

Real People. Real Solutions.









Reuse of Stormwater – Conserving Surface Waters in Rice Creek Watershed District

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Introductions

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Rice Creek Watershed



Rice Creek Watershed

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CR 12

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Brooklyn Park

Golden

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Managing Runoff from Development

- Impervious surfaces (roads, parking lots, buildings, etc.)
- Stormwater management
 - Increase rate & volume
 - Reduced infiltration
 - Direct conduit for pollutants
- Volume and water quality standards



Stormwater Reuse for Irrigation in RCWD

Is a Catchment Suitable for Infiltration?

- Unique and critical tool in the RCWD watershed management toolbox
- Groundwater surface water interactions
 - Impact on lakes
- City's goals for potable water savings (Forest Lake 17% in 10 Years)



Stormwater Reuse for Irrigation in RCWD

Is a Site Suitable for Stormwater Reuse?

- Impervious Surfaces/Catchment Area (runoff generators, access to water)
- Storage Areas (current or future)
- Irrigable Areas
- In Place Irrigation Infrastructure (not required)



RCWD & Project Partners – Building on Success

- City of Forest Lake
- Analyze Potential Areas
- Develop Partnerships with Public and Private Organizations for Projects



City-Wide Feasibility Analysis









School Site Feasibility Analysis Impervious Surfaces

- - **Buildings/Parking** •
- Stormwater Management
 - Ponds/Storm Sewer
- Irrigation
 - Ex Infrastructure/Athletic Fields
- **EDUCATION!**

Forest Lake High School Site

The project will: Reduce groundwater use, **Improve** water quality to Clear Lake, Include an **innovative education** curriculum component



Forest Lake High School Project Funding

- Applied for funding in 2016 (Closes in 2019)
- Total Grant Award: \$505,000
- Required Match (25%): \$126,250
- TOTAL PROJECT: \$631,250
- Ranked 5th overall out of 72 projects.





Stormwater for Irrigation at the High School

- Calculating Irrigation Volume
 - Assume grass "needs" 1 inch of water per week
 - Determine volume of stormwater captured
 - Use rainfall records/average weekly rain
 - Determine how often supplement stormwater for irrigation





Special Considerations fo Stormwater Irrigation

- Bacteria, viruses, amoeba and parasites harmful to humans
 - Consumptive vs. non-consumptive uses
- Treatment of Stormwater Prior to Irrigation
 - Filtration
 - Chlorination
 - Ultra Violet Light
- California Only State with Standards
 - MN Dept. of Health currently does not have a standard.



Project Design Options

- Site was uniquely positioned:
 - Much of the site was already built.
 - Buildings, parking, BMPs.
 - Work with current construction to build the reuse system.
- Team developed 3 options.
 - Convert existing BMP.
 - Modify existing BMP outlet.
 - Leave existing BMP in place
- Capture additional roof area.



Overall Site Plan



New Wet Storage Basin





Forest Lake High School Project Water Quality Benefits



- TP Removal = 32
 lbs/year
- TSS Removal = 7,500
 lbs/year
- Volume Saved = 4.1 million gallons/year



Water Education: Stormwater Reuse for Irrigation Learning







FLAS Partners

RCWD

Opportunities for Education & Collaboration

 Project WET & other groups leading water ed

 Other watershed districts
 MPCA, Dept. of Health, & Met Council

What is the Education Component?



The Process

Stakeholder Meetings

Stormwater Reuse for Irrigation Bootcamp

Meetings & Emails

Teachers Creating, Sharing, & Piloting







FOREST LAKE AREA HIGH SCHOOL

Commitment to Excellence in Academics, Arts & Activities





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The Writing Team













The Lessons and the Possibilities



Educators are not required to be experts in stormwater to lead lessons.





Moving Forward: Getting Our Ducks in a Row



Gaining Momentum

- Master Water Steward Project
 - Cisterns
 - Ag class greenhouses
- Middle School
 - Details
 - Seeking funding
- Elementary School
 - Details
- Expanded Partnerships
 - Dept. of Health & Student Research
- Showcasing & Sharing Education Efforts





Continued RCWD Support for Reuse:



- **1. Pursuing Incentive Programs for Stormwater Reuse**
 - Cost-Share Program



- 2. Rule Modifications to Incentivize Stormwater Reuse
 - Made it easier for Cities and County to meet the requirements of the RCWD



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Questions

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