Reduce, Reuse, Replenish: Implementation of water conservation strategies

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Drinking Water 1-2-3 Academy
Integrated Water Management
Water Supply Constraints in NE Metro

– Hugo is in a high growth area
– Not adjacent to large surface water sources
  • Dependent on groundwater
– City is required to grow
– 15,000 now: Plan for 40,000 by 2040
– Groundwater supply is limited
– Pumping groundwater may impact surface waters
  • High profile lawsuits

Permits for new groundwater wells are hard to get
  • State rules are restrictive and vague
  • Uncertainty makes planning difficult
Hugo – Water Usage

- Domestic/Commercial Usage: 225 MG
- Irrigation Accounts: 100 MG
- Other Irrigation: 100 MG
Comprehensive Plan
Water Supply Plan Principles

– Maximize efficiencies
– Promote conservation
– Encourage stormwater re-use
– Resource sustainability
– Implement demand reduction measures
  • Minimize the need for new groundwater wells
Water Supply Plan impacts all chapters

- Stormwater management plan
- Land Use Plan
  - Site planning practices
- Parks plan
- Housing & Economic Development
- Transportation
Water Conservation Efforts

• New water rates
• Irrigation regulations
• Education initiatives
• Grants for efficient toilets, washing machines...
• Grants for smart irrigation controllers
• Requirements for topsoil
• Landscape ordinances
• Industrial and commercial re-use
• Collaboration with other cities
• **Stormwater re-use is king**...
Water re-use
Financial Partners

• City of Hugo
• Met Council
• Rice Creek Watershed District
• Clean Water Legacy Fund
• Private developers
• Homeowners Associations
Oneka Ridge Golf Course

Project Layout

- Install 4" Forcemain for West Pond Infiltration System
- Install West Pond Infiltration System
- West Pond
- Install 10" Forcemain for Irrigation System
- Spoil Disposal Area
- Excavate Stormwater Pond
- Install Stormwater Pond Pumping Station
Beaver Ponds Park
Residential Re-use Retrofit

Water’s Edge Development Phase 1
Waters Edge

• 1100 homes with HOA
• At their peak usage: $120,000 water bill
• Retrofit all irrigation from groundwater supply to surface water supply
• City owns pumps, pipes and delivers stormwater to HOA
  – We charge them for it
• Reduces peak demand on city water system
• Phase 1 complete. Phase 2 in 2019
Phase II Features

- Add 2\textsuperscript{nd} pump
- Include Oneka Pkwy
- Prairie Village HOA
- Guidance Homes HOA
- Oneka Elementary
Clearwater Cove
CSAH 8 Landscaping
Oneka Place
Meadows of Hugo
Using Surface Water

1. Reduces groundwater use
2. Puts water back into the ground
3. Improves Water Quality
4. Reduces Downstream Flooding
   - Volume Control
5. We can sell it for $$
   - Lower priced water for residents
6. Reduces peak demand on city water system
7. There are barriers
   - It is harder to do than it should be
Peak demand

• Water system is designed for peak usage
  – Requirement to operate system on peak day with one well off-line
  – Peak day usually occurs in July or Aug
  – Irrigation contributes to peak usage
• Stormwater use -- lowers the peak
• 2030 comp plan = 40,000 population
  – 11 wells and 4 water towers
• 2040 comp plan = 40,000 population
  – 7 wells and 3 water towers
• Capital savings!
• Construction cost = $3,510,500
• Each new well > $1,500,000
Observations

- Nearly 20,000,000 gallons saved in 2018
  - Over 6% of City’s total water usage
  - Program is still in infancy
  - Likely to double by 2020

- Water savings are less than estimated...
  - for non-residential users
  - Golf course, parks, etc

- Residential users are pumping more than expected
  - Should be primary focus for future
Barriers

1. Finding enough surface water
2. Learning curve for residents (HOA’s)
   – Management, costs, and low pond levels
3. Maze of regulation concerning water
   – Tremendous uncertainty
4. White Bear Lake Lawsuit
5. Untested – risky. Up-front investment
6. Maintenance of pumps, longevity, etc
7. Future health codes
8. Conservation mindset among regulators
9. Much easier to use drinking water
10. Water utility loses its biggest customers!
Clearwater Cove – Re-use Discussions

- Appropriation permits
  - Conservation of stormwater??
- Change in statute concerning permits
- Discussion on Mixing of Waters
  - Triggers permits again??
- Discussion on future health codes
  - Filters?
  - Accommodate for changes?
  - Uncertainty
- Water availability
- Interconnection with City water
- Additional set of pipes throughout neighborhood
  - Stormwater Pipes
  - Maintenance?
  - Locates
- Treating water where it lands
  - On-site BMP’s
- Credits for excess infiltration
- Shoreland requirements
- Agreements with Developer
- Covenants for HOA
- Education of Residents
- Management by HOA
  - Balancing irrigation needs with pond aesthetics