FMWRD Improvement Updates
and Green Initiatives

Fox River Study Group
October 26, 2017
Fox Metro: Today

- Serves 300,000 people
- 4 counties
- All or portions of 7 communities
- Unincorporated areas
- Treat average of 36 mgd
- Can treat up to 139 mgd during high flow events
Projects: WWTP Improvements

- Meet federal and state environmental mandates
- Six Phases
- Phase 1 complete
- Phase 2 underway
  - Treatment up to 151 mgd
  - Incorporates P removal
Performance after Phase 1

- Significantly Reduced Overflows
  - Only 4 overflows in the past 5 years
  - 4 overflows per year are acceptable to comply with the CSO control policy
Rainfall Event: October 14, 2017

- 6-8” in Aurora-area
Rainfall Event: October 14, 2017

- 6-8” in Aurora-area
Rainfall Event: October 14, 2017

- Over a 1.5 hr. timespan, influent flows rose from 25 to 60 MGD.
- Over 150 MGD were treated; 139 MGD capacity
Rainfall Event: October 14, 2017

- Total volume treated through Building T was 92 MG
- Total volume of the CSO event was approximately 9.1 MG
Performance after Phase 1

- Nationals Association of Clean Water Agencies
  - Gold Award 2012
  - Silver Award 2013
  - Silver Award 2014
  - Gold Award 2015
  - Gold Award 2016
Benefits of Phase 2

- Increased treatment capacity
- Environmental regulatory compliance
- Reduction of phosphorus loading of approximately 2/3 by June 2021
  - Potential algae growth reductions on Fox River
  - Address gulf hypoxia ("dead zone") in Gulf of Mexico
Phase 2: South WWTF

- $88M for infrastructure and phosphorus removal
- Currently under construction
- Completion by March 2019
South WWTF Construction: Aerial Photos
South WWTF Construction: Aerial Photos

F1/G1
South WWTF Construction: Aerial Photos
North Facility Improvements

- Phase II of Master Plan and CSO Long Term Control Plan

- Will include:
  - Aeration modifications for biological phosphorus removal
  - Ferric chloride storage and pumping facilities
  - Chemical feed will be supplemental to the biological system
North Facility Improvements
North Facility Improvements

- 20 mixers
- Baffle walls
- Ferric chloride chemical feed system
- V-2 building and underground improvements
North Facility Improvements

- 20 Chemineer Mixers
North Facility Improvements

- Five main baffle walls in aeration basin
North Facility Improvements

- Ferric chloride feed pumps to feed final clarifiers, final clarifier effluent, and centrate
Drug Take Back Program

- Free to residents
- Over 16,000 pounds of unwanted medications reclaimed since 2009
- Don’t flush medications
FOG Initiatives

- Fat trapper for residents
- Restaurant Inspections and Tracking with GIS
FOX METRO GREEN INITIATIVES
FMWRD: REBELS Committee

- Formed in 2015
- **R**estore, **E**ducate, **B**eautify, and **E**nhance **L**and **S**capes = **REBELS**
- Identify target areas
- Create specific and appropriate landscaping solutions for each area
- Team building for staff
- Emphasis on native landscaping
### REBELS Project List

- **Collaborative**
- **Flexible**
- **Tracking**

<table>
<thead>
<tr>
<th>Project Location/Code</th>
<th>Brief Location Description</th>
<th>Summary of Activity</th>
<th>Scheduled Date</th>
<th>Completion Date</th>
<th>Approximate Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Plant Area #1</td>
<td>North of Building T</td>
<td>Showy Wildflower Mix Planting</td>
<td>Fall 2015</td>
<td>Fall 2015</td>
<td>1.22</td>
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<tr>
<td>North Plant Area #2</td>
<td>West of Building T</td>
<td>Showy Wildflower Mix Planting</td>
<td>Fall 2015</td>
<td>Fall 2015</td>
<td>0.33</td>
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<tr>
<td>North Ave. Pump Station</td>
<td>East side of Pump Station</td>
<td>Bioswale</td>
<td>Summer 2016</td>
<td>Summer 2016</td>
<td>0.02</td>
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<tr>
<td>North Plant Area #7</td>
<td>East fence line near sludge storage</td>
<td>Shrub planting for odor control and visual improvement, bike trail screening; may overlap into areas #14 and #6</td>
<td>Spring 2017</td>
<td>Spring 2017</td>
<td>0.4</td>
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<tr>
<td>Orchard Road Pump Station</td>
<td>Between Gates Creek and Fox River</td>
<td>Vegetated stormwater retention</td>
<td>Summer 2017</td>
<td></td>
<td>4.78</td>
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<tr>
<td>Orchard Road Pump Station</td>
<td>West of Pump Station</td>
<td>Naturalized planting for visual screening and native quality improvement</td>
<td>Summer 2017</td>
<td></td>
<td>2.21</td>
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<tr>
<td>North Plant Area #13</td>
<td>North of Primary Clarifiers</td>
<td>Showy Wildflower Mix Planting</td>
<td>Fall 2017</td>
<td></td>
<td>1</td>
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<td>North Plant Area #8</td>
<td>Between Sludge storage and tertiary filter</td>
<td>Showy Wildflower Mix Planting</td>
<td>Fall 2017</td>
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<td>0.77</td>
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<td>North Plant Area #9</td>
<td>West of Aeration Tanks</td>
<td>Native Grasses Mixture to hold soil, prevent erosion</td>
<td>Spring 2018</td>
<td></td>
<td>1.11</td>
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<tr>
<td>North Plant Area #10</td>
<td>Surrounding new Building W</td>
<td>(to be determined -- want color but maybe something more structured?, short mix?, retain plaque)</td>
<td>Fall 2018</td>
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<td>1.44</td>
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<td>North Plant Area #6</td>
<td>North of Sludge Storage Area</td>
<td>(TBD -- hard area to plant, lilacs? Weigela?)</td>
<td>Spring 2019</td>
<td></td>
<td>0.2</td>
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<tr>
<td>North Plant Area #14</td>
<td>Near Building J</td>
<td>(TBD depending on future processes )</td>
<td>Spring 2019</td>
<td></td>
<td>0.8</td>
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<td>North Plant Area #4</td>
<td>North of Aeration</td>
<td>Showy Wildflower Mix Planting or Pollinator Garden</td>
<td>Fall 2019</td>
<td></td>
<td>0.77</td>
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<tr>
<td>North Plant Area #3</td>
<td>East of Primary Clarifiers</td>
<td>(TBD -- probably want something shorter and less leafy so don't blow in processes)</td>
<td>Spring 2020</td>
<td></td>
<td>1.24</td>
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<tr>
<td>Caterpillar Channel</td>
<td>Stormwater conveyance through WWTP</td>
<td>Aquatic Plants</td>
<td>?</td>
<td></td>
<td>--</td>
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<td>North Plant Area #12</td>
<td>West of New O&amp;M building</td>
<td>(TBD -- had discussed bioswale but drainage may be a problem)</td>
<td>?</td>
<td></td>
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<td>North Plant Area #11</td>
<td>West of P buildings</td>
<td>Bioswale/Pinnacle Project -- try to pursue grant money</td>
<td>?</td>
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<td>0.39</td>
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<tr>
<td>South Plant Forested Wetland</td>
<td>Southeast corner of site</td>
<td>Potential replanting of trees and other natives to restore this area</td>
<td>?</td>
<td></td>
<td>0.5</td>
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</tbody>
</table>

**TOTAL** | | | 17.48 |
Bldg. T Fall 2015: Prairie Construction
Bldg T Prairie Progress: June 2017
Spring 2016: North Ave. P.S. Bioswale

- Unsightly exterior due to historic site activities
- Opportunity to partner with City of Aurora
- Aurora’s past experience with installing bioswales provided a learning experience for the REBELS

City of Aurora, Downer Pl. bioswale
Spring 2016: North Ave. P.S. Bioswale

- Excavation and construction
Spring 2016: North Ave. P.S. Bioswale

- Planting
North Ave. P.S. Bioswale Progress: June 2017
REBELS Plantings

2017– mixed natives and landscape plantings

- Orchard Rd. Pump Station and Comp. Storage Area
- WWTP East Fence Line and H-5 Clarifier
- WWTP P-1 and P-3 Buildings
Resource Recovery Initiatives

- FMWRD is currently investigating the following resource recovery projects:
  - Biogas utilization and electric improvements to digester complex
  - Dewatering improvements
  - Phosphorus recovery
  - WWTP water offsite re-use
  - Renewable energy sources
Energy Efficiency

- Air System Upgrades
  - Operational changes to use of existing blowers
  - Demonstrated savings of over $500K past 2 years
Energy Efficiency

- Air System Upgrades
  - New high efficiency turbo blowers to result in further electric savings
  - Under construction
  - Scheduled completion: June 2018
Wastewater Reuse

- FMWRD uses an average of 3 million gallons per day for heating, cooling, and landscape watering.
DISCUSSION AND

for more information, go to:
www.foxmetro.org