



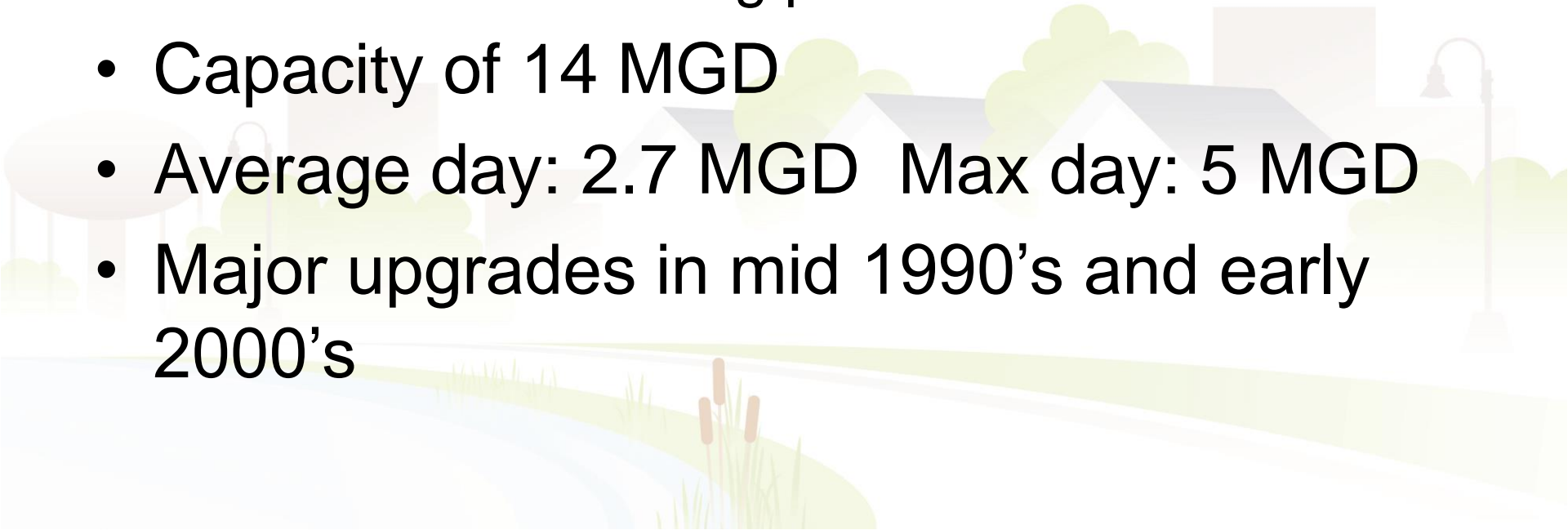
Utilities in Richfield

City Council Work Session

July 24, 2018



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

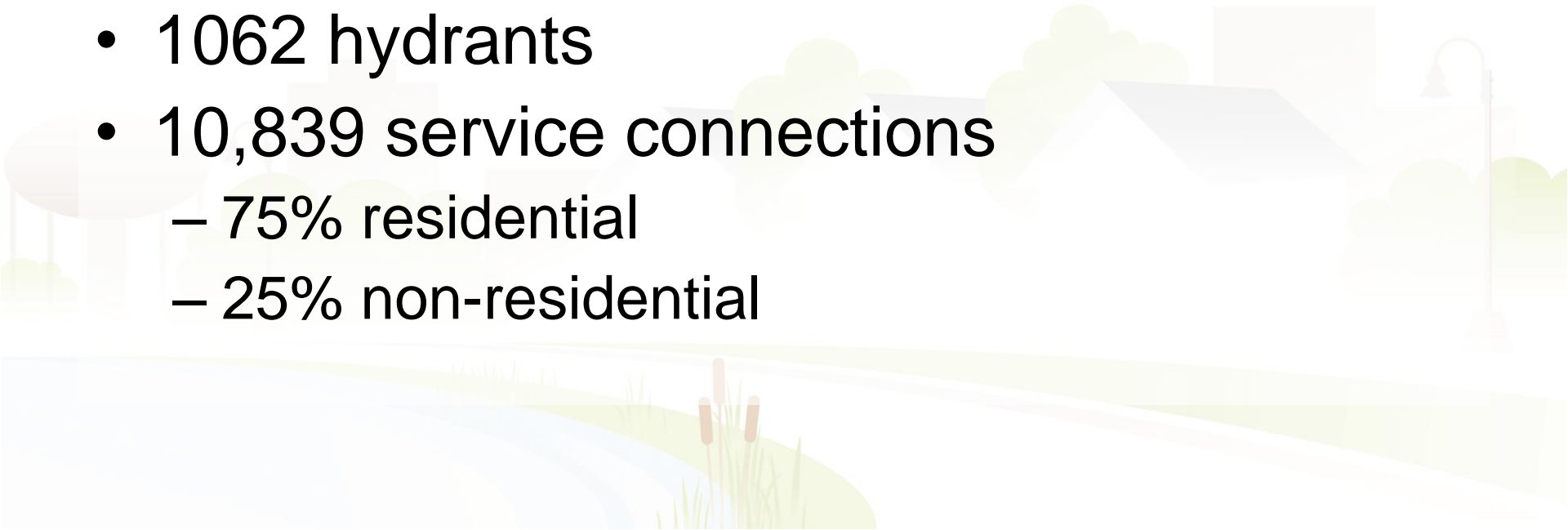


Upcoming Project

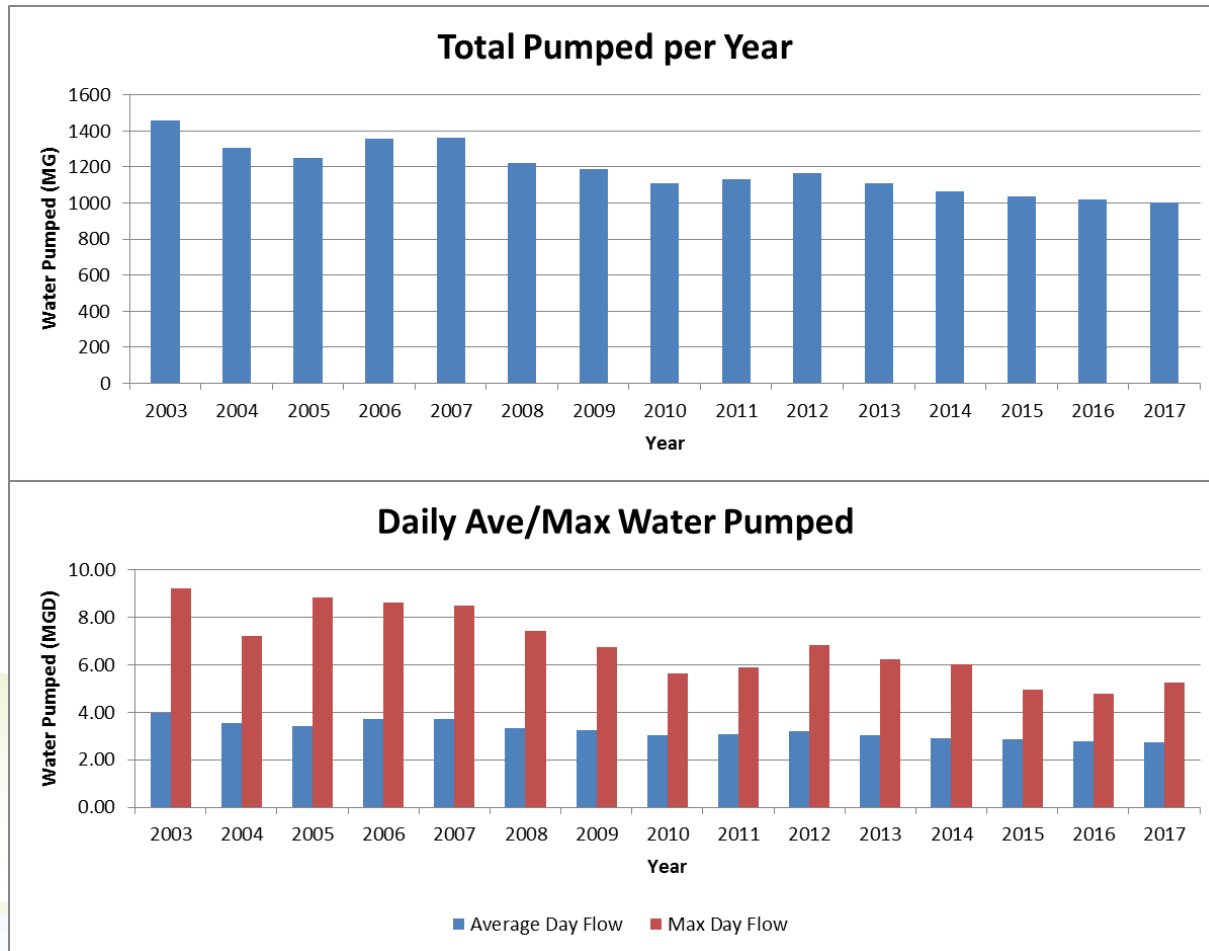
- **High Service Pump VFDs**
 - High energy user
 - Cost savings



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



Water Use Per Capita

Year	Population	Average Day (AD) Water Pumped (MGD)	Maximum Day (MD) Water Pumped (MGD)	MD:AD Ratio	AD Per Capita Water Use (gpcd)	MD Per Capita Water Use (gpcd)
2007	33,107	3.72	8.49	2.28	112	256
2008	33,676	3.40	7.41	2.18	101	220
2009	33,859	3.28	6.75	2.06	97	199
2010	35,228	3.02	5.63	1.86	86	160
2011	35,376	3.08	5.90	1.92	87	167
2012	35,979	3.20	6.81	2.13	89	189
2013	36,041	3.03	6.25	2.06	84	173
2014	36,157	2.94	6.01	2.05	81	166
2015	36,557	2.87	4.97	1.73	78	136
2016	36,338	2.78	4.80	1.72	77	132

Water Use Related to Weather

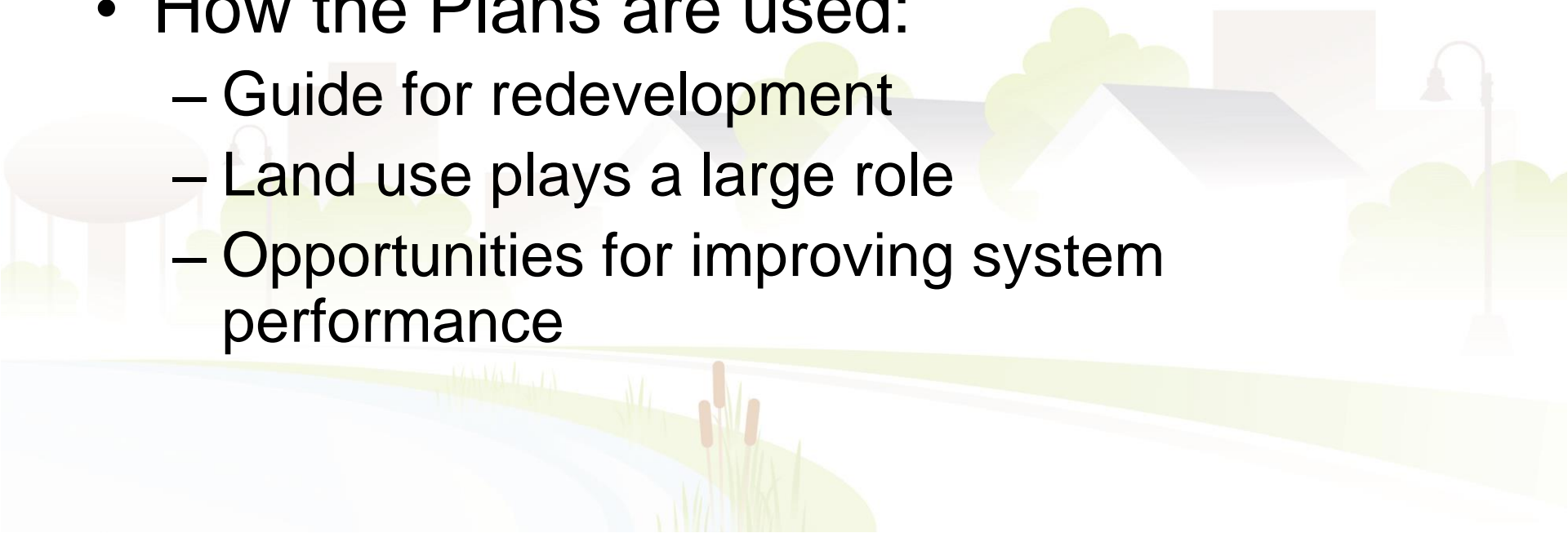
Historical Water Use					
Year	Summer Precipitation (inches)	Average Summer High Temperature (°F)	Average Day (AD) Water Pumped (MGD)	Maximum Day (MD) Water Pumped (MGD)	MD:AD Ratio
2007	18.7	80.2	3.72	8.49	2.28
2008	7.3	80.4	3.40	7.41	2.18
2009	9.1	77.8	3.28	6.75	2.06
2010	13.5	80.3	3.02	5.63	1.86
2011	8.6	81.0	3.08	5.90	1.92
2012	6.6	82.8	3.20	6.81	2.13
2013	6.9	81.8	3.03	6.25	2.06
2014	6.1	78.3	2.94	6.01	2.05
2015	15.0	79.4	2.87	4.97	1.73
2016	18.4	80.0	2.78	4.80	1.72

Dry years

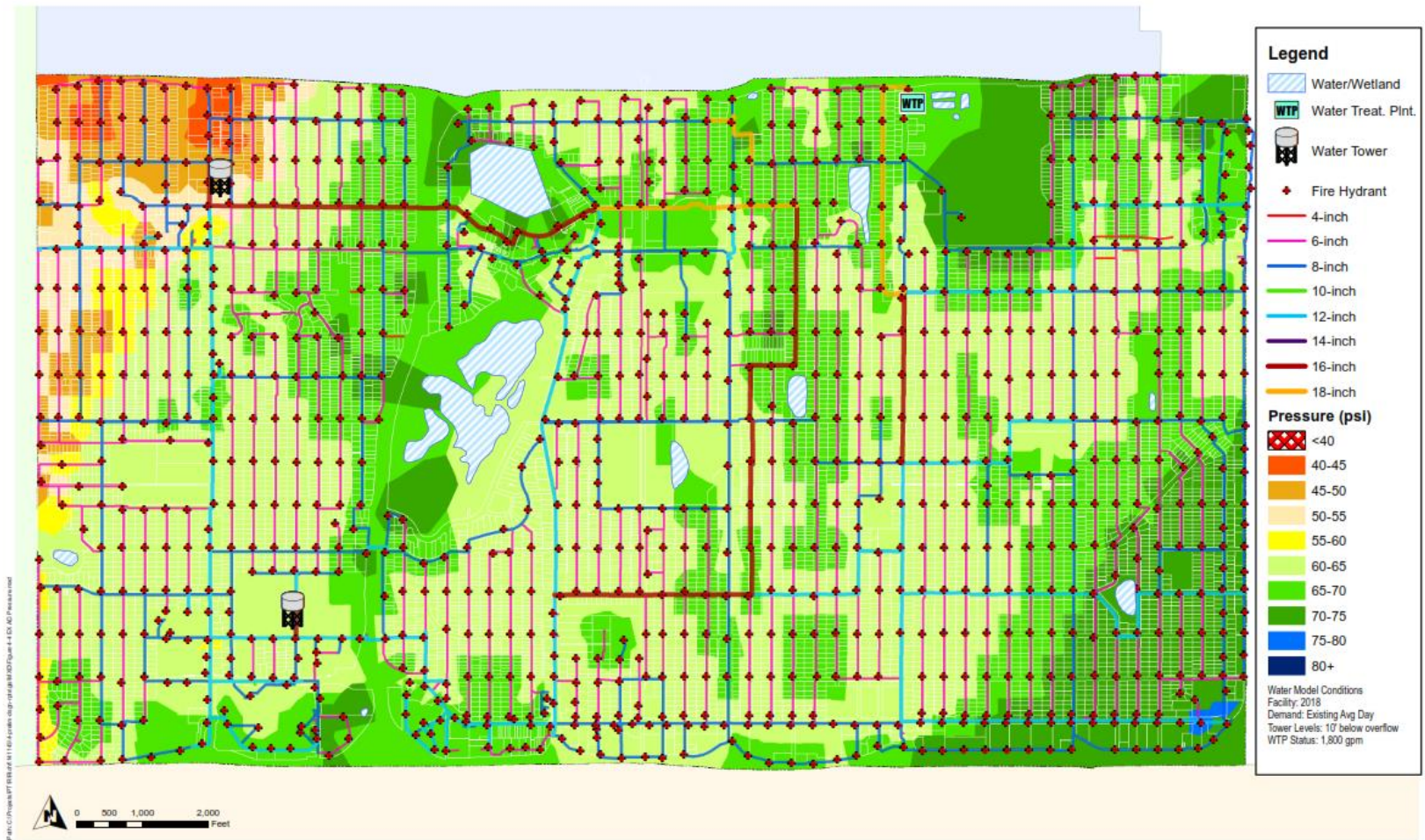
Wet years

Water Comp. Plan Summary

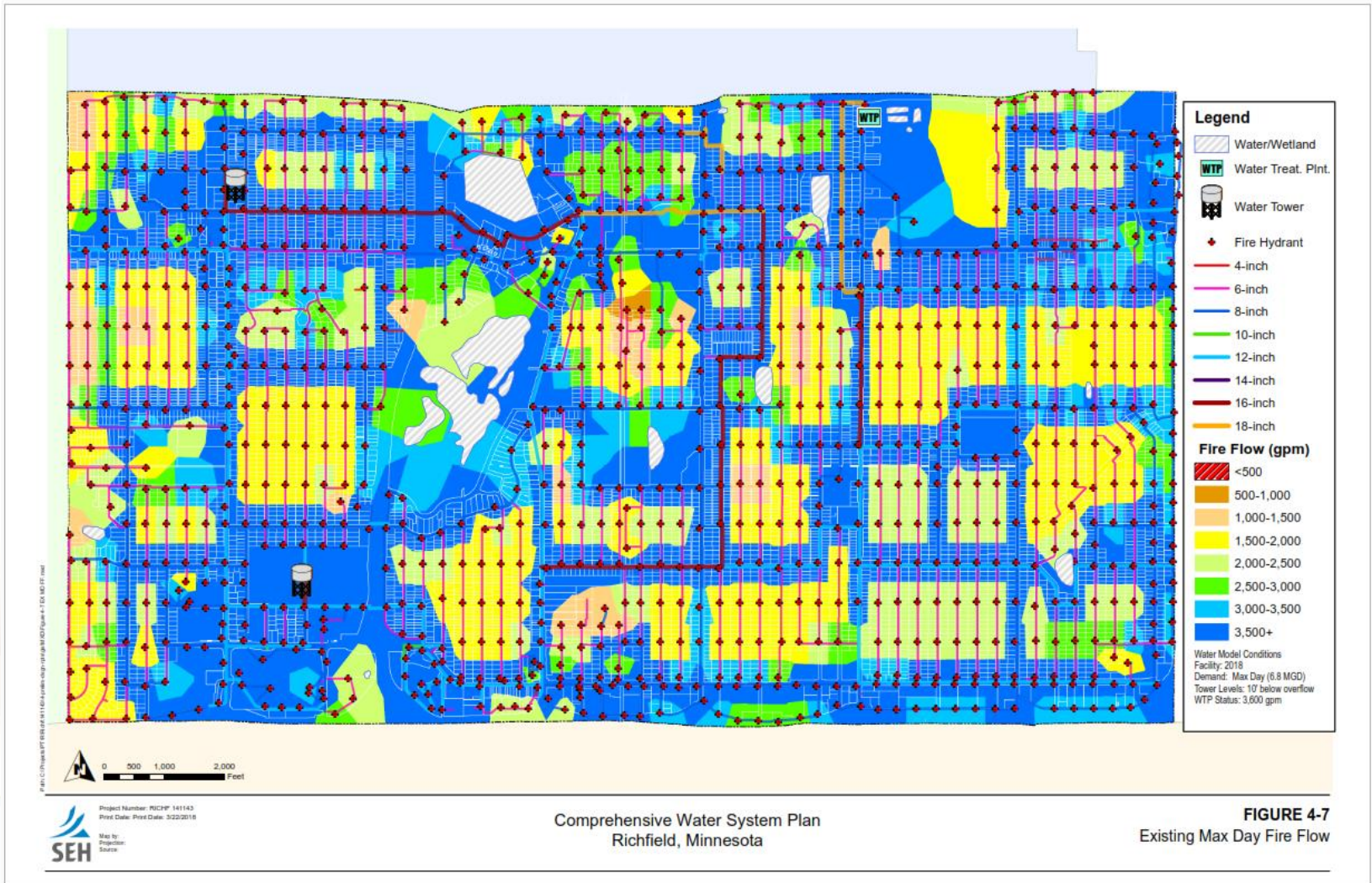
- Purpose:
 - Look at current and future demands
 - Determine future capacity needs
 - Plan for future needs
- How the Plans are used:
 - Guide for redevelopment
 - Land use plays a large role
 - Opportunities for improving system performance



Heat Map of System Pressure



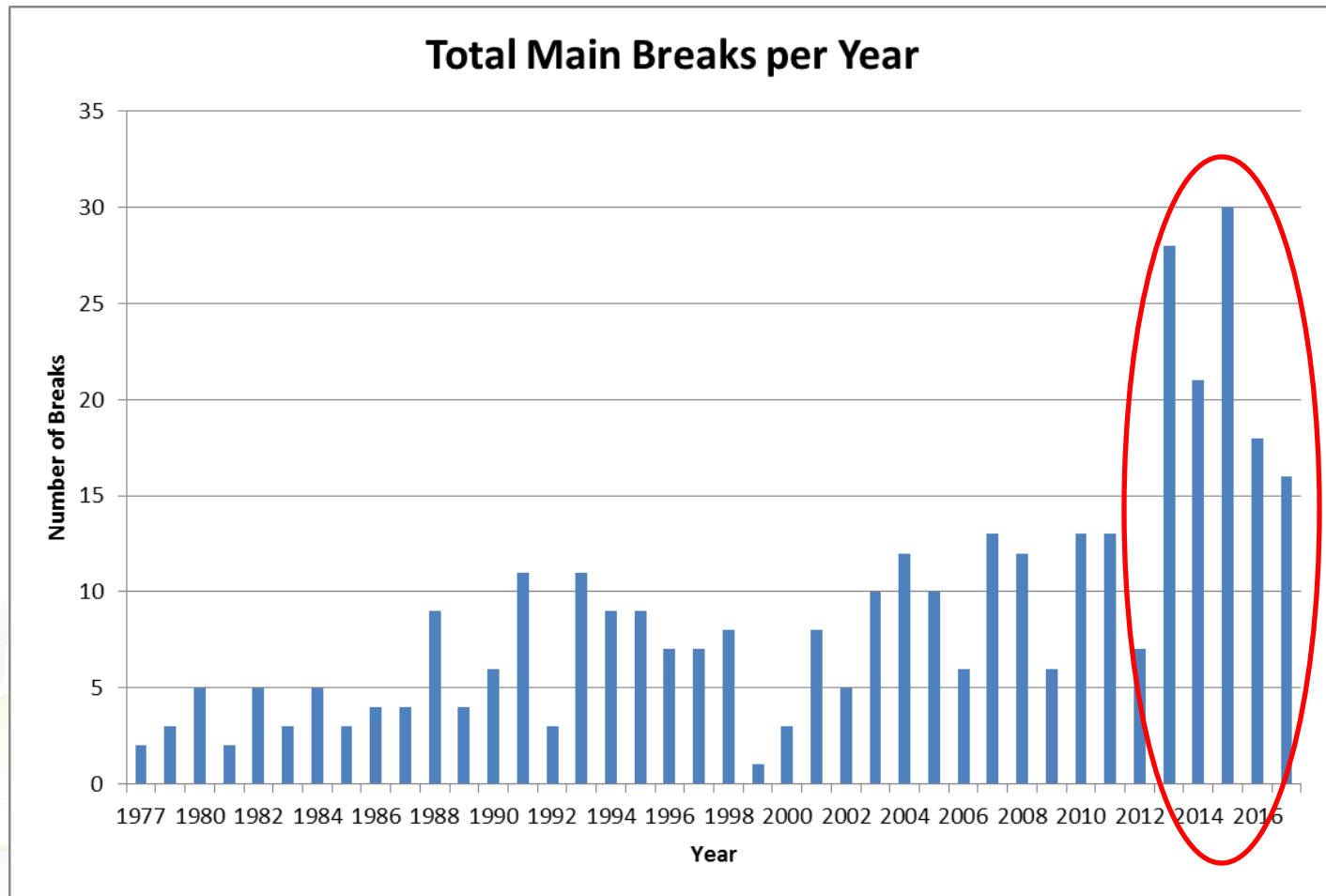
Heat Map of Fire Flow



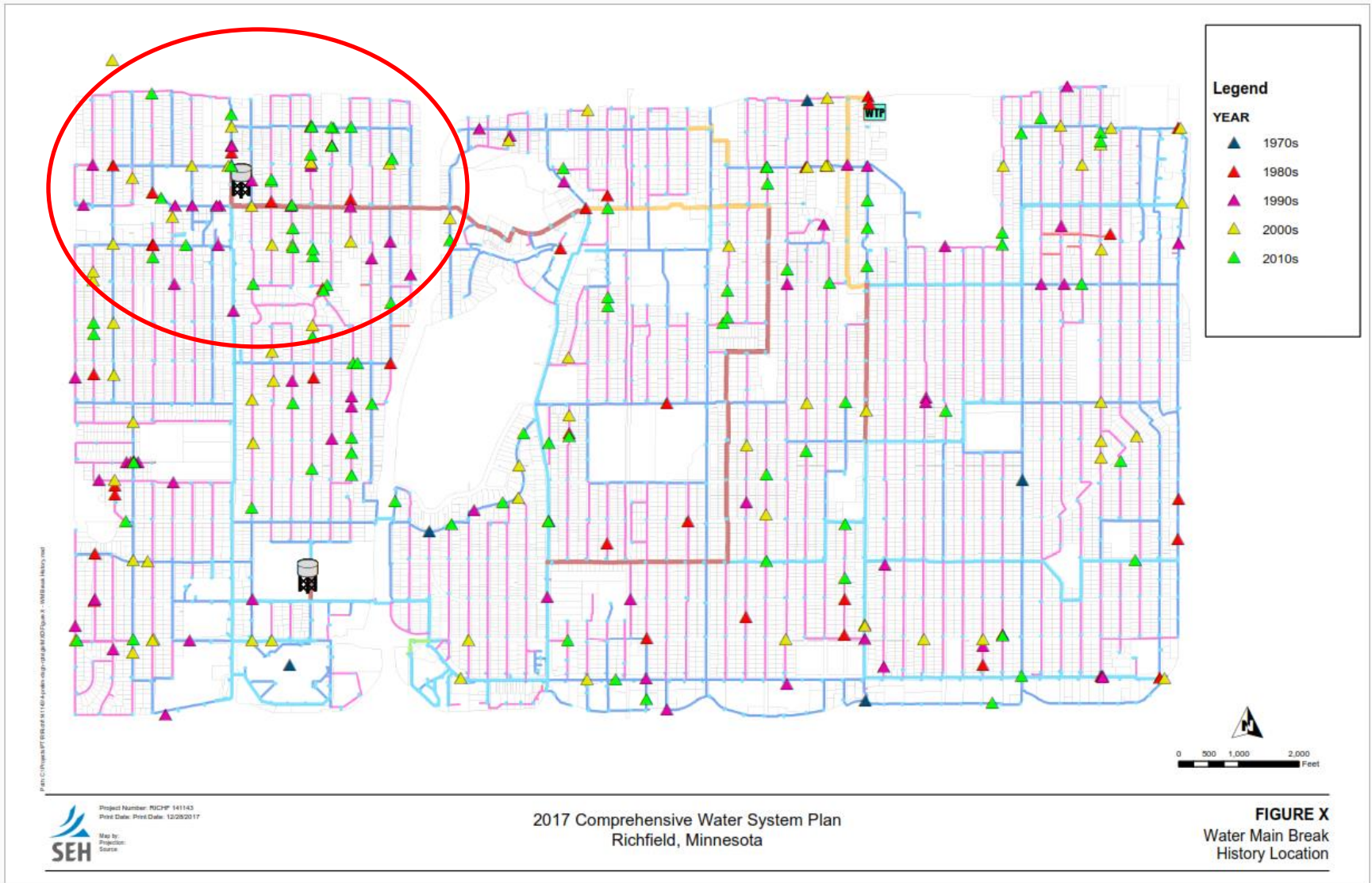
Water System Condition Assessment

- 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

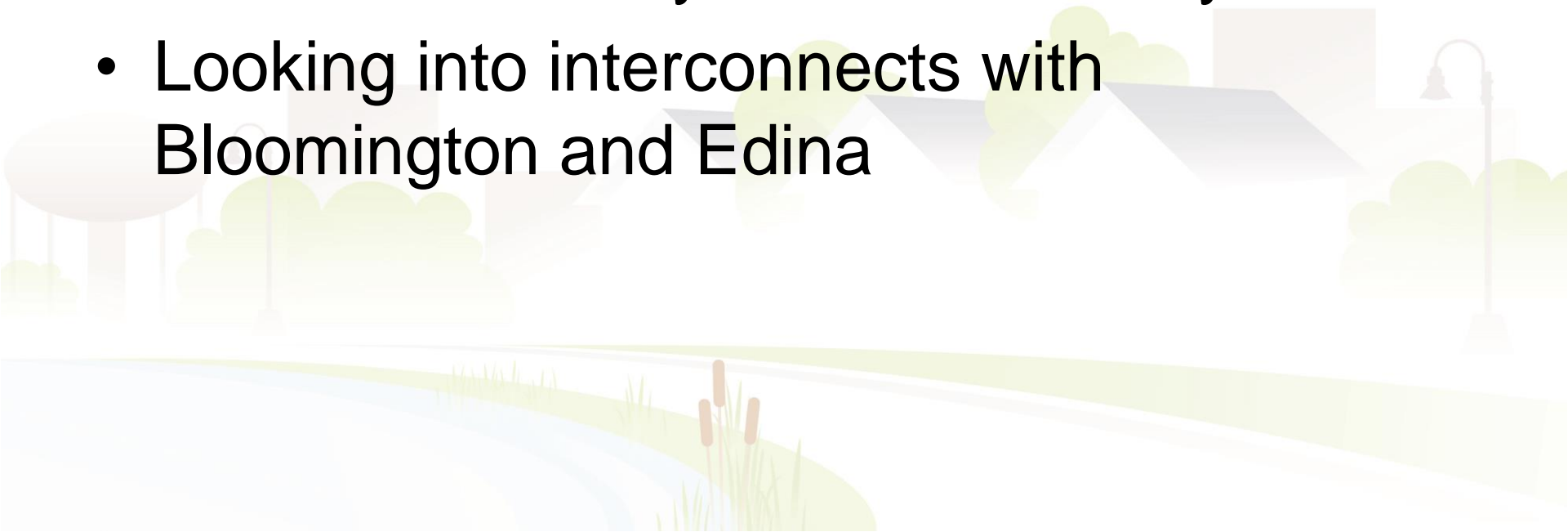


Water Main Breaks by Location

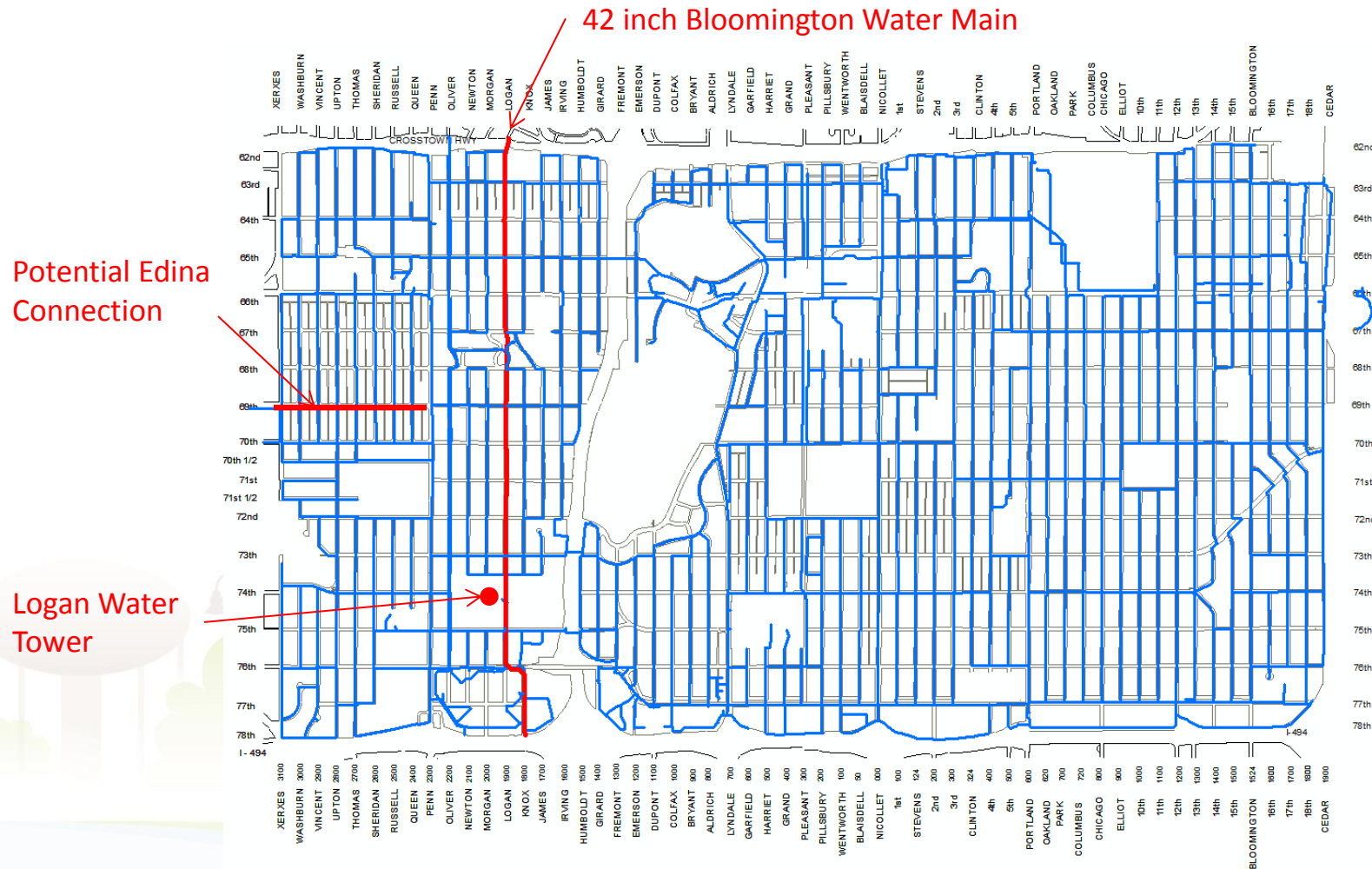


Emergency Water Interconnects

- 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



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

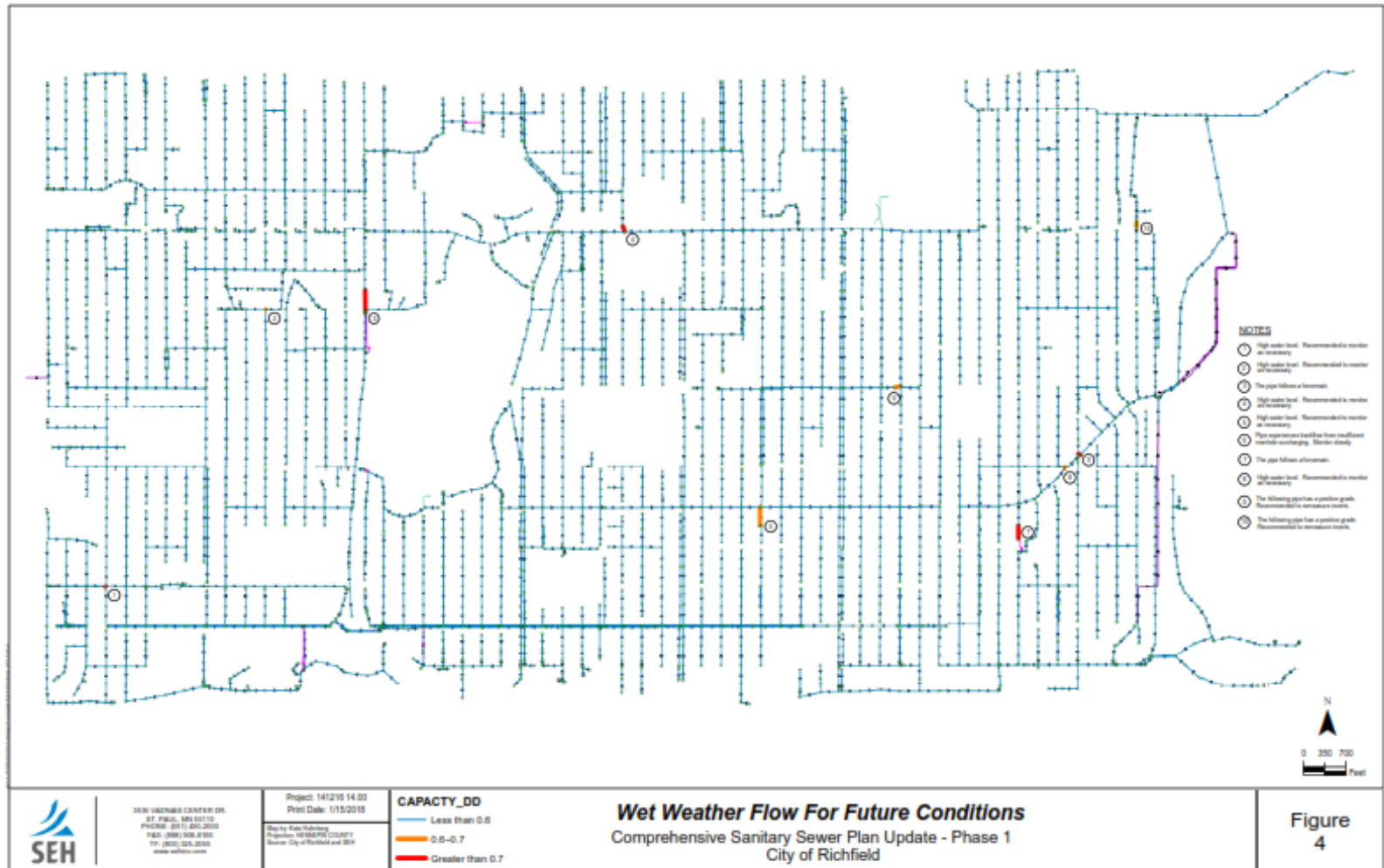


Sewer Comp Plan Summary

- 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

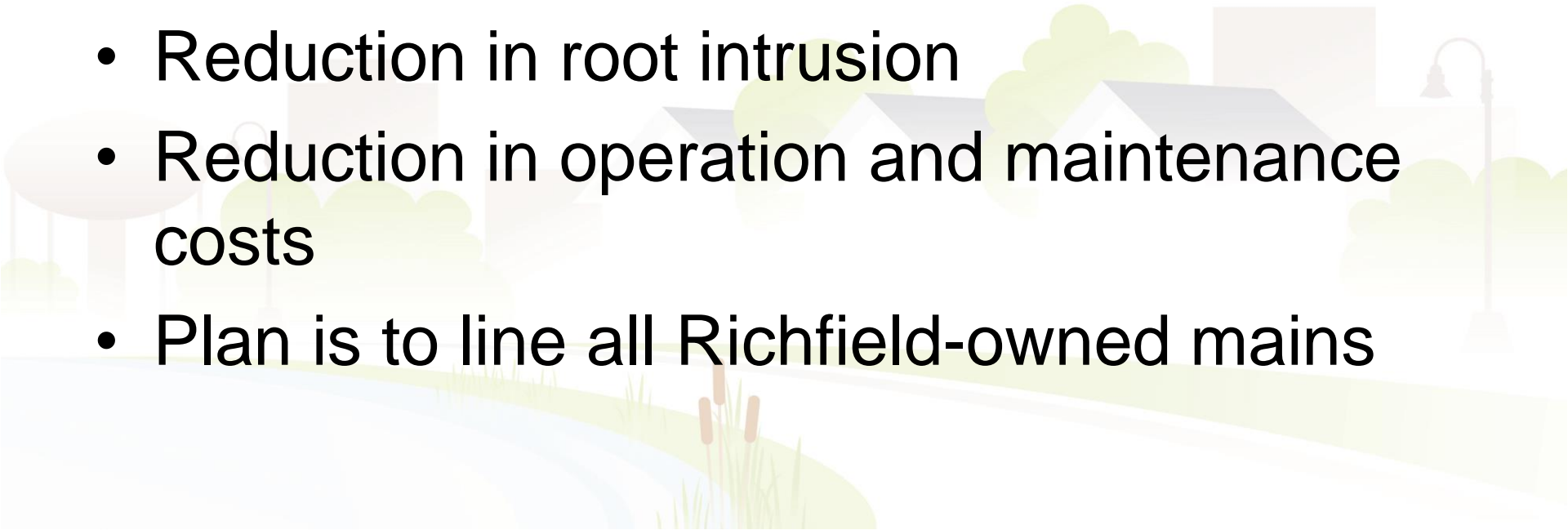


Sanitary Sewer Maintenance Practices

- 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
- 

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

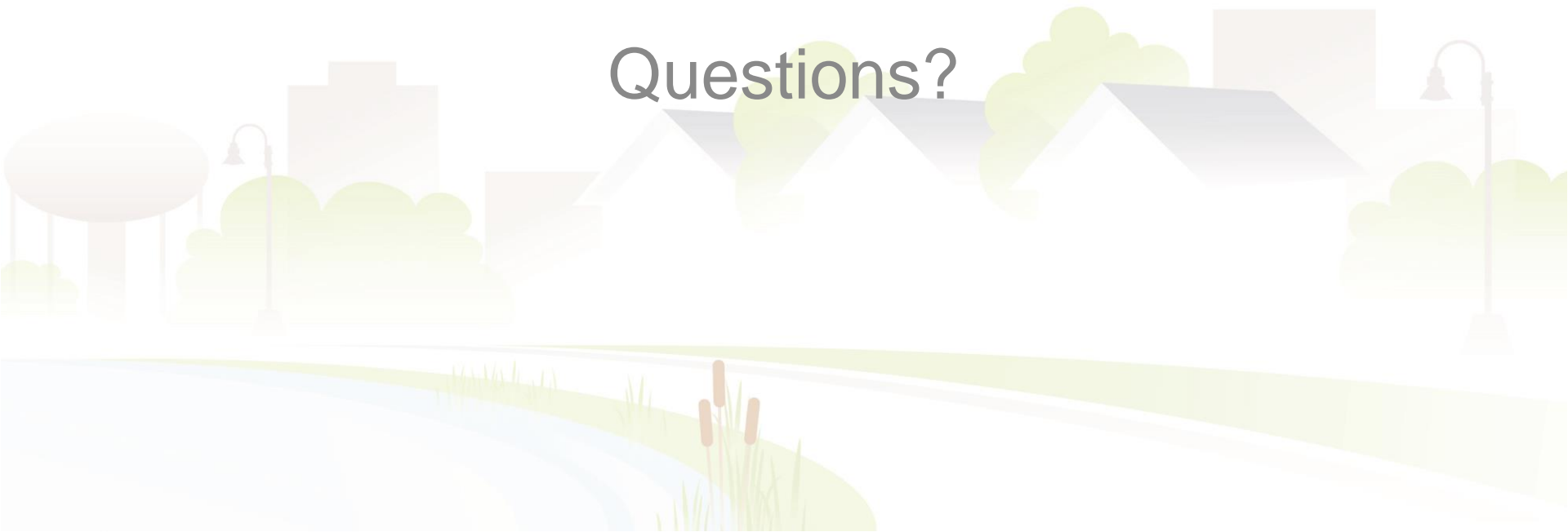
Comp Plan Processes

- 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?





SWMP Update

July 24, 2018

Jeff Pearson, City Engineer



- **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**



Plan Updates

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)

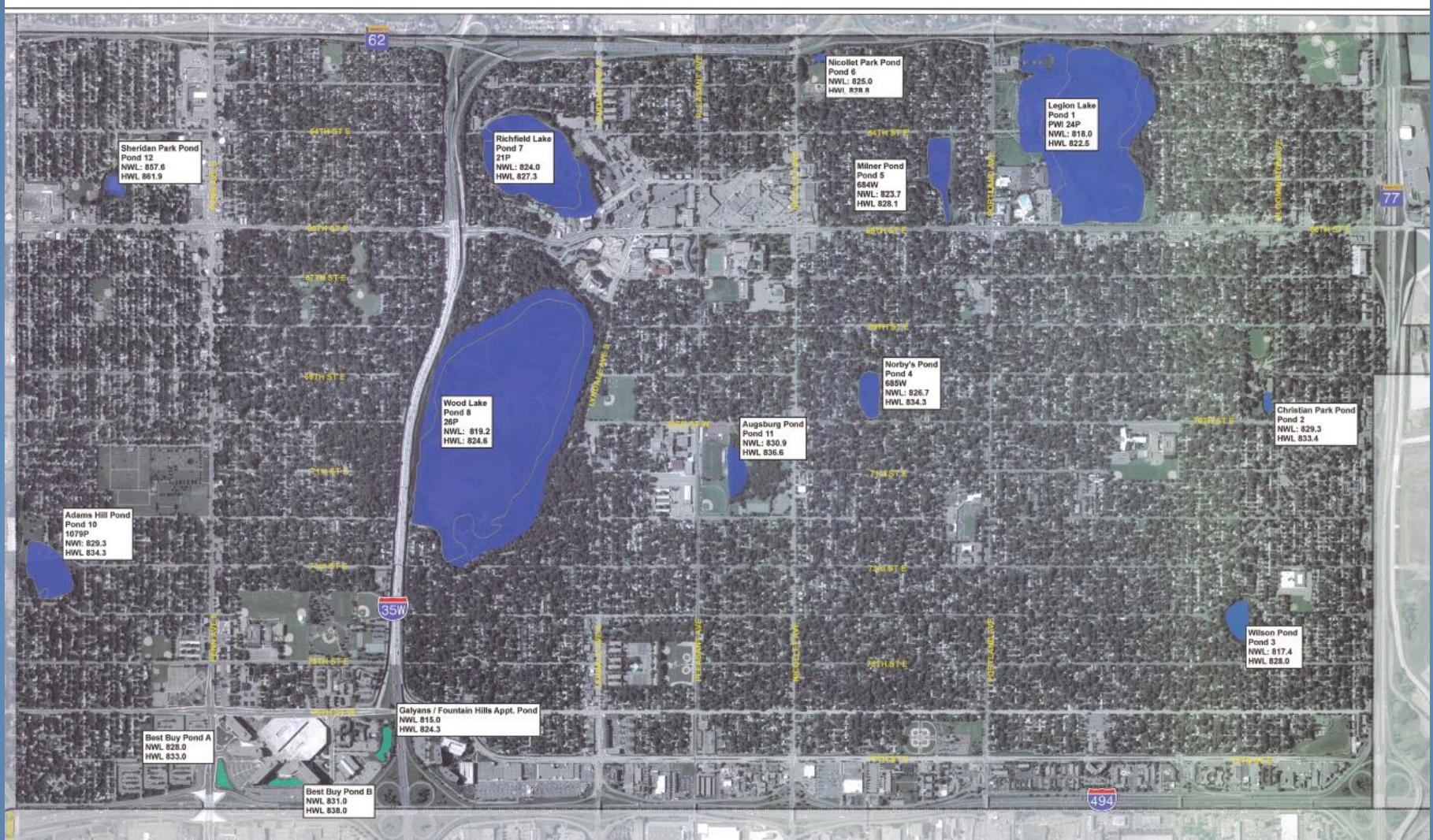


CITY SWMP

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 2 - Inventory



CITY SWMP

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



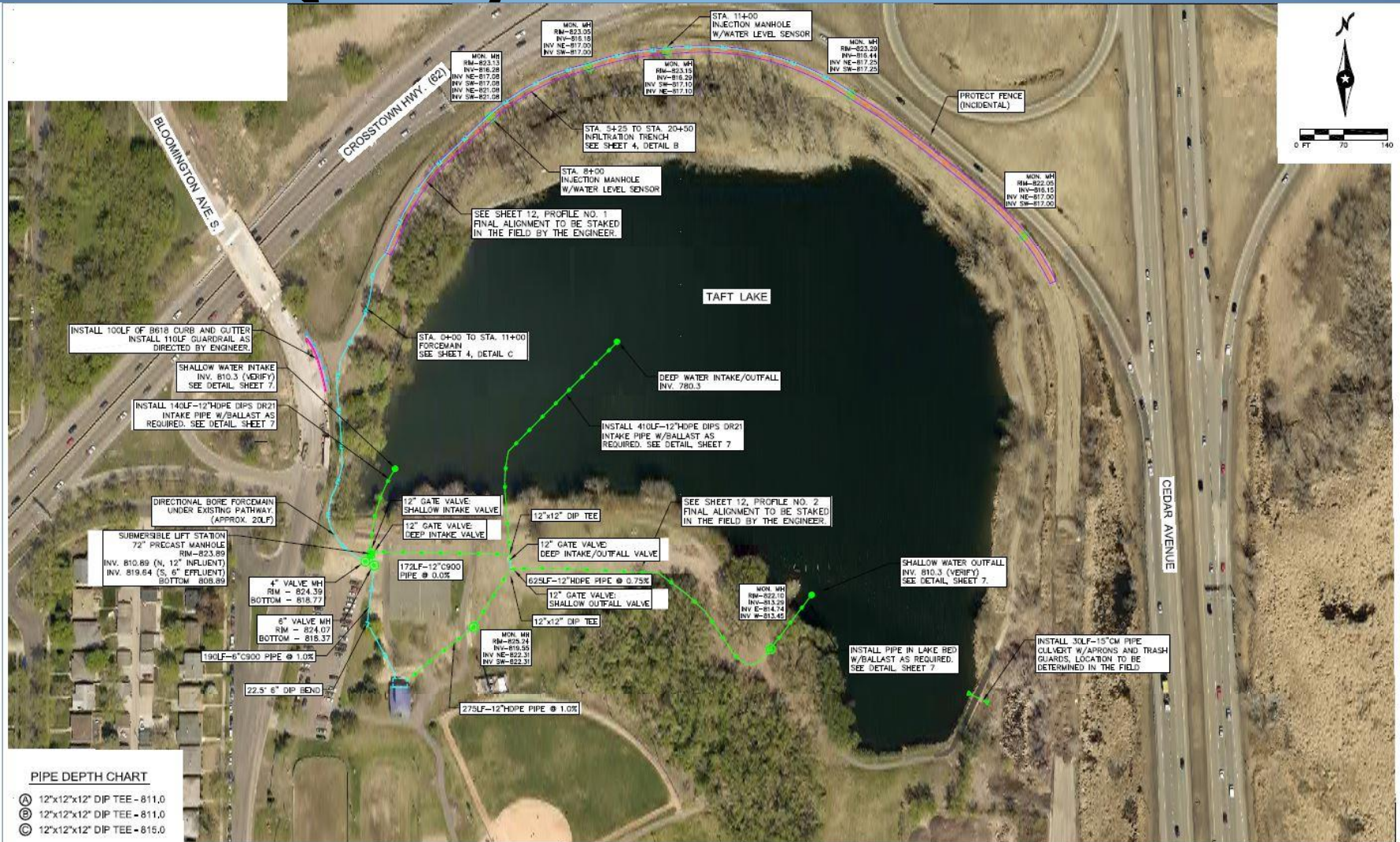
CITY SWMP

Water Quality



CITY SWMP

Water Quality



CITY SWMP

Water Quality



CITY SWMP

Water Quality



CITY SWMP

Water Quantity And Flood Risk



CITY SWMP

Water Quantity And Flood Risk



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.
- **Protect 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

- 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