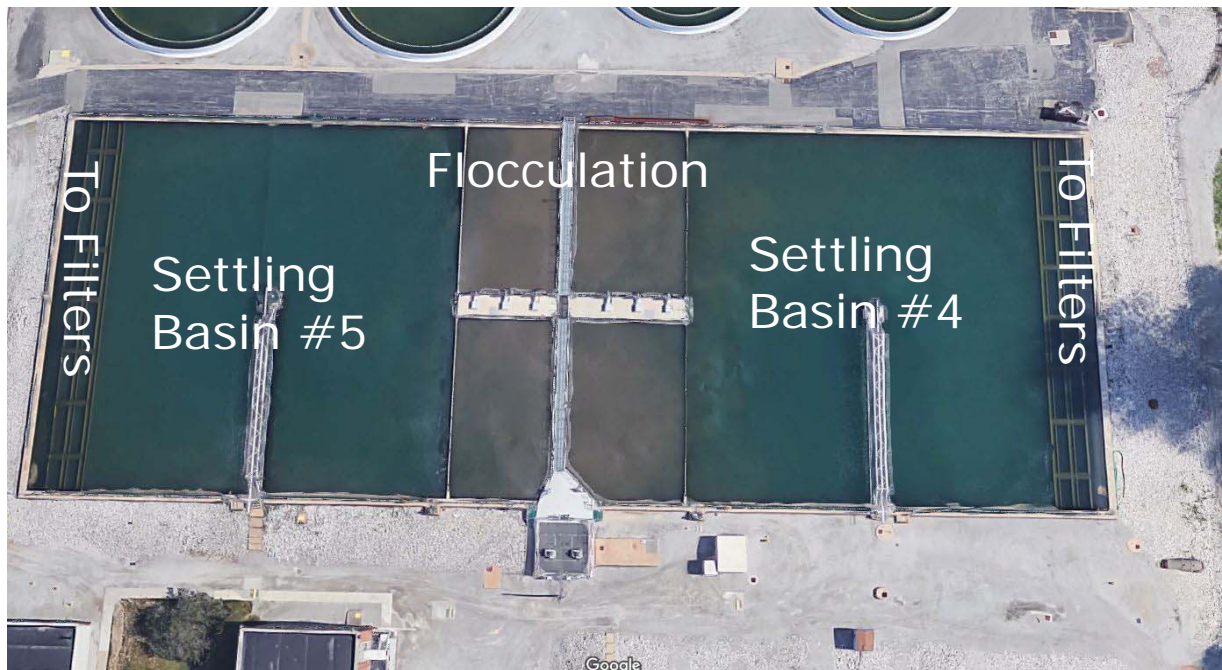
□ **Project Delivery Objectives**

- Operational by 12/31
- Competitive bids
- Minimize disruption to plant operations.

The Project:

RAPID MIX FLOCCULATION BASINS 4&5

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Basins 4 & 5

East St. Louis Water Treatment Plant

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- Need for project was previously identified by a facility engineering study performed several years earlier**
- Projects cannot be started until budgets are approved**
- Informal SWOT Analysis to develop PM strategies**

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□ **Strengths:**

- Institutional Knowledge of Water Treatment
- Available Funding
- Relationships with Design Engineers
- Relationships with Contractors
- Relationships with Vendors
- Procurement Policies

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□ **Weaknesses:**

- Physical Space on Site
- Operational Disruptions
 - Identify Operational Restraints:
 - Peak Summer Water Demands
 - Memorial Day to Labor Day
- Seasonal Basin Cleaning
 - Approximately 2 weeks
- Extreme Cold Challenges
- Compressed Timeframe

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□ Opportunities:

- Improve Water Treatment
- Reduce Operational Costs and Labor
- Improve Contractor Relationships

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□ Threats:

- Weather
- Unexpected Water Demands
- External Suppliers

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□ Identify Design Team

- Preferred Design Team's Proposal Was Under Dollar Threshold Requiring Competitive Bidding/RFPs
 - Saves time

□ Communicate Operational and Delivery Requirements to Design Team

- Sets expectations for design delivery
- Sets parameters for constructability in the design

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- Operational Restraints allowed for Construction to Start early-October**
- Back Calculate Date for Bids by Contractors**
- Sets the Design and Permit Schedule for the Design Team**

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- **Design Team Identifies Long-lead Items**
 - Competitively Bid These Items ASAP
 - Pre-purchase or Pre-negotiate terms
 - Include these items in design and bidding documents provided to contractors

- **Saves time, yet provides competitive pricing**

- **Mitigate threat from External Suppliers**

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- **Bid Documents Must Clearly Communicate the Importance of Completion Schedule to the Contractor**
 - Mitigates partial responsibility of failure to the contractor

- **Award to Contractor**
 - Contractor completes procurement of Long-lead Items
 - Mitigates partial responsibility of items to the contractor

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□ What if???

- The weather is so inconducive to construction that the project cannot be completed.
- Remain capable of placing the basin back into service, even if the efficiency is reduced, and resume construction at a more agreeable time.
- *Threat* from SWOT Analysis

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□ What if???

- The key suppliers for long-lead items fail to meet the agreed to delivery timeframe
- Critically jeopardizes project completion schedule.
- *Threat* from SWOT Analysis
 - **Threats:**
 - Weather
 - Unexpected Water Demands
 - **External Suppliers**

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- **Use your Strengths to Overcome Challenges**

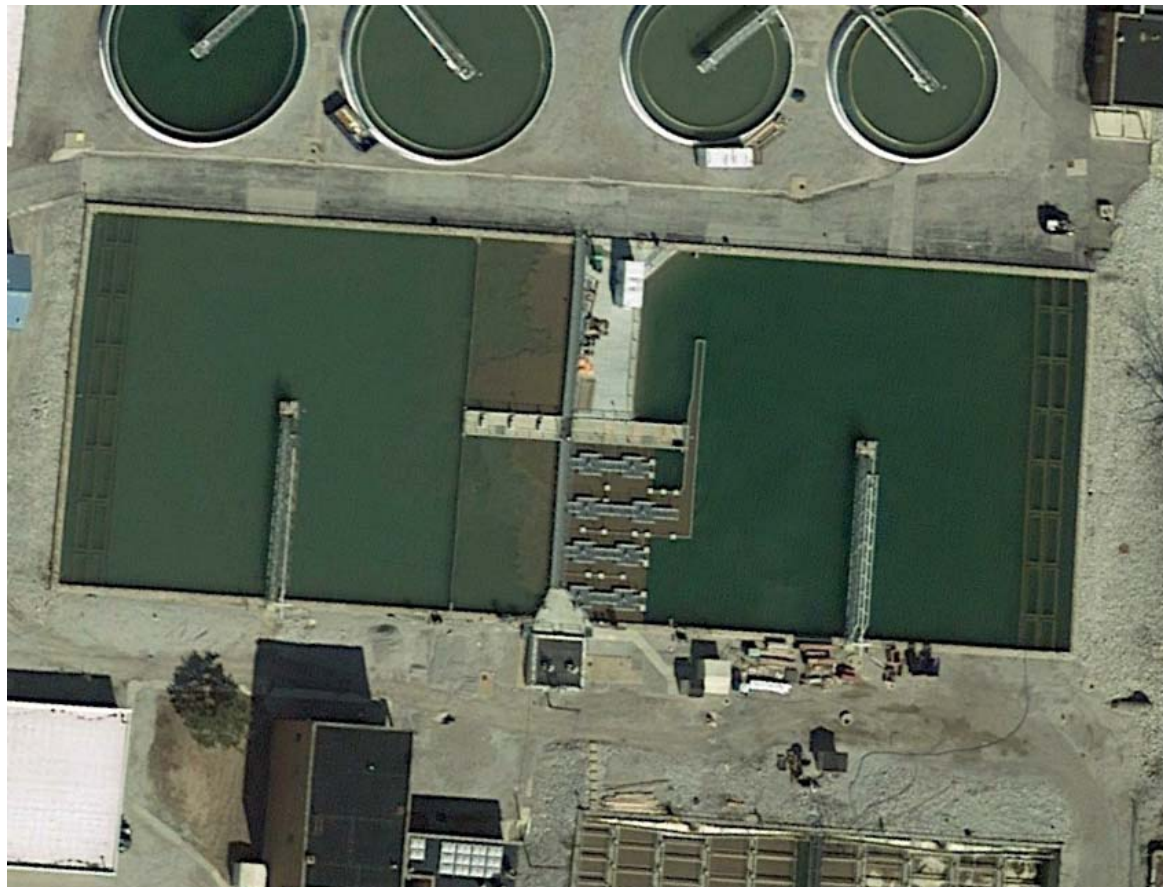
- **Strengths:**

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- Contractor creates alternative solution**
- Finalized by design engineer**
- Utilized locally sourced materials**
- More labor intensive, but contractor assured can meet deadline**
- Contractor worked extra shifts and did meet deadline, and did not increase cost**

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□ **Lessons Learned**

- Successful Implementation of Project
 - Met financial deadline
 - Reduced operational costs
 - 2 week cleaning reduced to 2 days
 - Reduced chemical usage
 - Increased treatment capacity
- Overestimate Lead Times
 - Punctual delivery continues to be problem

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□ Lessons Learned

- Gained Trust in Contractor
 - Will use again – WIN/WIN
 - Work with people who want to work with us
- Aggressively identify weaknesses and threats and craft projects to minimize their influence.
- Exploit strengths and opportunities

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□ Questions?