



# Capital Project Funding Request

## Wellhead 4 Treatment

24 August 2021

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BUILDING A WORLD OF DIFFERENCE®

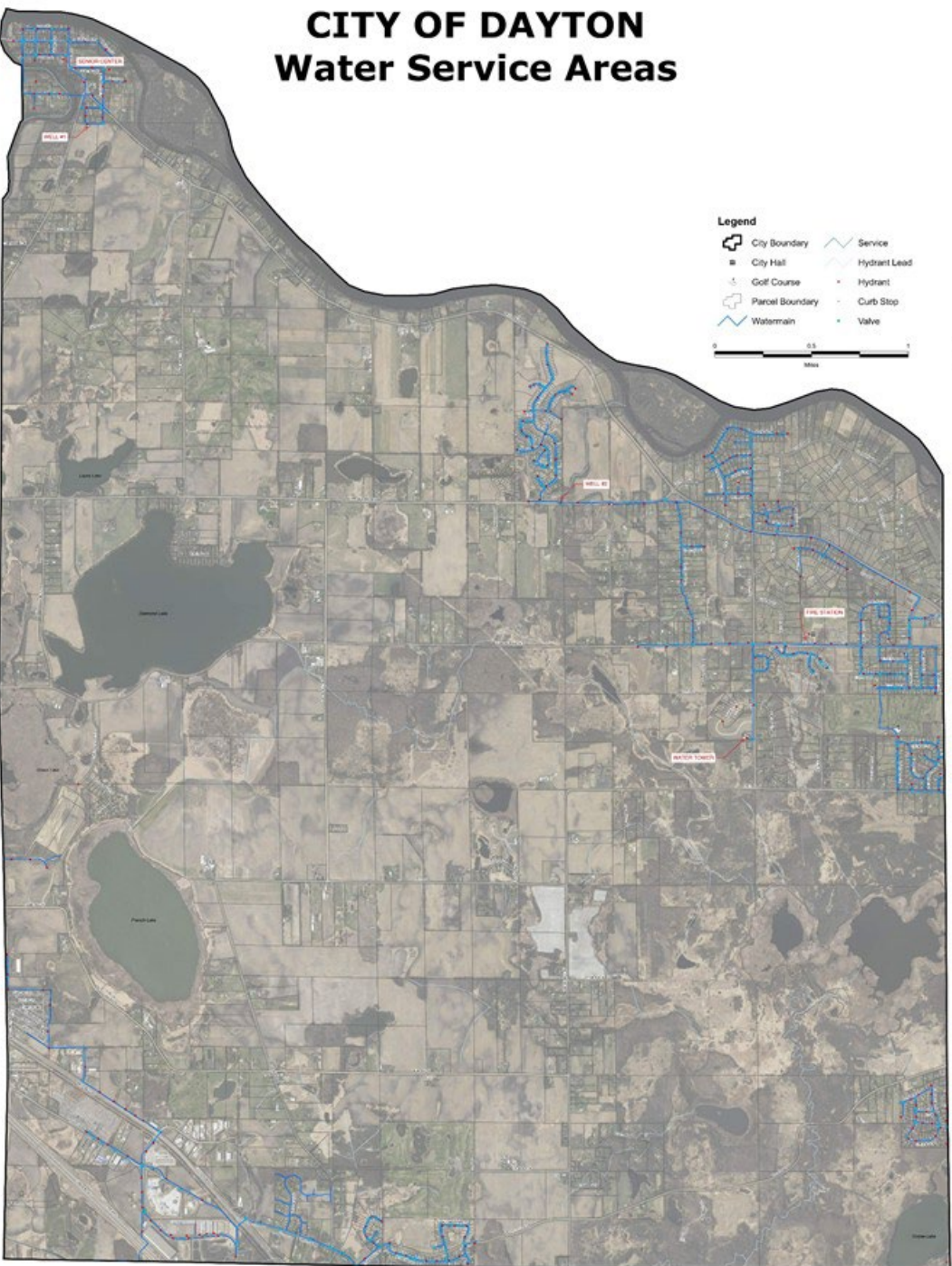


**BLACK & VEATCH**

# Water Supply



# CITY OF DAYTON Water Service Areas

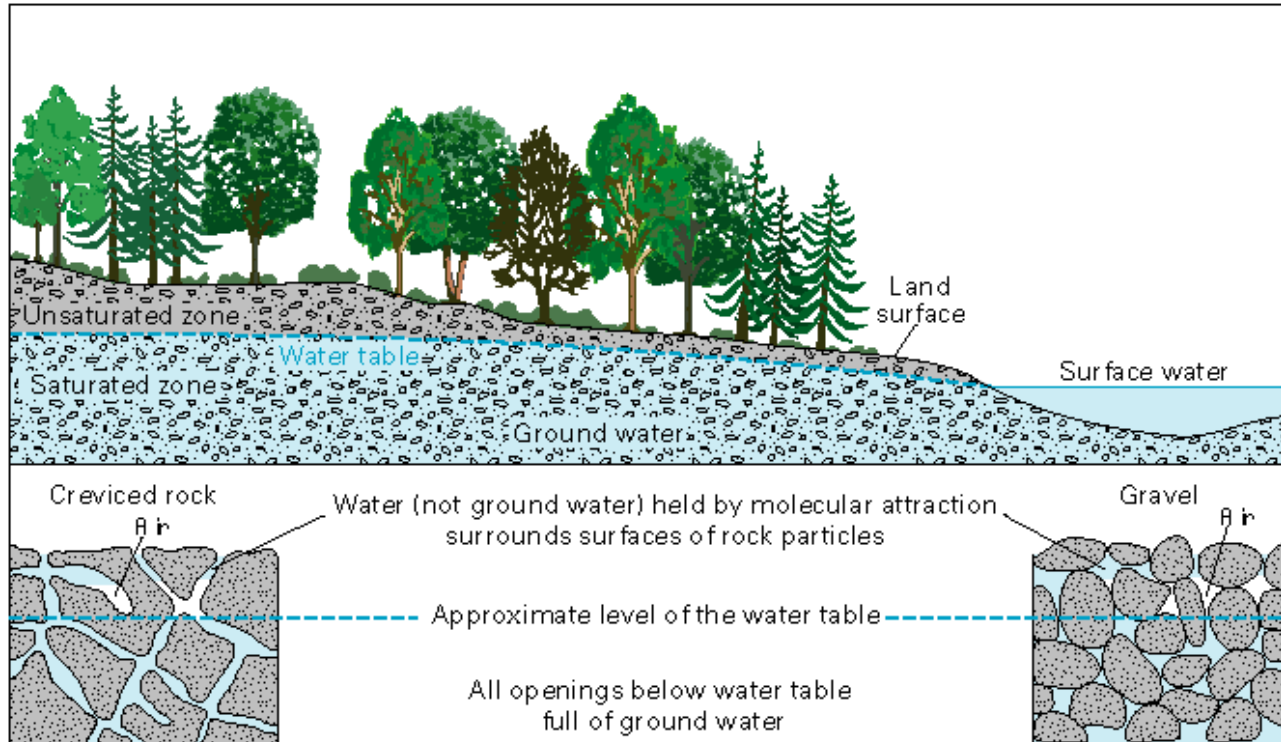


## Dayton's Current Water System

- Water Sources – Well Water + Bulk Purchase
- Well Water
  - Well #1 – Old Village
  - Well #2 – NE Dayton
  - Well #3 – Old Village (Backup)
  - Well #4 – NE Dayton (Under construction)
- Purchase Water from Maple Grove & Champlin



# Groundwater Chemistry



- Dissolved Minerals
  - Hardness & Alkalinity
    - Calcium/Magnesium
  - Dissolved Metals
    - Iron/Manganese
  - Other Minerals – Sodium, Sulfate, Chloride, Fluoride, etc.
- Nitrogen Source – Ammonia, Nitrite, Nitrate

Photo Source: USGS “Groundwater General Interest” Publication



# Primary Standards vs Secondary Standards

- **Primary Standard**

- Inorganic Chemicals – Nitrate, Nitrite, Lead, Copper, etc.
- Organic Chemicals – Benzene, etc.
- Microorganisms – Crypto, Giardia, Viruses
- Radionuclides
- Disinfectants/Disinfection By Product

MUST TREAT

- **Secondary Standards**

- Color
  - Red (Iron - Fe)
  - Black (Manganese - Mn)
- Odors – Rotten Egg/Swimming Pool
- Hardness
- Taste

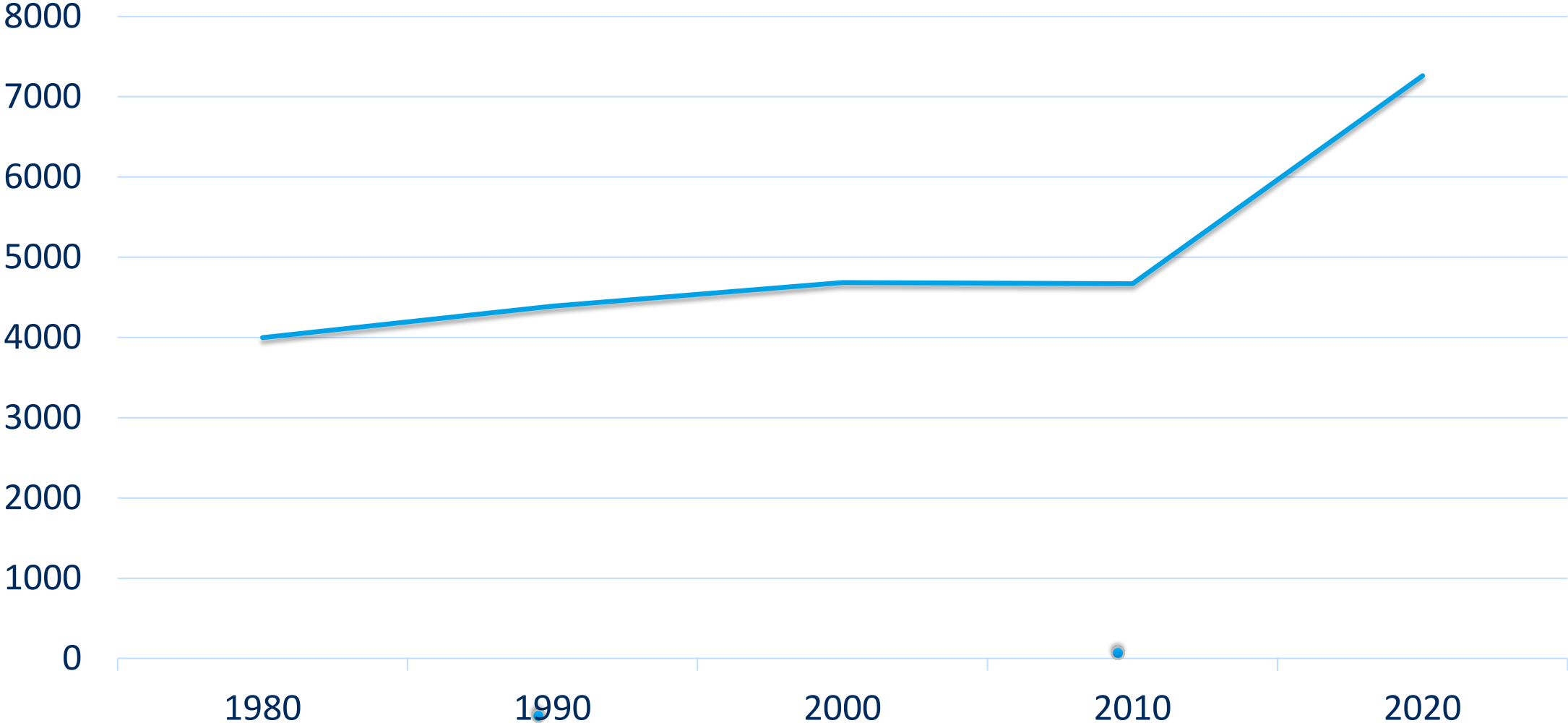
SHOULD TREAT



# Growth in Dayton

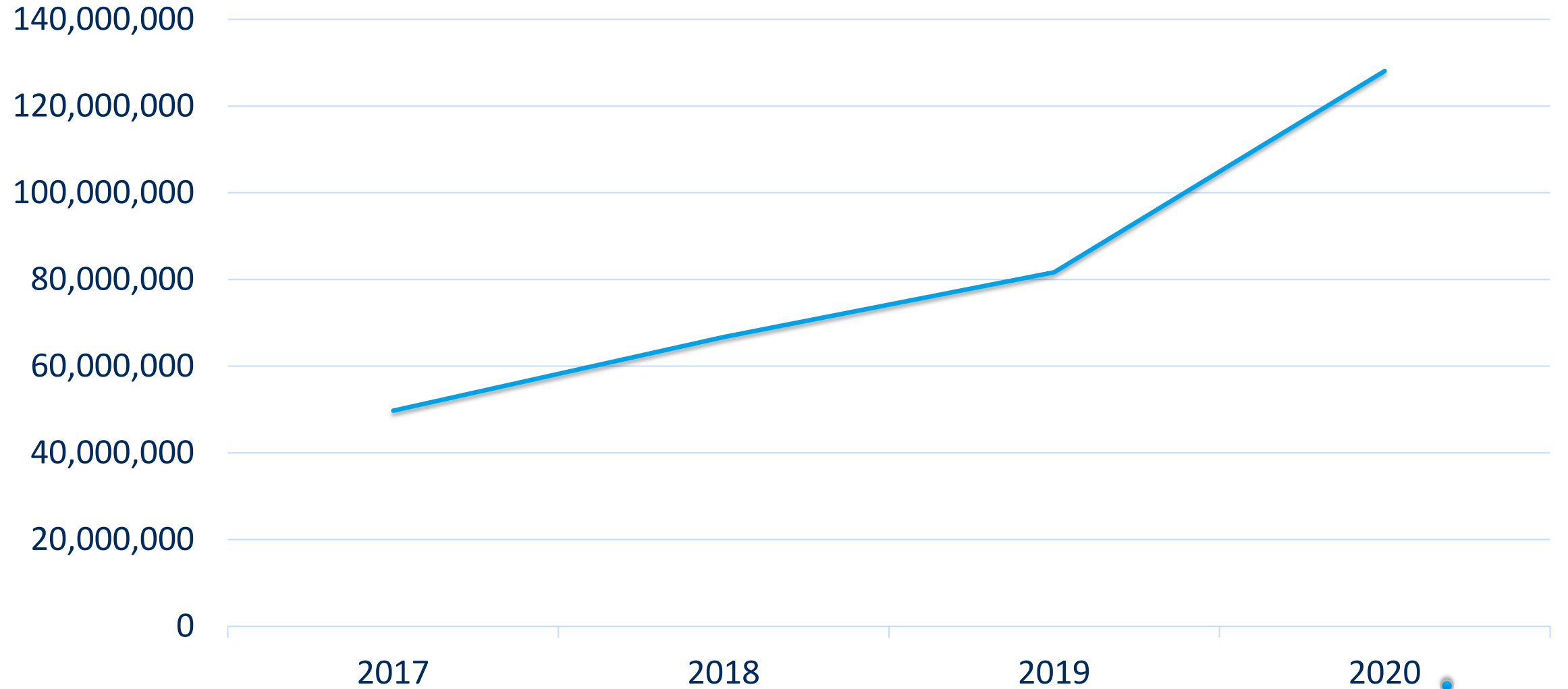


# Population





# Water Usage (gallons)

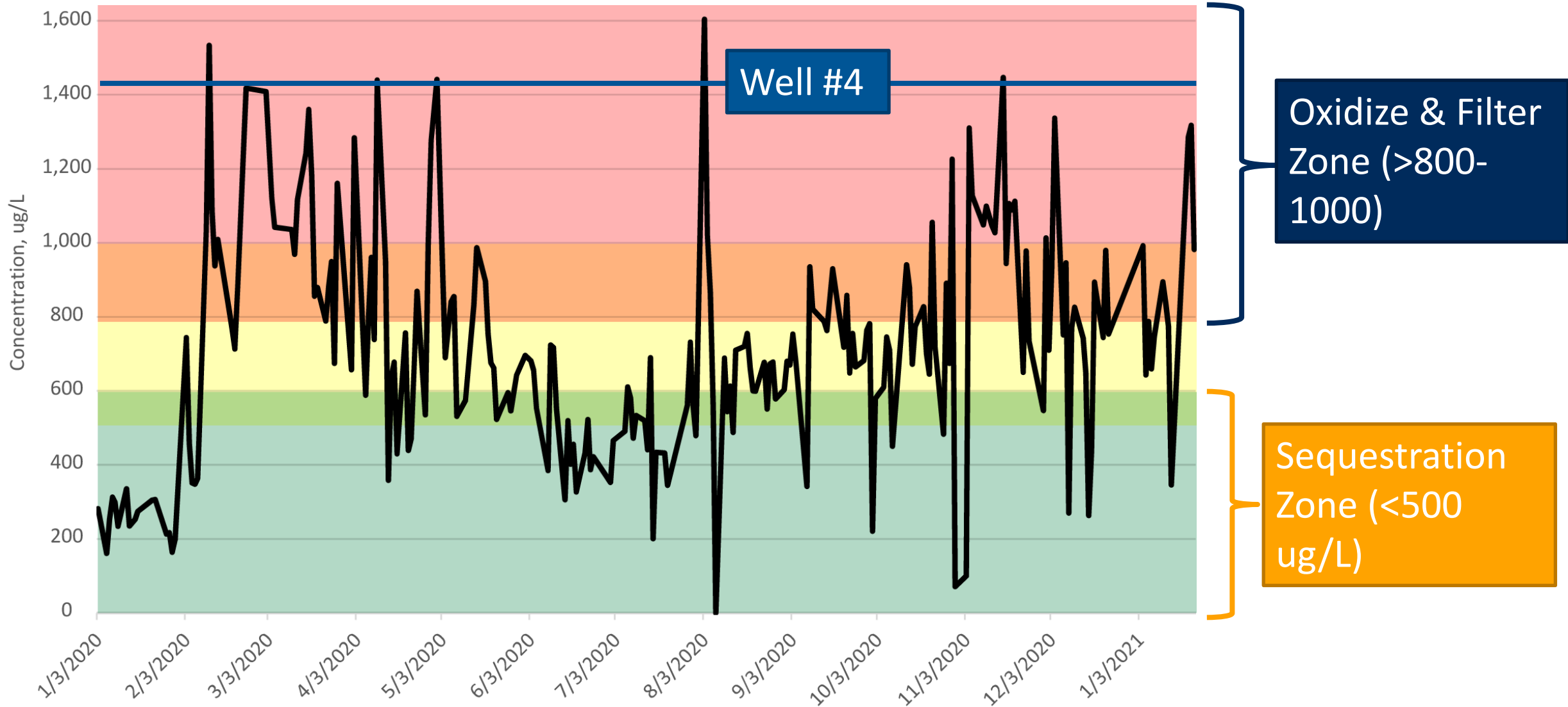




# Water Quality



# Iron & Manganese



Well #2 Data

# Water Quality Data

	Target (Secondary Standard)	Well #1 (Old Village)	Well #2 (NE System)	Well #3 (Old Village)	Well #4 (NE System)
Iron ( $\mu\text{g/L}$ )	300	1092	988	1123	1420
Manganese ( $\mu\text{g/L}$ )	50*	348	104	233	60

\*MDH Health Guidance indicates that for those less than 1 year a safe level of manganese is  $<100 \mu\text{g/L}$ . For others, it is  $<300 \mu\text{g/L}$

