Reduce, Reuse, Replenish: The Three R’s of Hugo’s Stormwater Management Plan

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Why use stormwater?

• Hugo City Council directive
  – 3 R’s
• WBL Lawsuit - Related to USGS report
• DNR – GWMA & appropriation permits
• Met Council – directs growth
• Rice Creek Watershed District
  – Infiltration, flooding, water quality
Stormwater vs Groundwater

• Stormwater is highly regulated by comparison
  – Regulation is to provide a desired outcome
  – May unintentionally discourage the best practices
  – Creativity is usually not rewarded
• Goal is to find the easiest route though regulatory process for project approval
• Existing regs. do not encourage stormwater re-use (yet)
  – Large-scale re-use projects were not anticipated
WBL Lawsuit

• WBL Restoration Association - vs - DNR
• MERA
• Claim that DNR mismanaged the resource by allowing too much pumping
• Seeking court order for DNR to restore the lake
  – Stop groundwater pumping
  – Augment the lake
• Settlement Agreement has been reached...
• Main take away – Use less ground water. Use more surface water
WBL Settlement Agreement

Support for NE Metro surface water supply project
• Requires legislative approval/funding
• New taxing district for operation

Set protective elevation for WBL
• Impacts all appropriation permits in region

Plaintiffs granted review of all appropriation permits

Conservation
• 17% reduction in water use

Requires NE GWMA Plan to be implemented in 2015
• Vehicle for implementing settlement provisions
Integrated Water Management

- Stormwater
- Surface Water
- Wastewater
- Groundwater
- Drinking Water
Using Stormwater

• Replace drinking water with stormwater
• Irrigation is the main focus
• Start with existing irrigation accounts
• New Development
• Focus on Residential Uses
  – They use the most water
Hugo’s Integrated Water Management – Oneka Ridge Golf Course
Hugo’s Integrated Water Management – Beaver Ponds Park
Beaver Ponds Park
Hugo’s Integrated Water Management – CSAH 8
CSAH 8 Landscaping
Hugo’s Integrated Water Management

Water’s Edge Development
Waters Edge
Waters Edge

- 1100 homes with HOA
- Use = 45,000,000 gallons per year
  - $120,000 water bill
- Surface water supply is available
- City-owned surface water supply system will pay for itself
  - Sell them stormwater instead of drinking water
- Reduces peak demand on city water system
Clearwater Cove water re-use

- PUD flexibility
  - Lot size, lot width, setbacks
- Cost = $200,000 - $300,000
- Pressurized system feeds 89 lots
- Zoned system
- Sprinkler controls in garages
- No need to conserve stormwater...
- Infiltration credits
- SAC/WAC Credits
- City system or HOA?
Require it?

• In all new developments????
• Separate set of pipes carrying stormwater serving each home.
• Commercial vs. Residential
• Single-Family is harder than Multi-family.
• Size of the development matters
• Proximity to surface water source
• Controls. Master Control vs individual control
• HOA or no HOA?
• Health Concerns. Who drinks out of the garden hose?
Part of a larger program

• “Reduce, reuse, replenish”

• Water conservation guidelines and incentives for new development

• Construct storm water distribution system and convert largest irrigation accounts to use storm water when feasible

• Incentive program for homeowners

• Adjust water conservation rates as necessary to promote good water stewardship practices
Using Surface Water

• Reduces groundwater use
• Improves Water Quality
  – Removes phosphorous
  – Helps TMDL
• Volume Control
  – Meets infiltration requirements
  – Controls downstream flooding
• Stormwater Credits
  – RCWD allows trading
  – Allows for regional systems
  – Credits can be sold for $$
• Surface water can be sold, as long as it’s cheaper
BARRIERS
Watersheds

• Site-by-site drainage regulation
  – Protect water quality
  – Mange water quantity
• Stormwater re-use is a good option
  – Small re-use projects are impractical, expensive
  – Regional projects have high impact & benefit
    • More cost effective
• Results in duplication of efforts and costs
• Infiltration robs water from re-use projects
Watershed Recommendations

• Allow re-use as a management tool.
• Allow trading of stormwater credits between sites
  – Volume Control – Infiltration
  – Water Quality
• Trading areas must be large enough
  – Credits need to have value

(Main objective is to get rid of stormwater)
Appropriation Permits

• DNR
  – 10,000 Gallons per Day
  – 1 Million Gallons per Year
  – Up-to 5 month initial review
    • 60 days is typical
  – Public review and comment period
  – Wetlands, Habitat, Interference, etc.
  – Conservation mindset = puzzling requirements
DNR Permits - Recommendations

• Eliminate them, if possible
  – It’s easy to use drinking water
• Otherwise....
  – City-wide General Permit
  – Modify process to same-day approval
  – Remove max. pumping limits
  – Remove conservation requirements
• Process encourages use of drinking water
• DNR is working on it...
Grant Funding

• Can’t be used to meet rule requirements
  – BWSR, RCWD
  – Volume control is a rule
  – It is better for us not to use the grant $$

• Stormwater re-use has several benefits beyond the rule
Other Barriers

• WBL Lawsuit & Settlement Agreement
  – 17% Conservation net of new development

• There is only so much surface water to use
  – But it’s most available when you don’t need it

• Stormwater ponds are beautiful?!?
  – Don’t ruin my view by pumping it out

• Best management structure still being worked out. (O&M)

• Dep’t of Health – Is the water safe?
  – Will they decide to regulate it?
Other factors

• How to pay for installation, maintenance and replacement
  – Charging for stormwater
  – City ownership?
• Residential land uses have the most potential
  – More complicated
• Optimizing for max. benefit
• Need to balance against alternatives
• Municipal water rates and other measures
Cost

• Expensive to build
  – O&M Costs
• Impacts to City Water Fund
  – Lost revenue
• Establishment of new city utility?
• Could allow us to delay big capital costs
  – Wells and towers
  – Reduces peak demand
Summary

• Focus on irrigation of landscapes with stormwater
• Need for incentives, not regulation
• DNR Appropriation Permits
• Site-by-site water quality and quantity standards discourage good regional projects
• Plumbing Codes
• You can charge $$$ for stormwater
• Other solutions should be studied
  – Aquifer recharge, direct injection
  – Wastewater reclamation