Improvements to the Missouri River Wastewater Treatment Plant-Schedule B Project

Public Meeting
June 4, 2013
South Omaha Public Library

CSO!
Clean Solutions for Omaha

Agenda

- Welcome and Introductions
- CSO Program Overview
- Missouri River WWTP-Schedule B
  - Project Overview
  - Schedule
  - Contacts
- Status Update on Related CSO Projects and Missouri River WWTP Activities

CSO!
Clean Solutions for Omaha

CSO Program Overview

CSO!
Clean Solutions for Omaha

Challenges Facing Omaha

- Meeting the increased requirements of the federal Clean Water Act
- Balancing the following needs:
  - Regulatory compliance
  - Economic affordability
  - Community acceptance

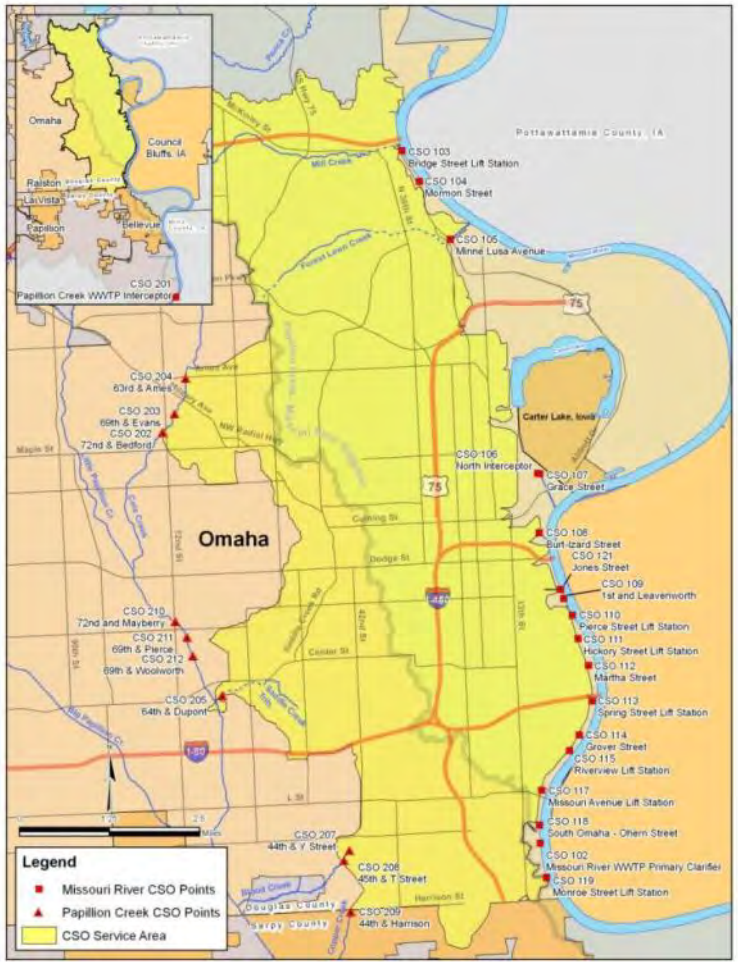
CSO!
Clean Solutions for Omaha

772+ CSO Communities Nationwide

CSO!
Clean Solutions for Omaha

Omaha's Regional Sewer System

- **1,950 miles of sewers**
  - Eastern half combined
  - Western half separate
- **43 sq. mi combined sewer area**
  - 28,000 acres
  - 6,200 sq. blocks
- **29 CSO outfalls**
  - 10 to Papio Creek
  - 19 to Missouri River
  - **3 recently eliminated**
  - **5 more to be eliminated**



CSO!
Clean Solutions for Omaha

Omaha's Regional Sewer System

- Two regional treatment plants
- 10 wholesale users
- 275 sq. mi drainage area
- 600,000 service population

CSO!
Clean Solutions for Omaha

Program Benefits

- **Reduce overflows** of raw sewage to our streams; improve water quality
- Continue our efforts to **eliminate sewer backups** into basements
- **Replace** aging sewer, gas, water and street infrastructure

CSO!
Clean Solutions for Omaha

Program Benefits

- **Integrate infrastructure upgrades** with continued redevelopment
- **Improve drainage** and reduce flooding

CSO!
Clean Solutions for Omaha

Five Major Elements of Final Long Term Control Plan

Targeted Sewer Separation Projects

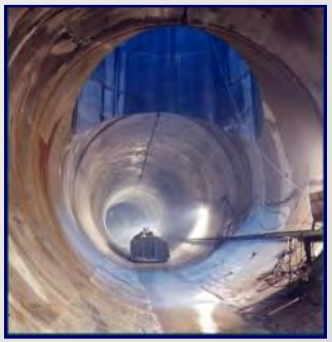
Two High-Rate Treatment Facilities

One Deep Conveyance Tunnel

CSO!
Clean Solutions for Omaha

Five Major Elements of Final Long Term Control Plan

Two Underground Storage Tanks



One Deep Conveyance Sewer

CSO!
Clean Solutions for Omaha

New Consent Order Timeline

CSO!
Clean Solutions for Omaha

Program Status

- $110M of construction under contract
- $415M of construction under design
- $150M of construction added in 2013
- Refining revised LTCP schedule
- Sewer rates for 2015-2018 under study
- Affordability Assessment update
- Green Infrastructure study
- NETV documentary airing

CSO!
Clean Solutions for Omaha

Funding the Program

- The federal mandate for the Omaha system is to increase wet weather capacity to reduce sewage overflows

CSO!
Clean Solutions for Omaha

LTCP Costs (2009 Dollars)

Project Category	Program Cost
Deep Tunnel Project	$ 442,082,000
Minne Lusa Stormwater Collector Projects	$ 112,750,000
High Rate Treatment Projects	$ 126,326,000
South Interceptor Force Main Project	$ 77,249,000
MRWWTP Improvements	$ 90,934,000
Lift Station Projects	$ 131,196,000
Storage Structure Projects	$ 30,878,000
Sewer Separation Projects	$ 614,361,000
Miscellaneous Projects	$ 36,448,000
TOTAL	***$ 1,662,224,000***

Note: Estimated Total Cost in 2012 dollars ~$2B

CSO!
Clean Solutions for Omaha

Missouri River WWTP – Schedule B Project Overview

CSO!
Clean Solutions for Omaha

Site Location

CSO!
Clean Solutions for Omaha

What Happens at the Missouri River WWTP?

- Preliminary Treatment - Headworks Facility
  - Screening and Grit Removal
    - Remove large objects such as rags, paper, and plastics
    - Remove sand, gravel, and other heavy solid materials
  - Permit Requirements
    - Flow sampling and measurement
- Primary Treatment – Primary Clarifiers
  - Settleable Solids Removal

CSO!
Clean Solutions for Omaha

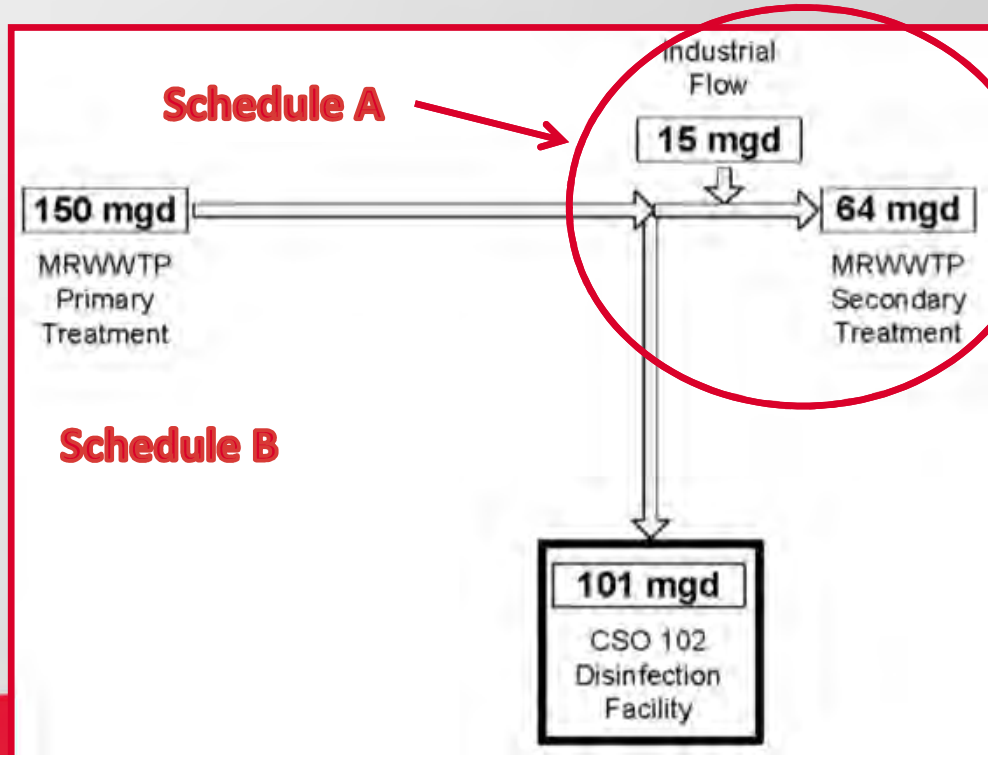
What Happens at the Missouri River WWTP?

- Secondary Treatment - Biological Treatment
  - Trickling Filters
  - Clarification
    - Remove organic matter from wastewater
- Disinfection
  - Chlorination
  - Dechlorination
    - Kill bacteria (E.Coli) using Sodium Hypochlorite
    - Remove active chlorine using Sodium Bisulfite

CSO!
Clean Solutions for Omaha

CSO Project Need

- Missouri River WWTP current capacity not large enough for future wet weather flow
- Increase capacity to accommodate
  - Additional industrial flows
  - Reliable secondary treatment
  - Preliminary and primary treatment for 150 MGD design flow rate
  - Disinfect remaining flow



WWTP Project Need

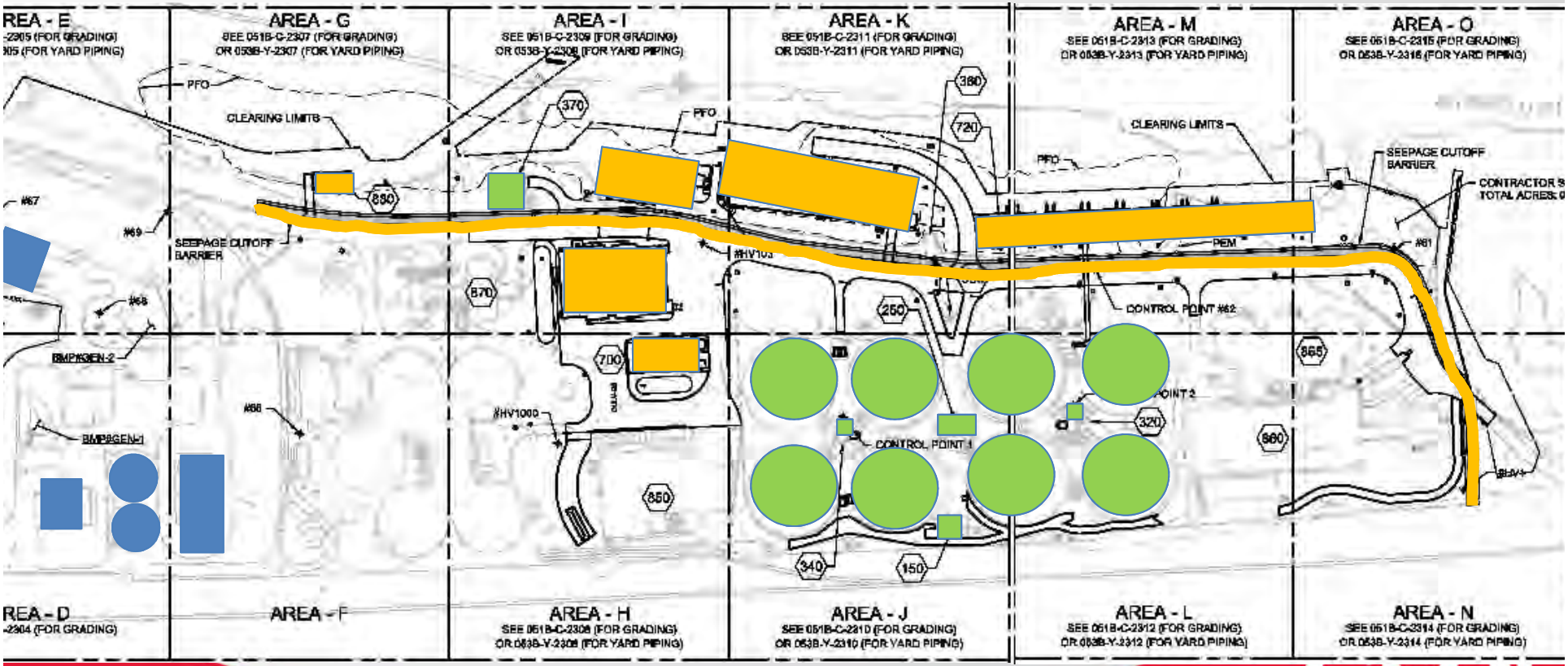
- Enable future protection of WWTP from flooding events

Site Improvement Plan

Schedule B New Facilities

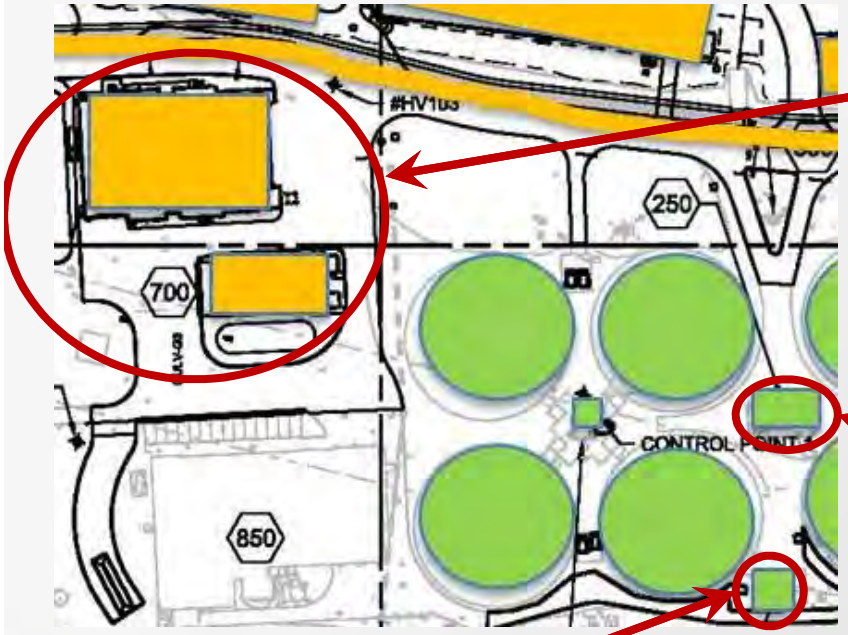
Schedule A Facilities

Schedule B Upgraded Facilities



CSO!
Clean Solutions for Omaha

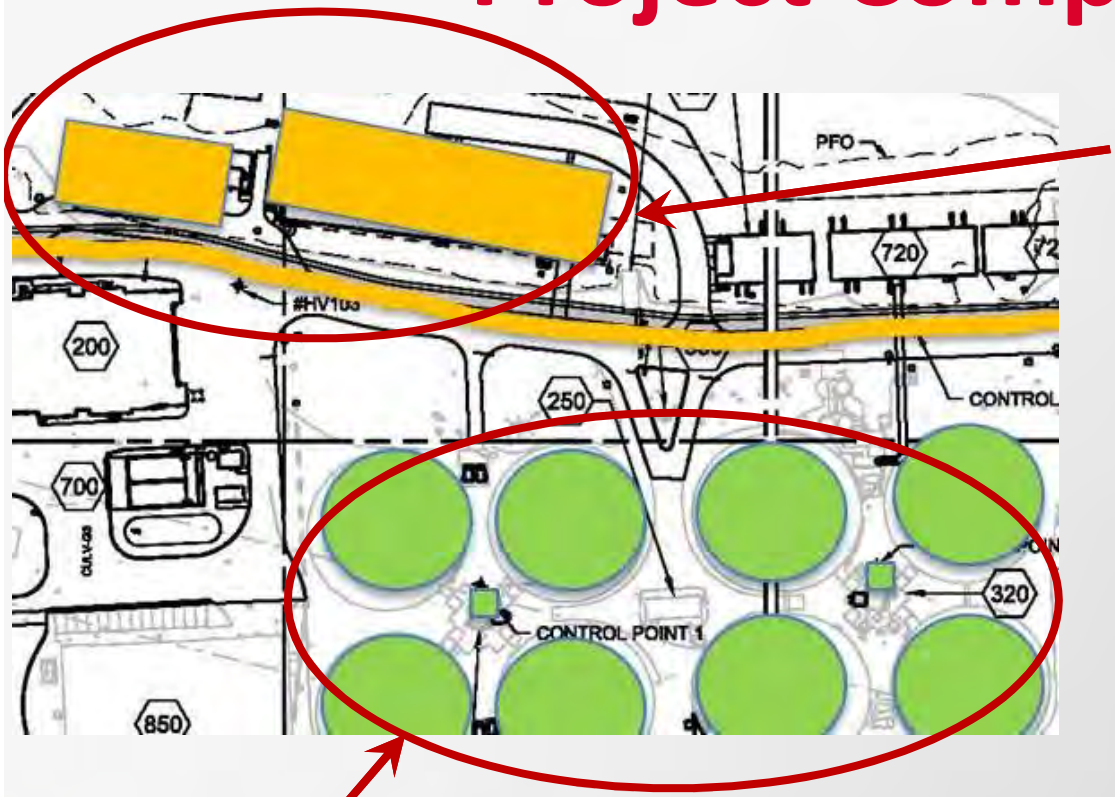
Project Components



- **Municipal Headworks Facility**
  - Preliminary treatment
  - Take flow from several existing sources and the future deep tunnel
- **Municipal Primary Splitter Structure**
  - Split flow to primary treatment
- **In-Plant Lift Station**
  - Reliably pump 18 MGD to Municipal Headworks Facility

CSO! Clean Solutions for Omaha

Project Components



- **CSO 102 Chlorination and Dechlorination Facility**
  - Chemical storage
  - Disinfection of primary effluent
    - 126 E.Coli Organisms/ 100 mL
    - 0.137 mg/L of Total Residual Chlorine

- **Municipal Primary Clarifiers**
  - Primary treatment

CSO!
Clean Solutions for Omaha

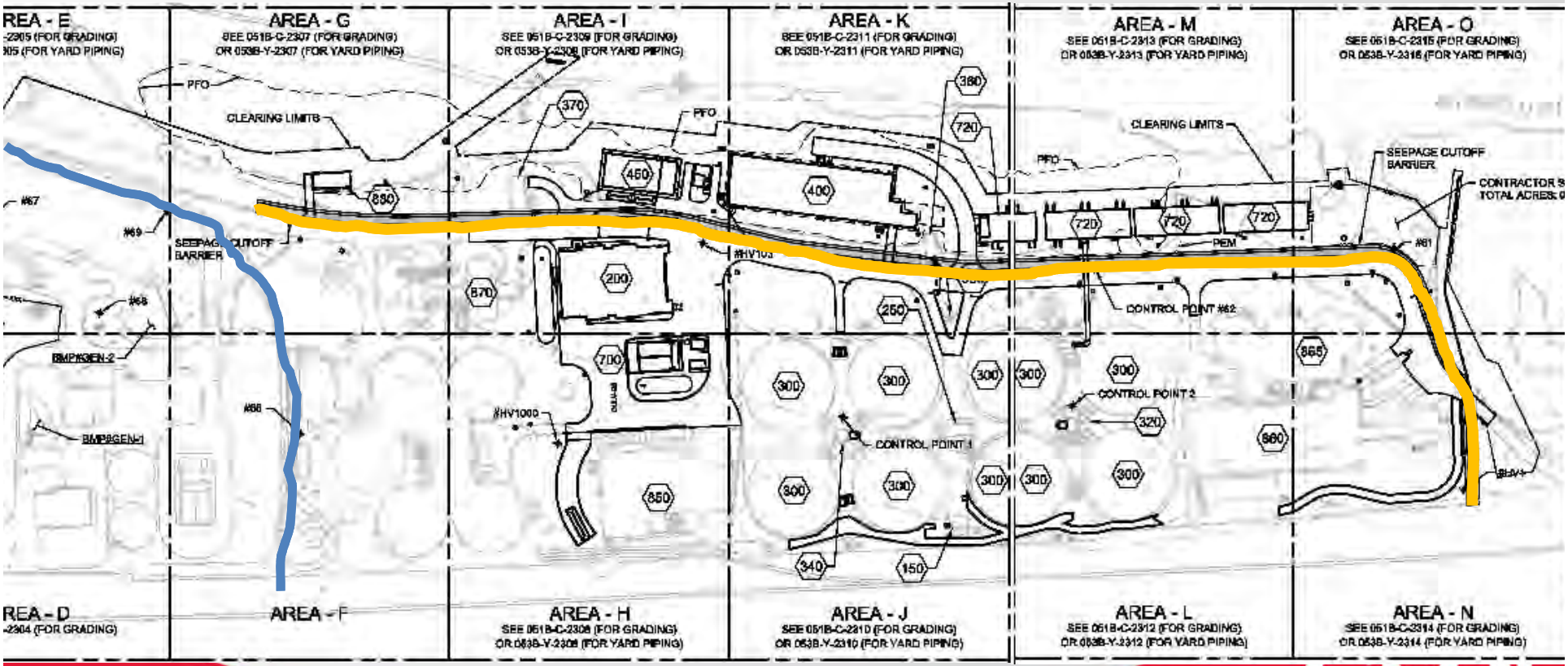
Project Components

- Odor Control for main sources
  - Municipal Headworks
    - Biological treatment of odors
    - Improved odor control over existing facility
    - More air treated
    - Better at removing complex compounds
  - Primary Clarifiers
    - Maximize use of existing odor control

CSO!
Clean Solutions for Omaha

Project Components

- Flood Protection



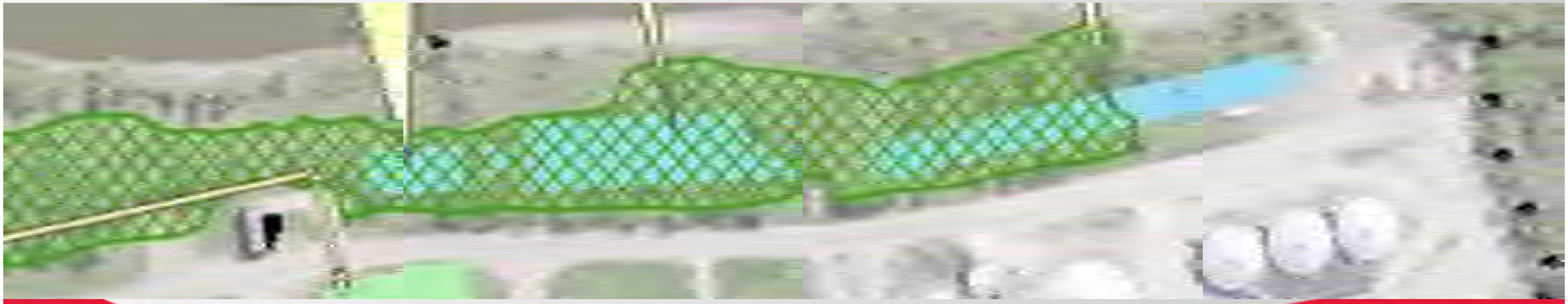
CSO!
Clean Solutions for Omaha

Buildings

CSO!
Clean Solutions for Omaha

Potential Impacts to Wetlands

- Evaluated alternatives with no wetlands impacts and they were expensive
- Wetlands impacts necessary to construct facilities
- Minimized impacts during design, 2.24 acres
- Submitted 404 Permit Application in May



CSO!
Clean Solutions for Omaha

Community Enhancements

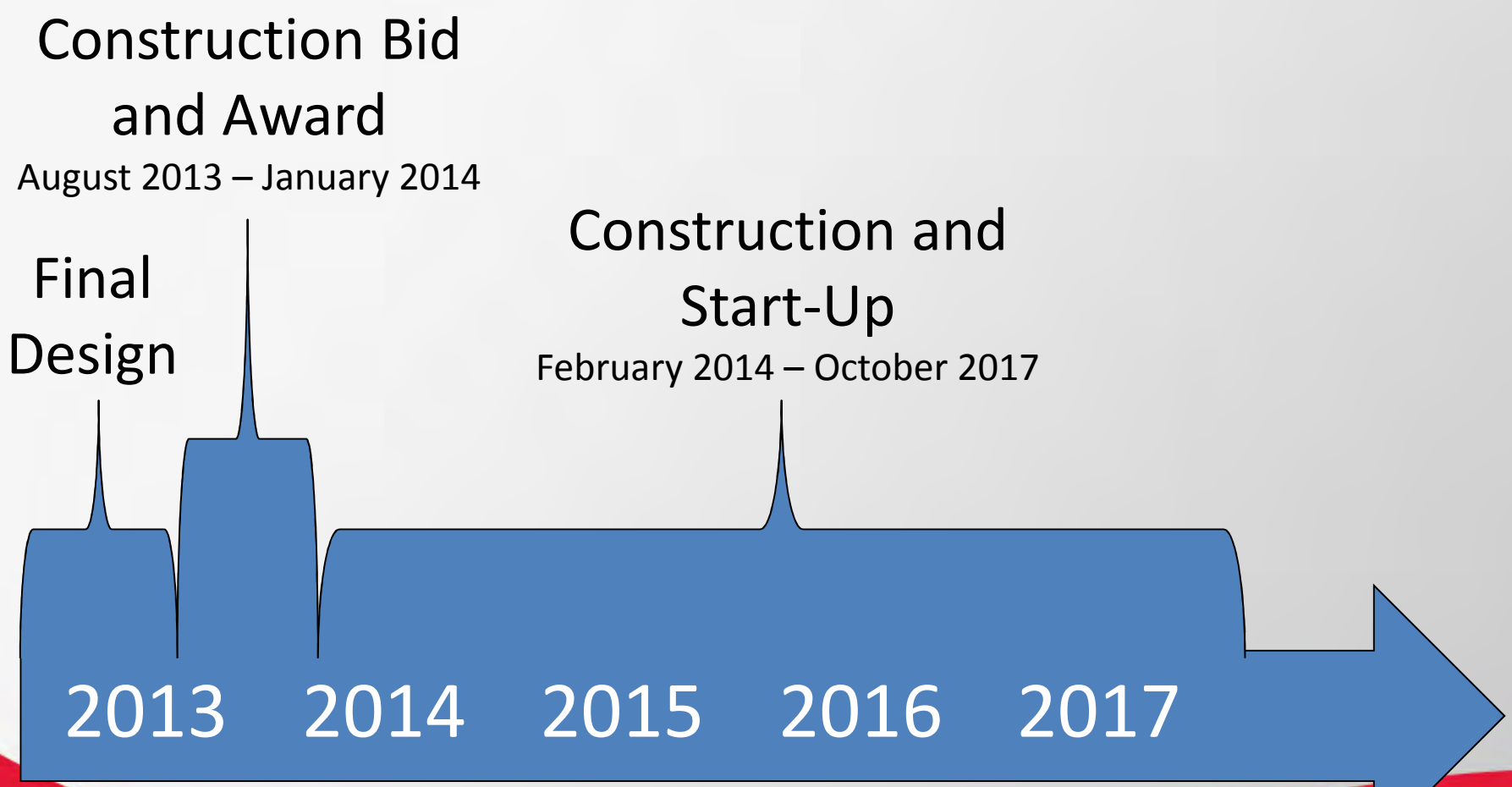
- Community Enhancements
  - Secure site with no access to the public
  - Community enhancements, as defined by the CSO Program, do not apply

CSO!
Clean Solutions for Omaha

Green Solutions for Stormwater Management

- Vegetated Swales
  - Open, shallow channel with vegetation covering the side slopes and bottom
- Dry Ponds
  - Pond with no permanent pool
  - Relies upon detention storage
- Filter Strips
  - Evenly sloped vegetated areas adjacent to impervious areas
  - Treat stormwater by filtering it through vegetation

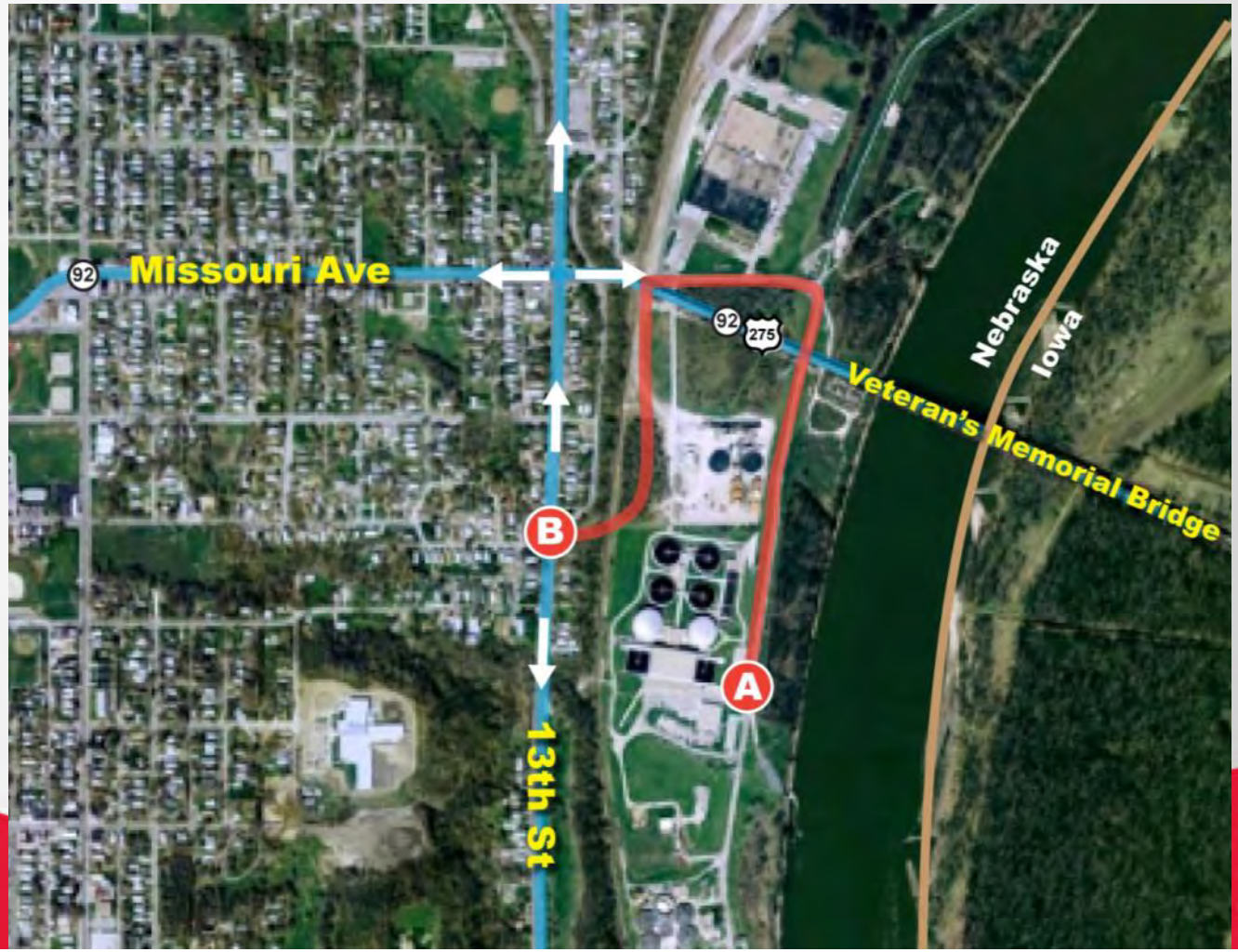
Schedule



CSO!
Clean Solutions for Omaha

How Will This Project Effect My Neighborhood or Business?

- Trucking Routes During Construction



CSO!
Clean Solutions for Omaha

Contact Information

City of Omaha

Murthy Koti
Traffic Contact
murthy.koti@ci.omaha.ne.us
(402) 444-5220

Rick Murch
Project Manager
rick.murch@ci.omaha.ne.us
(402) 444-3915, x-204

Engineer

Matt Krumholz
Project Manager
matt.krumholz@ch2m.com
(720) 286-2747

Program Management Team

Scott Aurit
Project Coordinator
scott.aurit@hdrinc.com
(402) 926-7082

Linda Lovgren
Public Relations Facilitator
lovgren@lovgren.com
(402) 397-7158

Pat Nelson
Compliance Coordinator
pat.nelson@ch2m.com
(402) 609-7512

CSO!
Clean Solutions for Omaha

QUESTIONS ON MISSOURI RIVER WWTP – SCHEDULE B

CSO!
Clean Solutions for Omaha

Related CSO Projects and Missouri River WWTP Activities

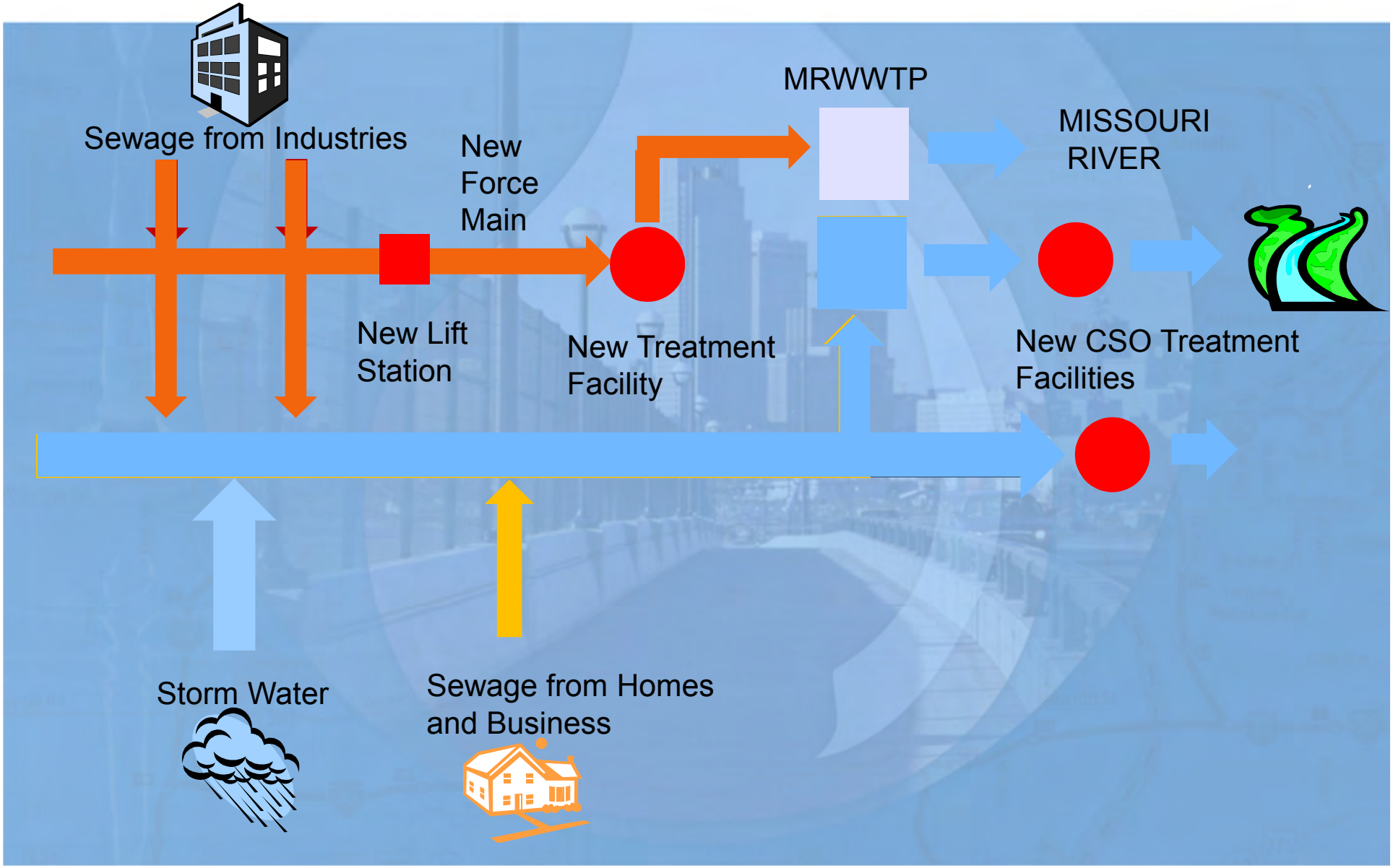
CSO!
Clean Solutions for Omaha

Related Projects

- South Omaha Industrial Area Projects
  - Force Main and Gravity Sewer
  - Lift Station
- Missouri River WWTP-Schedule A Project
  - New Grit Removal and Primary Clarifiers for Industrial Flows
- Missouri River WWTP Berm Removal

CSO!
Clean Solutions for Omaha

Sewer System Improvements



Project Locations and Routes

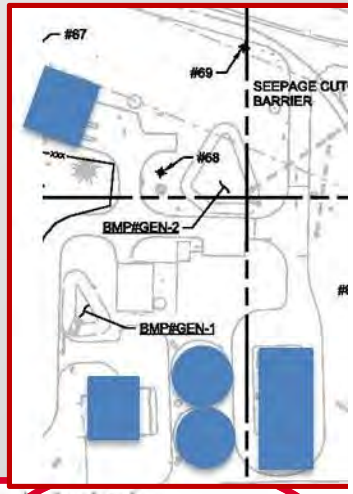
South Omaha Industrial Area Projects Status

- Force Main and Gravity Sewer
  - 97 Percent Complete
- Lift Station
  - Approximately 80 Percent Complete
- Both Projects Substantially Complete in September 2013

CSO!
Clean Solutions for Omaha

Missouri River WWTP-Schedule A

- Increase capacity to accommodate
  - Additional industrial flows
  - Reliable secondary treatment
- Construction complete in 2013



Berm Removal

- Was utilized for flood protection in 2011
- Removal planned June to Oct
- Excavation and hauling project

QUESTIONS

CSO!
Clean Solutions for Omaha