



Updates on the Town's Drinking Water System

December 17, 2019

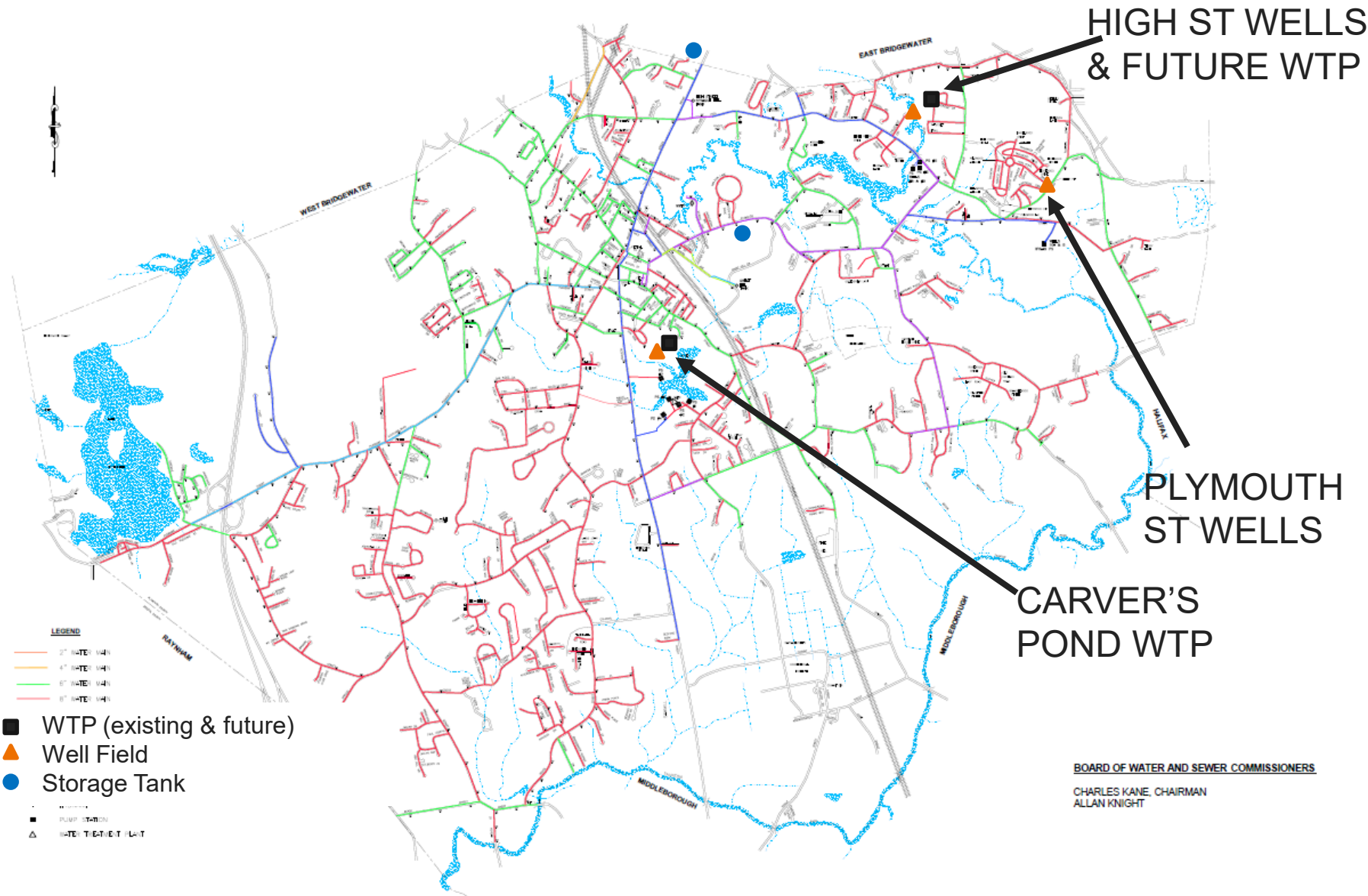




Agenda

1. Water Supplies in Town
2. Overview of Drinking Water Quality
3. Water Quality Regulations
4. What the Town is Doing
5. High St Water Treatment Plant Project

Where Does Your Water Come From?

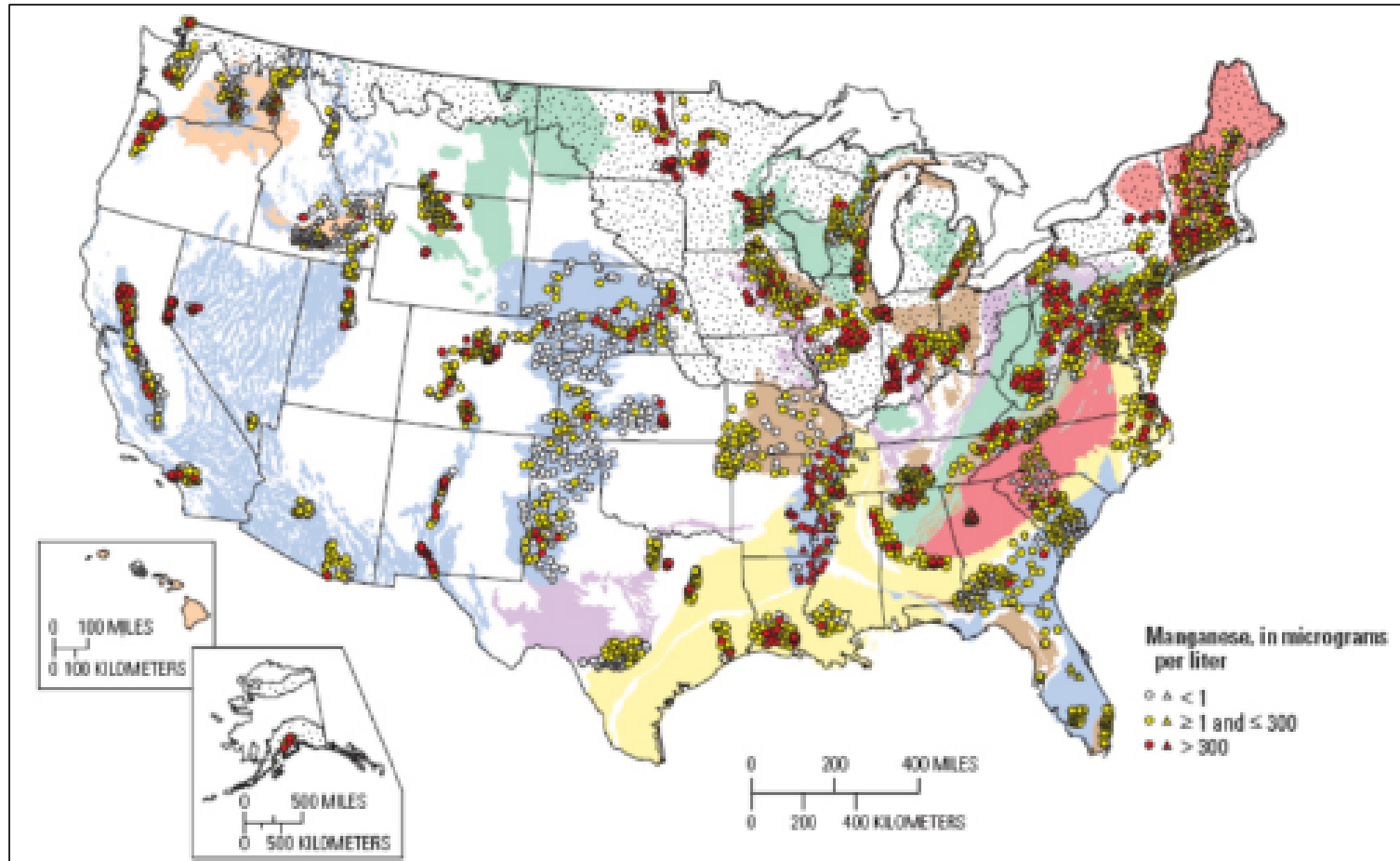


Sources of Color in Water

- Suspended or dissolved particles impart color
 - Minerals
 - Iron → red/brown “rusty” color
 - Manganese → black
- **Iron & Manganese** in groundwater is dissolved and colorless
 - When exposed to an oxidant (e.g. air or bleach) it turns into its particulate form, which imparts color to water

Iron & Manganese: Where Is It?

- Naturally occurring mineral in the Earth
- Commonly found in soils and groundwater of New England
- Natural component of most foods and is necessary for proper nutrition





How does iron & manganese get into my drinking water?

- Naturally in the groundwater
- Particles settle out of the water and build up as sediment in pipes
- Disturbance in the system (e.g., water main break, hydrant use, flushing) → sediment stirred up and drawn into home plumbing



Note: these are not photos of Bridgewater water mains

Iron and Manganese Impacts to Customers

- “Dirty” water ($\text{Mn} > 0.05 \text{ mg/L}$; $\text{Fe} > 0.3 \text{ mg/L}$)
- Brown/black stains on fixtures
- Laundry spots (when using bleach)
- Metallic taste (at very high levels)



Note: these are not photos from Bridgewater

Iron and Manganese Regulations

- EPA has "secondary maximum contaminant levels" for contaminants that are not considered a health risk but pose aesthetic concerns (e.g., taste, color, odor)
 - Iron: 0.3 mg/L
 - Manganese: 0.05 mg/L
- EPA has issued a Health Advisory for manganese due to neurological health effects:
 - Lifetime value: 0.3 mg/L
 - One-day and 10-day acute exposure: 1 mg/L
 - Infants < 6 months: 0.3 mg/L for lifetime & acute exposure
- Massachusetts follows EPA's guidance

What is the Town Doing to Address Water Quality Concerns?

- Current treatment of water includes:
 - Filtration plant at Carver's Pond (~50% of supply)
 - Chemical sequestration of iron & manganese at other wells
- Building a new filtration WTP to treat the High Street wellfield water (~40% of Town's supply)
- Annual Fall flushing to clean out pipes
 - Considering Spring flushing in the future
- Replacing water distribution pipes
 - Replacement of Wall St and Hayward Ave pipes in 2019
 - During construction water quality may be temporarily impacted due to hydraulic disturbances & flushing
- Developing 5-Year Capital Improvement Plan

High St WTP Project Summary

- Adds a new treatment facility to remove iron and manganese
- Supply water with iron & manganese levels lower than MassDEP health-based guidelines & secondary aesthetic goals
- High Street wells provide ~40% of the Town's water supply & distribution system results in blended water from all sources, therefore the entire Town population will benefit
- New generators to support emergency operation of all wells
- Rehab of old well houses at High Street



High St WTP Project Status

Design Services	Date
90% Design Submittal to Town	28-Oct-19
90% Cost Estimate Complete	18-Nov-19
90% Review Comments from MA DEP (estimated)	3-Jan-20
100% Design Submittal to Town (subject to receiving DEP comments)	22-Jan-20
Bidding Services	
File with Central Register	27-Jan-20
Publish Advertisement on Central Register (estimated)	5-Feb-20
Pre-Bid Meeting (estimated)	13-Feb-20
Sub Bids Due (estimated)	27-Feb-20
General Bids Due (estimated)	12-Mar-20
Contract Awarded (estimated)	26-Apr-20
Construction	
Construction Begins (at the latest)	30-Jun-20
Construction Ends (estimated)	31-Dec-21

