MSD Project Clear Program and Rainscaping Initiatives for Protecting the Water Environment
October 22, 2016

MSD System Overview & Details

- Two utilities: wastewater and stormwater
- 525 square mile service area
- 1,300,000 customers
- 90 municipalities served
- 7 treatment plants
- 356 million gallons/day wastewater treated
- 4,744 miles of sanitary sewers
- 1,806 miles of combined sewers
- 3,028 miles of stormwater sewers
- 4th largest sewer system in US (by miles of sewers that handle wastewater)
Example of Overflow in Combined Sewer System

- In dry weather sewers work fine. Sewage is treated at a treatment plant before being released back into the environment.
- During heavy rainstorms, rainwater and sewage exceed capacity of sewer system and overflow into local waterways.
- Overflows help keep sewers from flooding people’s streets and basements.
MSD Project Clear (wastewater only)

Billions invested over a generation to improve water quality in St. Louis... and expect billions more.

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
Any combination of plantings, water features, catch basins, permeable pavements, and other activities that manage stormwater as close as possible to where it falls.

Goal
Capture stormwater before it enters the sewer system.

**Examples of Rainscaping**

- Curb Bump Out
- Green Roof
- Rain Garden
- Right of Way Use
- Pervious Surface
- Bio Swale
McCausland Ave. & Arsenal St.
Circa 1920

McCausland Ave. & Arsenal St.
Today
Agenda

- Rainscaping Pilot Program
- Implementation (and “Early Action”)
- Results
- The Plan for Full Implementation

Rainscaping Program (2011 – 2015)

**Pilot**
- $3 million
- Demolitions and Demonstration projects
- Monitoring
- Education/Outreach
- Plan for FULL program
- Final report submitted 12/31/2015

**“Early Action” Projects**
- Before end of Pilot
- Larger, regional projects
- EPA approves each
- MSD projects
- Large grant projects
- Small Grants were also proposed as “Early Action”

**Small Grants**
- Education & Outreach
- Small features
- Individual landowners
- 2014 Model
  - 8 Grants Completed
  - Churches and Schools
  - $19,300 awarded
- 2015 Full Round
  - 45 Grants Completed
  - Open to residents
  - $118,700 awarded
Demolitions
- LRA Managed
- MSD Funded

221 Buildings
- Cost: $1.5 Million

Before

After

Monitoring Results – Typical Year Annual Runoff Reduction
- **Bioretention** – 96%
  - Hydrant Testing
    - 70% to 100%
- **Rain Garden** – 95%
  - (limited data)
- **Amended Soil** – Inconclusive
- **Pervious Alley** – 92%
- **Planter Boxes & Rain Gardens** – 55% to 65%

Too good to be true? Used 70% in final analysis
Education & Outreach

- Meetings with aldermen/women
- Invited to community meetings
- Educational Signs
- Maintenance Brochure
- EPA Small Urban Waters Grant w/ SIUE – site scale owner education
- Stakeholder Engagement Committee
- Website, Blog, Twitter & Facebook
- Press releases, tours, radio interviews
- Survey

What are “Early Action” Rainscaping Grants?

- Rainscaping opportunities prior to completion of the Pilot Program
- Submitted for EPA approval
- Able to further test regulatory, logistical and financial aspects outside of confines of the Pilot – such as our large and small grant programs
- Privately designed, built and maintained
- MSD reimburses design and construction cost

- Competitive application/ranking
- 1.4 MG CSO Reduced (for $0.9 Million in projects)
Neighborhood-Scale Rainscaping – Pilot and “Early Action”
- MSD Designed, Owns and Maintains
- Landscape Architect for Planting Plan

- 12 Sites (6 Pilot, 6 Early)
- Cost: $2.43 Million
- Drainage Area: 18.7 AC
- 3.6 MG CSO Reduced

Site-Scale Rainscaping
- 16 Sites
  - 3 Rain Gardens
  - 13 Planter Boxes
  - Privately owned & maintained
- 13 Lots Amended Soil
  - Compost tilled
  - Aerate & top dress
  - LRA owned & maintained until sold

- Cost: $76,600
- Drainage Area: 0.5 AC
- 0.07 MG CSO Reduced
Rainscaping Small Grants Objective

Main objective:
- To encourage the use of rainscaping techniques by individual landowners.

Awards:
- Grants of up to $3,000 per project for the implementation of rainscaping techniques.

Rainscaping Small Grants Model Round

2014 Model Round:
- Five grantees, 8 grants awarded.

Why Choose These Locations?
- Grantees’ locations great for public engagement and education for the 2015 full round!
Rainscaping Small Grants 2015 Full Round

- 2015 Full Round:
  - Competitive Round
- 66 total applications submitted by 51 separate applicants
- 51 grants awarded
  - 45/51 awarded projects were completed
- Over $135K in full round awarded

Education & Outreach - Partnership

- Small Grants Program
  - Partnering with Missouri Botanical on education and outreach
  - Mandatory 3 hr workshop (over 160 attended)
Small Grant Program Example

Before

After

The Plan for Full Implementation
**Projects with Partners**
- Rainscaping Grants
  - Rolling Program
  - Annual Competition
- Targeted Partnerships
  - Schools
  - Parks and Rec Centers

**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

**Indirect Projects**
- Rainscaping Grant Program/ Large Scale Grants
  Accessible through:
  - Annual application similar to Early Action process
  - Continuously thru Development Review
  - Paid at rate of $180,000 per acre of tributary area to the BMP

- Targeted Partnerships
  - Continue to pursue partnerships with governmental and nongovernmental entities

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

**Demolitions**
- LRA Partnership
  - $13.5 Million (max)
Demolitions

- Maximum $13.5 Million ($15 Million total for Rainscaping Program)
- Continue partnership developed with the LRA
- Parcels used for:
  - Direct Neighborhood-scale Projects
  - Dedicated green space
  - Deed restrictions
- Activities coordinated with City of St Louis planning efforts and Strategic Land Use Plan.

Direct Projects

- Funded, constructed and maintained by MSD
- Neighborhood-scale Facilities
  - Work with LRA to find more opportunities
  - Review another 315 City blocks with LRA properties
  - Bioretention and raingardens
- MSD Operating Facilities
  - Review MSD properties for opportunities
  - Review existing detention basins for retrofitting.
Clinton St. Rain Garden in Old North

Small Grants Program - Education and Outreach

- Continue with Rainscaping Small Grants Program to fund small rainscaping practices
- Brings to public an understanding of how stormwater runoff impacts the Combined Sewer System
- Limited to 4% of total program
- Effective tool for public acceptance and community buy-in
Small Grant Project

Questions?

www.ProjectClearSTL.org
@ProjectClearSTL
Project Clear STL

------

Brian Hoelscher, Executive Director & CEO
Ph: (314) 768-6245  --or--  bhoelscher@stlmsd.com