Water Treatment Stats

• Built in 1963, began operation in 1964
• Groundwater system using 7 wells
• Lime Softening Process
  – 1 of 6 lime softening plants in the metro
• Capacity of 14 MGD
• Average day: 2.7 MGD  Max day: 5 MGD
• Major upgrades in mid 1990’s and early 2000’s
Water Plant Upgrades

Current Project
• New Slakers
  • Project began Feb, 2018
  • Have been in operation for 3 months

Upcoming Project
• High Service Pump VFDs
  • High energy user
  • Cost savings
Water Distribution Stats

- Constructed in 1960’s
- 120 miles of water main – size range 4-24”
- Cast iron
- 2605 valves
- 1062 hydrants
- 10,839 service connections
  - 75% residential
  - 25% non-residential
Water Use Over Time

Total Pumped per Year

Daily Ave/Max Water Pumped

- Average Day Flow
- Max Day Flow
# Water Use Per Capita

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Average Day (AD) Water Pumped (MGD)</th>
<th>Maximum Day (MD) Water Pumped (MGD)</th>
<th>MD:AD Ratio</th>
<th>AD Per Capita Water Use (gpcd)</th>
<th>MD Per Capita Water Use (gpcd)</th>
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## Water Use Related to Weather

### Historical Water Use

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<tr>
<th>Year</th>
<th>Summer Precipitation (inches)</th>
<th>Average Summer High Temperature (°F)</th>
<th>Average Day (AD) Water Pumped (MGD)</th>
<th>Maximum Day (MD) Water Pumped (MGD)</th>
<th>MD:AD Ratio</th>
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**Wet years:** 2007, 2016
Water Comp. Plan Summary

• Purpose:
  – Look at current and future demands
  – Determine future capacity needs
  – Plan for future needs

• How the Plans are used:
  – Guide for redevelopment
  – Land use plays a large role
  – Opportunities for improving system performance
Heat Map of System Pressure
Heat Map of Fire Flow
Water System Condition Assessment

• Desktop analysis
  – Installation date
  – Break history
  – Risk
  – Prioritized list for further inspection

• Condition Assessment
  – Non-destructive techniques

• Replace - Rehabilitation - Leave it alone
Water Main Breaks Over Time
Water Main Breaks by Location
Emergency Water Interconnects

• Connections to our neighbors
• Highly recommended by Minnesota Department of Health
• Richfield currently a stand alone system
• Looking into interconnects with Bloomington and Edina
Emergency Water Interconnect

42 inch Bloomington Water Main

Potential Edina Connection

Logan Water Tower
Sanitary Sewer System Stats

- Constructed in 1950’s
- 100 miles of City main (6” -21”)
- 18 miles of MCES interceptor (21”-48”)
- Vitrified clay pipe (VCP)
- 2340 manholes
- 9 lift stations
Sewer Comp Plan Summary

• Purpose:
  – Look at current and future demands
  – Determine future capacity needs
  – Plan for the future

• How the Plans are used:
  – Guide for redevelopment
  – Land use plays a large role
  – Opportunities to address I&I
Comp Plan Capacity Analysis
Sanitary Sewer Maintenance Practices

• Sewer Cleaning: Jetting
  – Entire system is cleaned each year
  – LMC recommends minimum of every three years

• Sewer Televising
  – TV truck used to inspect trouble spots identified during jetting

• Manhole Rehabilitation
  – In conjunction with the Mill and Overlay

• Lift Station Inspection
  – Checked weekly
Sanitary Sewer Lining

• Began city wide sewer lining project
  – Multi-year initiative
  – Utilizing Cured-In-Place-Pipe (CIPP) process
• Essentially a new pipe within the old pipe
• Reduction in root intrusion
• Reduction in operation and maintenance costs
• Plan is to line all Richfield-owned mains
2018 Sanitary Lining Area

- Open bids August 8th
- Council approval August 21st
- Begin project September
Comp Plan Processes

• Metropolitan Council Review/Approval

• Minnesota Department of Natural Resources Approval for Water Supply Plan

• Approved by City Council with approval of overall Comprehensive Plan
Thank you!

Questions?
• City of Richfield Surface Water Management Plan
• Plan updates required every 10 years
• Watershed Plans -> City SWMP -> City Comp Plan
• Plans layout approach to storm water management within the Watershed/City
• Watershed Approval -> Metropolitan Council
Watersheds Within Richfield
Plan Overview

• **Sets the course** for the City’s management of stormwater and water resources within the City
• **Provides data** and other background information on resources
• **Assesses** city-wide and specific **issues**
• **Sets goals and policies** for the City and its resources
• **Lays out an implementation program** to achieve the City’s goals
• **Guides the SWPPP** (Yearly maintenance plan)
Plan Overview

• Organized into six major sections:
  1. Introduction
  2. Land and Water Resource Inventory
  3. Assessment of Issues and Opportunities
  4. Goals, Strategies, and Policies
  5. Implementation Program
  6. References
Section 3 – Issues and Opportunities

- Water Quality
  - Phosphorus and Chlorides are biggest issue
- Water Quantity and Flood Risk Reduction
- Infrastructure Assessment and Maintenance
- Wetland Management
- Groundwater Management
- Erosion and Sediment Control
Water Quality

- Legion/Taft (MCWD)
  - Infiltration
  - Active Treatment – Flocculation
- Wood Lake and Richfield Lake (RBWMO)
  - Forebay ponds and pre-treatment
Water Quality

• Legion/Taft
• Infiltration
• Active Treatment – Flocculation
• Wood Lake and Richfield Lake
• Forebay ponds and pre-treatment

CITY SWMP
Water Quality

- Legion/Taft
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CITY SWMP
Water Quality

- Legion/Taft
- Infiltration
- Active Treatment – Flocculation
- Wood Lake and Richfield Lake
- Forebay ponds and pre-treatment
Water Quality
Water Quantity And Flood Risk
Section 4 – Goals, Strategies and Policies

- **Maintain and enhance surface water quality** to meet applicable standards and preserve ecological functions.
- **Minimize the risk of flooding** and associated negative impacts to public health, infrastructure, and the environment.
- **Protect and preserve** the quantity and quality of **groundwater resources**.
- **Minimize erosion of soil** into surface water systems and other negative environmental impacts of stormwater runoff.
- **Protect and preserve fish and wildlife habitat** and shoreland integrity.
- **Protect and preserve** the quantity and quality of **wetlands**.
- **Minimize public expenditures related to surface water management** through effective planning, education, cooperation, and implementation.

CITY SWMP
Section 4 – Goals, Strategies and Policies

• Maintain and enhance surface water quality to meet applicable standards and preserve ecological functions.
• Minimize the risk of flooding and associated negative impacts to public health, infrastructure, and the environment.
• Protect and preserve the quantity and quality of groundwater resources.
• Minimize erosion of soil into surface water systems and other negative environmental impacts of stormwater runoff.
• Protect and preserve fish and wildlife habitat and shoreland integrity.
• Preserve and preserve the quantity and quality of wetlands.
• Minimize public expenditures related to surface water management through effective planning, education, cooperation, and implementation.
Section 4 – Goals, Strategies and Policies

• Target and Coordinate via four main opportunities
  • Operations
  • Regulation and Permitting
  • Education, Training, and Outreach
  • Cooperation with other governmental entities
Section 5 – Implementation Program

- Capital Improvements
- Programs
- Studies
- Top priority will be Infrastructure!
Section 5 – Implementation Program

- Capital Improvements
- Programs
- Studies
- Top priority will be Infrastructure!
Questions?
Jeff Pearson, City Engineer
jpearson@richfieldmn.gov, 612-861-9791