Metropolitan St. Louis Sewer District (MSD) Nonstructural/ Green Infrastructure Portfolio

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MSD Overview

- Two utilities in one
  - Stormwater
  - Sanitary
- 1.3 million people
- 520 sq. miles
- 75 sq. mile combined sewer area (storm and waste in same pipe)
- 9517 miles of sewer
- Oldest pipes ~1860s
Get the Rain Out

- Stormwater Disconnections**
- Rainscaping*
- CitySheds Program*
- Combined Sewer Separations*

Repair & Maintain

- System Maintenance
- System Inspection
- System Rehabilitation and Replacement
- Fats, Oil and Grease Control Program
- Emergency Response

Build System Improvements

- Tunnels
- Storage Tanks
- Relief Sewers
- High-Rate Treatment*

*Combined sewer area only activities
**Separate sewer area only activities
Rainscaping (Green Infrastructure)

Rainscaping is any combination of plantings, water features, catch basins, permeable pavement... that manage stormwater as close as possible to where it falls.
Rainscaping Area

- Combined Sewer portions of the Mississippi and River Des Peres Watershed
- Primarily covers the City of St. Louis
- Spend $120M over 20 years
Rainscaping Program

Indirect Projects
- Projects with Partners
- Green Infrastructure Grants
  - Rolling Program
  - $180,000/AC drainage area
  - Annual Competition
- Targeted Partnerships
  - Schools
  - Parks and Rec Centers

Direct Projects
- MSD Owned Neighborhood Rain Gardens
- MSD’s Facilities
  - Market
  - Pump Stations
  - Detention Basin Retrofits
- Cityshed Mitigation Program Opportunities
  - Separate program to reduce chronic flooding and backups using buyouts and detention
  - Permanent green space
  - Rainscaping around basins

Small Grants
- Education & Outreach
- Small features
- Individual landowners
- $4 Million (max)

Demolitions
- LRA Partnership
- $13.5 Million (max)
Green Infrastructure Program CSO Control Measure Performance Criteria (Minimums)

- Manage 405 Acres with Green Infrastructure (half impervious)
- Reduce the Mississippi River CSO volumes by 98 MG annually
- Spend $120 Million
Green City Coalition

Partnership between:
- Missouri Department of Conservation
- City of St. Louis
- Metropolitan St. Louis Sewer District
- St. Louis Development Corporation

Co-creates and conserves ecologically rich urban green spaces that promote healthy, vibrant, engaged communities

Demolition

- $13.5M to spend on demolishing vacant homes in St. Louis City with the Green City Coalition
- LRA-owned and Privately-owned vacancies
- Program started in 2017
- Ramping up to 300 demolitions/year
- “Green Lien”
## Community Green Space

<table>
<thead>
<tr>
<th></th>
<th>Planning Phase</th>
<th>Construction Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres</td>
<td>15</td>
<td>10</td>
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</tbody>
</table>

## Completed or in Progress

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRA-Owned Vacant &amp; Condemned Buildings</td>
<td>286</td>
</tr>
<tr>
<td>Privately-Owned Vacant &amp; Condemned</td>
<td>17</td>
</tr>
<tr>
<td>Buildings</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>303</strong></td>
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</tbody>
</table>

## Urban Greening Program Demolitions

- Impervious Surface Removed
  - To increase stormwater absorption: **ACRES: 10**
  - Acres of Land Protected for community resilience: **ACRES: 30**

## Combined Sewer Overflow Reduction
Education!

Educate the public to understand how stormwater impacts the combined sewer system and associated issues

Small Grants

- Up to $4,000 for small-scale methods of capturing stormwater
- Typically residential
- Spend up to $4 million over life of MSD Project Clear
- $250,000 - $400,000 projected annual
- MSD partnered with Missouri Botanical Gardens to administrate the program
## Small Grants Results

<table>
<thead>
<tr>
<th>Round</th>
<th>Planting Dates</th>
<th>Orientation Attendance</th>
<th># of Applications</th>
<th># of Grants Awarded</th>
<th>Total Grant Requests Awarded</th>
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</thead>
<tbody>
<tr>
<td>Model Round</td>
<td>Fall, 2014</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>$ 19,764.99</td>
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<tr>
<td>Round 1</td>
<td>Spring/Fall, 2015</td>
<td>127</td>
<td>66</td>
<td>52</td>
<td>$ 135,553.15</td>
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<td>Round 2</td>
<td>Fall 2016/Spring 2017</td>
<td>156</td>
<td>81</td>
<td>66</td>
<td>$ 165,014.94</td>
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<td>Round 3</td>
<td>Fall 2017/Spring 2018</td>
<td>314</td>
<td>162</td>
<td>113</td>
<td>$ 305,329.96</td>
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<td>Round 4</td>
<td>Fall 2018/Spring 2019</td>
<td>185</td>
<td>90</td>
<td>80</td>
<td>$ 225,000.00</td>
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<td>Round 5</td>
<td>Fall 2019/Spring 2020</td>
<td>Grant Budget: 80 in Mississippi CSO Area 30 in River Des Peres CSO Area</td>
<td>$ 440,000.00?</td>
<td></td>
<td></td>
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</tbody>
</table>
MSD Direct Projects

- Projects that MSD owns and maintains
- Typically designed in-house with a contracted landscape architect
- Neighborhood-scale Rain Gardens
- Detention Basin Retrofits
MSD Direct Projects Results

- 12 Neighborhood-Scale Rain Gardens in the ground
- 14 Neighborhood-Scale Rain Gardens in progress
- “Greening of Market” is under construction
Large Grants

• Annual Call for Application
  • Open once annually, competitive, creativity encouraged

• Development Review Grant
  • Year-round rolling application
Eligible Project Elements

- Impervious area reduction
- Porous pavement
- Reinforced turf
- Amended soils
- Planter boxes
- Bioretention/Rain gardens
- Impervious area sheet flow to buffer
- Green roofs
- Blue roofs
- Green streets
Average Time from Plan Submittal to Reimbursement:
2 years

Large Grants Results

- **Annual Call for Applications**
  - 50 projects awarded grants
  - 22 of those 50 have been reimbursed
  - 82 Acres Treated
  - 17 MG CSO removed
  - $12.6M paid out to date

- **Development Review Grants**
  - 52 projects awarded grants
  - 12 of those 52 have been reimbursed
  - 80 Acres Treated
  - 17 MG CSO removed
  - $1.4M paid out to date
CityShed

• $230M

• Focus on wet weather surcharging and overland flooding
Sewer blocked by a large Pooh