Stormwater Reuse in Urban Settings
Case Study: Minneapolis Edison High School

CEAM 2015 Annual Conference

January 28, 2015

Photo Courtesy of Mississippi WMO
Agenda

1. Project Background and Overview
2. Supply vs. Demand
3. Storage Sizing
4. Regulatory Hurdles
MWMO

Who we are
Joint Powers Organization;
7 member cities and MPRB

Mission and Goals
Protect & improve urban ecosystem by managing water and associated land resources

Program areas:
• CIP
• Education/outreach
• Planning
• Monitoring
• Watershed Assessment
Joined the Initiative in 2009/10

Main Motivators

Partnerships

Connects to multiple components of our work:

- innovative stormwater practice(s)
- Education/outreach
- Monitoring
NE GREEN CAMPUS

Northeast Green Campus Stormwater Feasibility Study
EDISON PHASE II
1 Background/Overview

Northeast Green Campus

- Site Improvements
  - Modernized Football Field and Track
  - Community Plaza
  - Concessions/Bathroom Building
  - Additional Parking
1 Background/Overview

Northeast Green Campus

- Green Elements
  - Engineered Soil Amendments for Football Field
  - Storm Water Re-use
    - Irrigation
    - Future use in Toilets/Urinals
- Storm Water Monitoring/Education
- Community Gardens
- Solar Canopy
EDISON PHASE II
Background/Overview

Northeast Green Campus

• Project Partners
  • Mississippi Watershed Management Organization
  • Minneapolis Public Schools
  • Holland Neighborhood Improvement Association
  • National Football League thru the Local Initiatives Support Corporation
PROJECT SCHEMATIC
Supply vs. Demand

Northeast Green Campus

• Gray vs. Green
  • 3:1 Rule of thumb

• Supply
  • Impervious Surfaces
    • Roofs
    • Sidewalks/Plazas
    • Parking Lots
    • Turf areas

• Demand
  • Irrigation
    • Turf (1” per week)
  • Gardens
Impervious and Irrigation Areas
3 Storage Sizing

Northeast Green Campus

- Design parameters
  - Size of storm/Impervious Area?
    - Can store a X” rain event
  - Irrigation Area/Duration w/o Supplement?
    - Can irrigate XX acres for XX days w/o supplement
- Reliability?
  - Met Council Worksheet
- Diminishing Returns
Common Questions on Storage:

1. How much storage do we need?
2. How often will we need to use potable water?
3. Will we drain it in the winter?
4. How deep does it need to be?
4 Regulatory Hurdles

Requirements for stormwater reuse systems in Minnesota

Currently, the State of Minnesota does not have a state-specific code applicable to stormwater harvesting and reuse. The MPCA has developed guidelines for the use of reclaimed wastewater. In 2011, the Metropolitan Council developed the Stormwater Reuse Guide, which was developed based on review of water reuse programs and guidance from other states.
4 Regulatory Hurdles

City of Minneapolis Requirements

- Meet 2-, 10-, 100-year pre/post conditions
  - Need to oversize storage?
  - Is the glass half full or half empty?
- Meet water quality requirements (70% TSS removal for a 1.25” rainfall)
  - Is the underground storage the same as a NURP pond?
4 Regulatory Hurdles

Plumbing Code

• Uniform Plumbing Code allows for use of storm water in toilets, urinals, but leaves regulation up to local agency.
• Not currently allowed by State plumbing code.
  • U of M and St. Paul Saints ballpark trials
Questions?

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