Water Supply and Treatment Discussion

City of Minnetrista

June 19, 2021

Topics Covered

- Current South System and Water Plans
- Recent water usage & restrictions
- Impact of weather
- Supply and Infrastructure Trigger Charts
- Options to meet water demands
- Process to increase water output
- Messaging and Public Education

Current South System

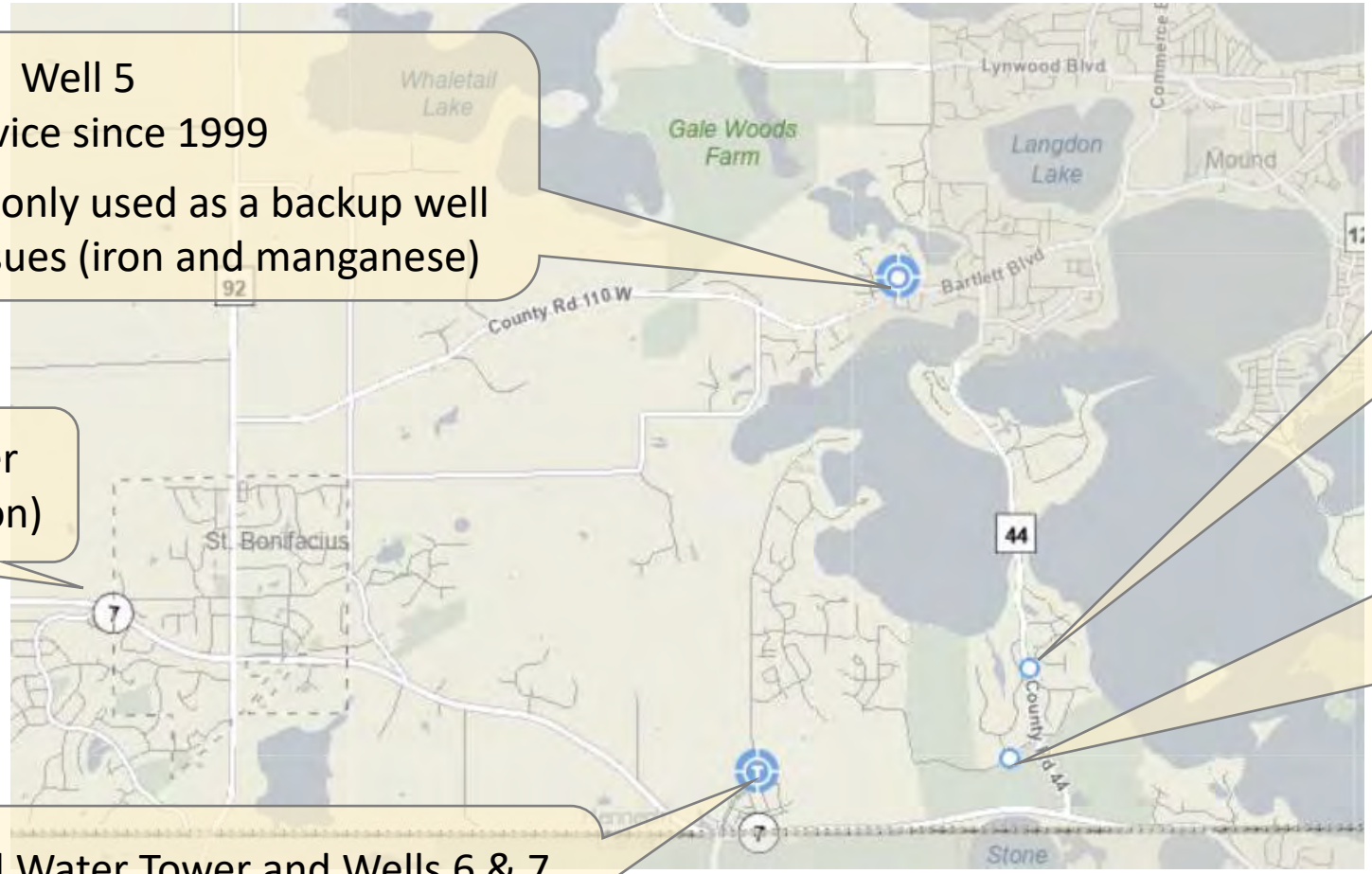
Well 5
In service since 1999

Beginning in 2017, only used as a backup well due to aesthetic issues (iron and manganese)

New Water Tower
(under construction)

Kings Point Road Water Tower and Wells 6 & 7

In service since 2017



Well 3
In service since 1980

Well 4
In service since 1995

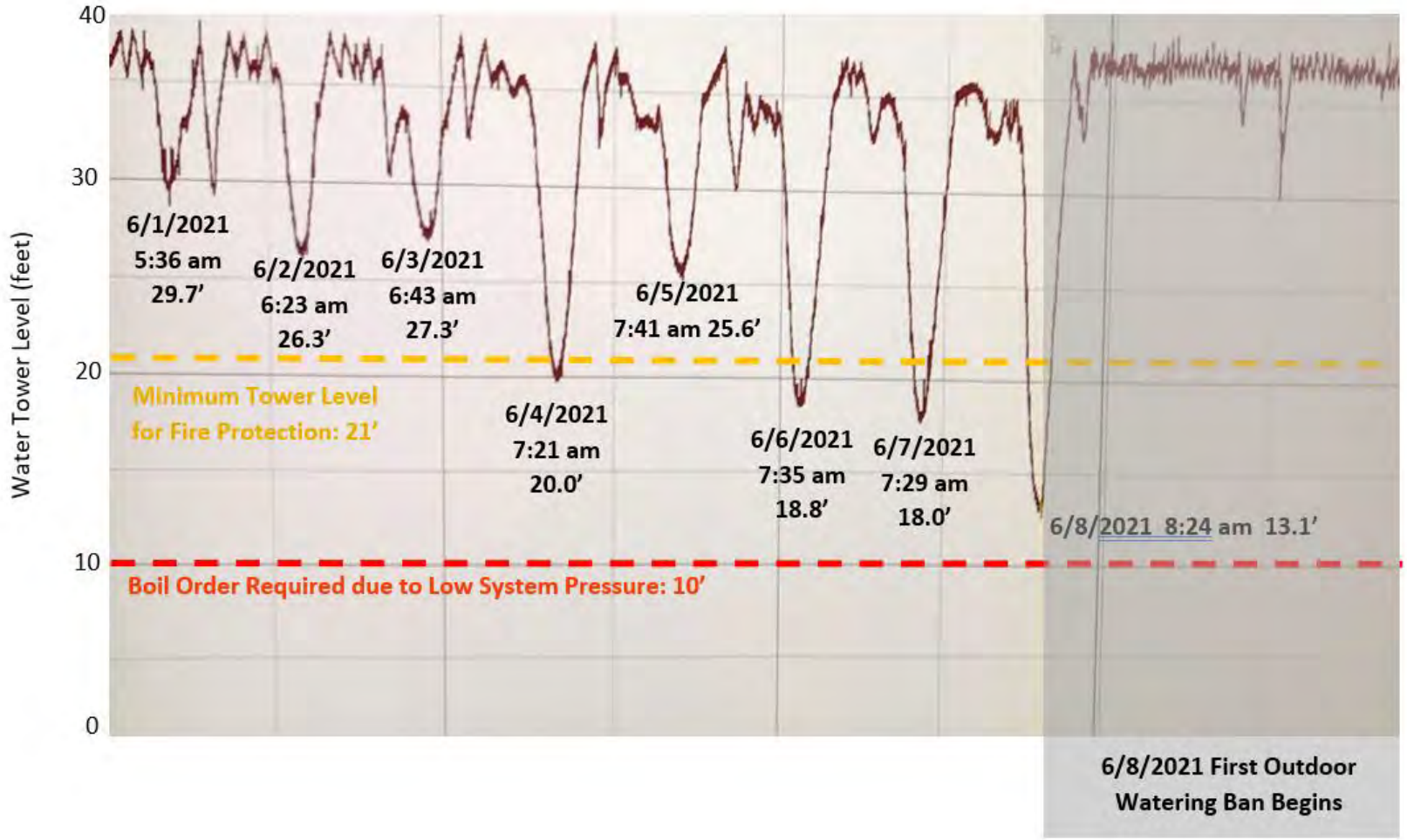
Beginning in 2017, only used as a backup well due to aesthetic issues (iron and manganese)

Water Plans

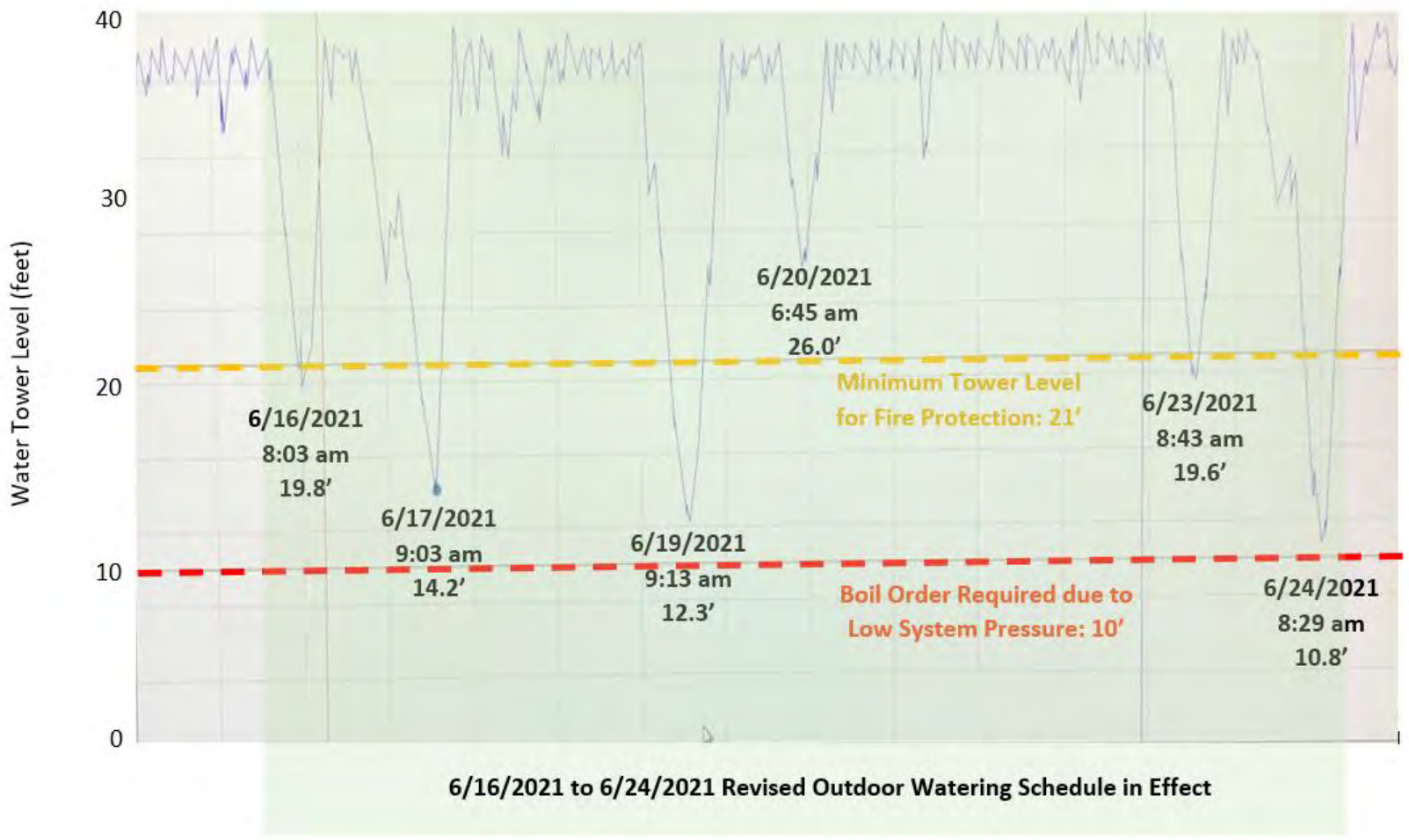
The City's Comprehensive Plan and the 2018 Water Supply Plan project the city's growth and identify system improvements necessary to keep up with demands

- Includes average demand- usage when there isn't any outdoor watering (ie winter, other times of the year with average precipitation)
- Includes peak demand which is typically due to irrigation
    - Use of Wells 4 and 5 were anticipated to meet peak demands, however there is high customer dissatisfaction when these wells aren't treated for iron and manganese
    - The ratio of maximum daily demand to average demand for May/June was 3.3. The DNR's objective is that this ratio be less than 2.6.
- Updated every 10 years

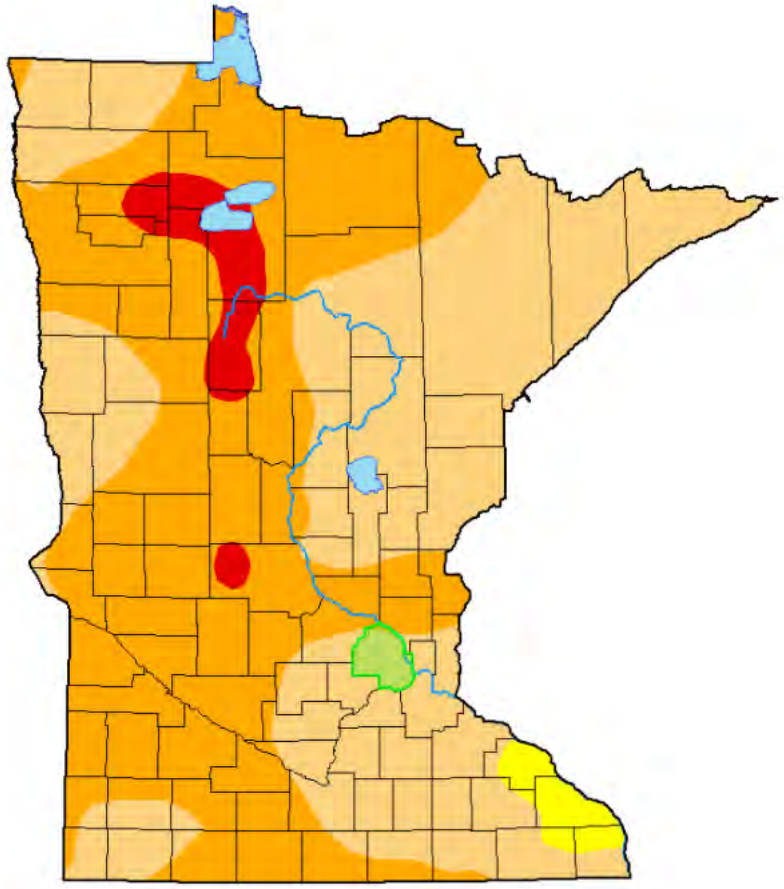
First Restriction: 6/8/2021



Revised Outdoor Water Schedule: 6/16/2021 to 6/24/2021



Drought Conditions



Map released: Thurs. July 15, 2021

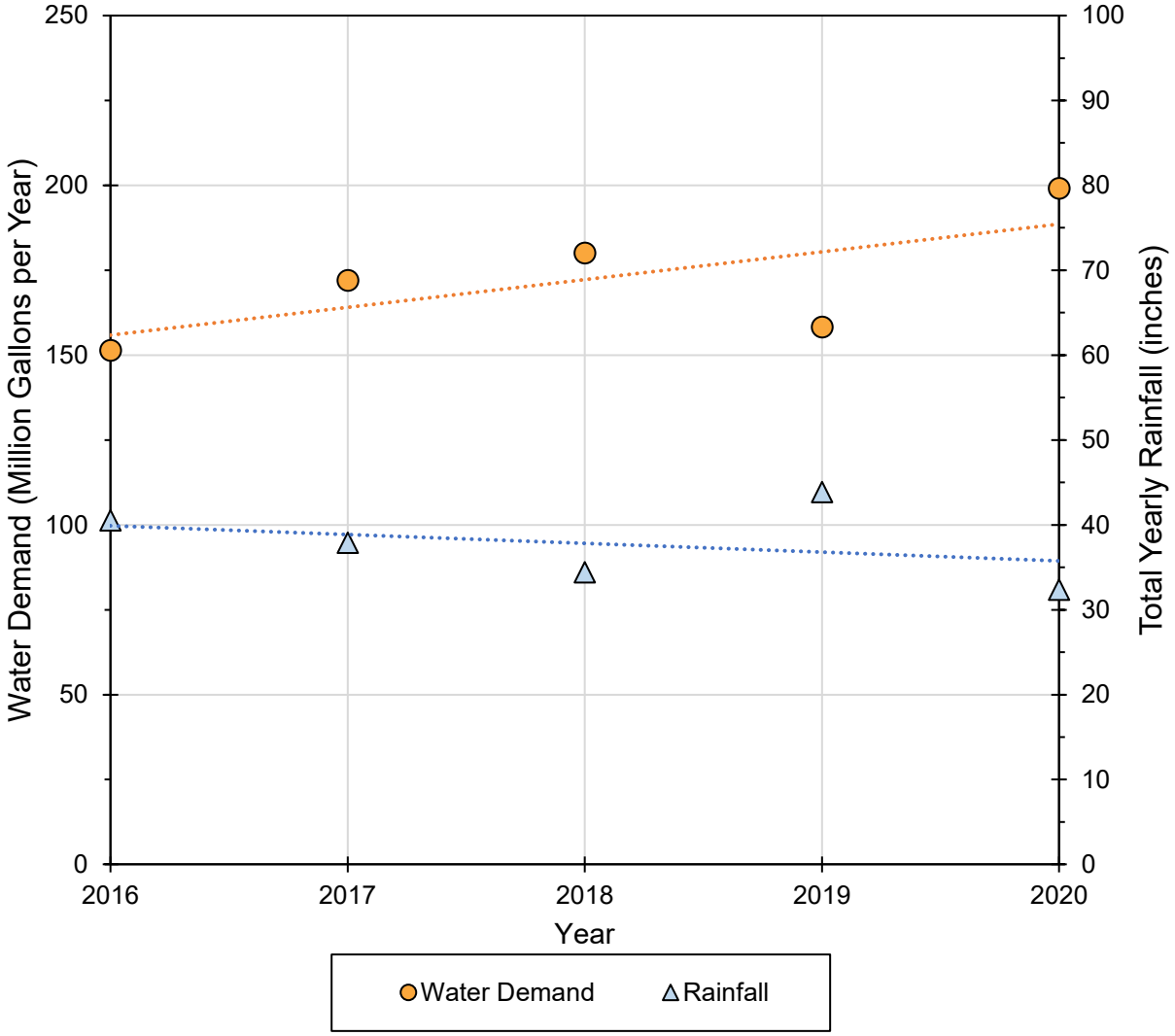
Data valid: July 13, 2021 at 8 a.m. EDT

Intensity

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

Data from https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?MN

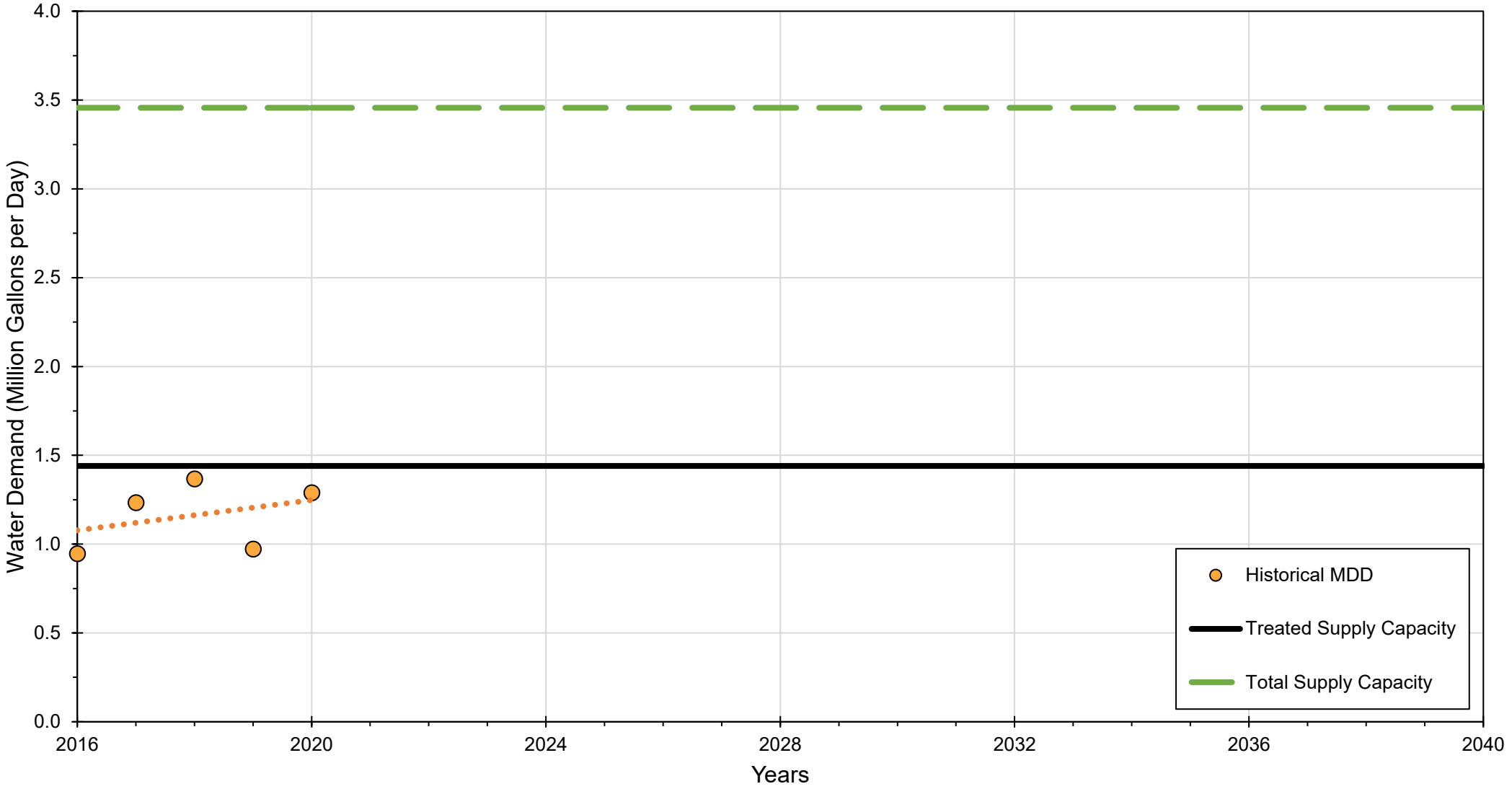
Impact of Rainfall on Water Demands



Water Demand Takeaways

1. Historical water demands have been volatile from year to year but follow a clear upward trend
2. The upward water demand trend is associated with population growth
3. Rainfall plays a major role in water demand volatility

Minnetrista South Water Distribution System
Water Supply and Treatment Trigger Chart



MDD: Max Day Demands

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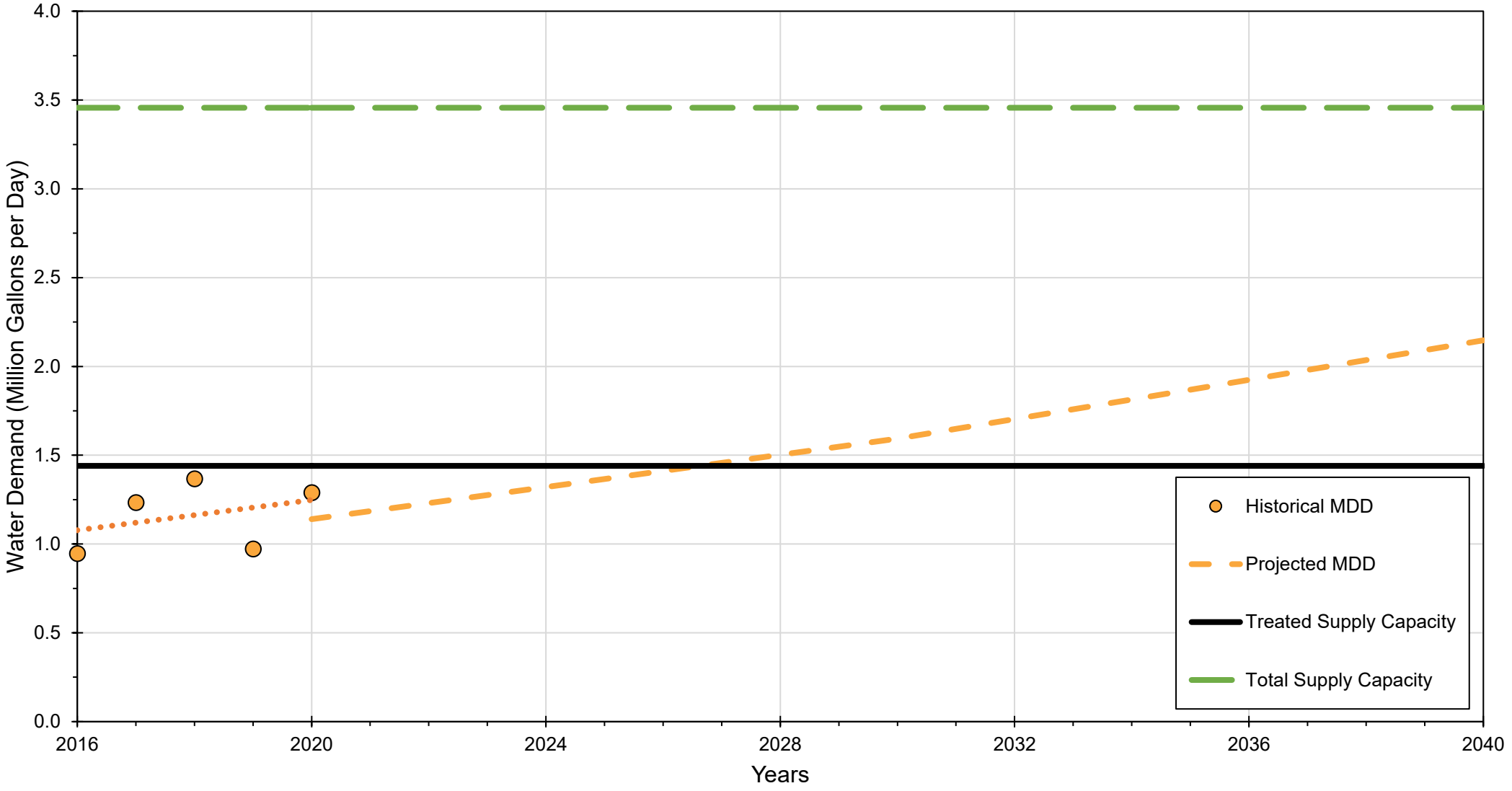

MDD: Max Day Demands

Options to Meet Water Demands

- Increase Treatment Capacity
- Increase Supply
- Messaging/Public Education with the goal of decreasing water demands

Increase Treatment Capacity

Alternatives Analysis Memo to Evaluate:

- Expand South WTP
- New WTP Near Existing Untreated Wells
- New WTP Near Future Southwest Wells

Increase Water Supply

Department of Natural Resources (DNR) & MN Department of Health (MDH) Process:

1) Test Well
   - Test Pumping (Capacity, Interference)
   - Water Quality Analysis

2) DNR Appropriation Permit Amendment
   - Water Level Monitoring Well
   - Well Construction Preliminary Assessment

3) MDH Plan Review
   - Preliminary Wellhead Protection Area Delineation

Typical timeline is 12 to 18 months (including construction)

Increase Water Supply

Communities are required to encourage water conservation by employing water use demand reduction measures before requesting a new well

MN State Statute 103G.291 Subd. 3 (c)

Public water suppliers serving more than 1,000 people must encourage water conservation by employing water use demand reduction measures, as defined in subdivision 4, paragraph (a), before requesting approval from the commissioner of health under section 144.383, paragraph (a), to construct a public water supply well or requesting an increase in the authorized volume of appropriation. The commissioner of natural resources and the water supplier shall use a collaborative process to achieve demand reduction measures as a part of a water supply plan review process

Messaging and Public Education

- *"Info on water-saving tips https://extension.umn.edu/lawncare/water-saving-strategies-home-lawns"*
- *"Established lawns need about 1" of water per week" https://minnesota.cbslocal.com/2017/06/19/gq-watering-your-lawn/*
    - Example: Irrigating half of a property that is 70' wide x 120' deep 1" per week would use ~10,000 gallons per month
- *"For houses with an established lawn the summer water usage should only be about 2.6 times higher than the winter usage."*
    - Use Utility Billing data to identify high volume users for a targeted education

Messaging and Public Education

Option to explore adjusting the Minnetrista Water Rates Schedule to disincentivize high volume users

RESIDENTIAL- CURRENT RATE STRUCTURE

Usage Tier	Base Rate	Usage Rate (per 1,000 gallons)	Cost for High End User
0 to 25,000 gallons	$30.74	$3.97	$129.99 (use 25,000 gal)
25,001 to 50,000 gallons	$30.74	$4.95	$278.24 (use 50,000 gal)
Over 50,001 gallons	$30.74	$6.34	$506.24 (75,000 gal)

Messaging and Public Education

Option to explore adjusting the Minnetrista Water Rates Schedule to disincentivize high volume users

COMMERCIAL- CURRENT RATE STRUCTURE

Usage Tier	Base Rate	Usage Rate (per 1,000 gallons)	Cost for High End User
0 to 80,000 gallons	$30.74	$4.21	$367.54 (use 80,000 gal)
80,001 to 150,000 gallons	$30.74	$4.91	$767.24 (use 150,000 gal)
Over 150,001 gallons	$30.74	$6.91	$1,620.04 (230,000 gal)

Messaging and Public Education

Option to explore adjusting the Minnetrista Water Rates Schedule to disincentivize high volume users

SCHOOLS- CURRENT RATE STRUCTURE

Usage Tier	Base Rate	Usage Rate (per 1,000 gallons)	Cost for High End User
0 to 700,000 gallons	$30.74	$4.21	$2,977.74 (use 700,000 gal)
700,001 to 900,000 gallons	$30.74	$4.91	$4,449.74 (use 900,000 gal)
Over 900,001 gallons	$30.74	$6.91	$8,322.74 (1,200,000 gal)

Questions?