



City of Beaverton

Sterling Park Stormwater Recharge Project

ASCE-EWRG Lunch and Learn

June 24, 2020

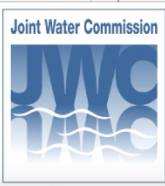
Jason Melady, RG, CWRE – GSI Water Solutions

David Winship, PE, CWRE – City of Beaverton





History and Background



2020 JWC Water Supply System

Total City Population: 98,255

US Bureau of Reclamation
Hagg Lake/Scoggins Reservoir
53,000 AF



USBR Springhill Pumping Plant

Fern Hill 20 MG
Reservoirs
Nos. 1 & 2

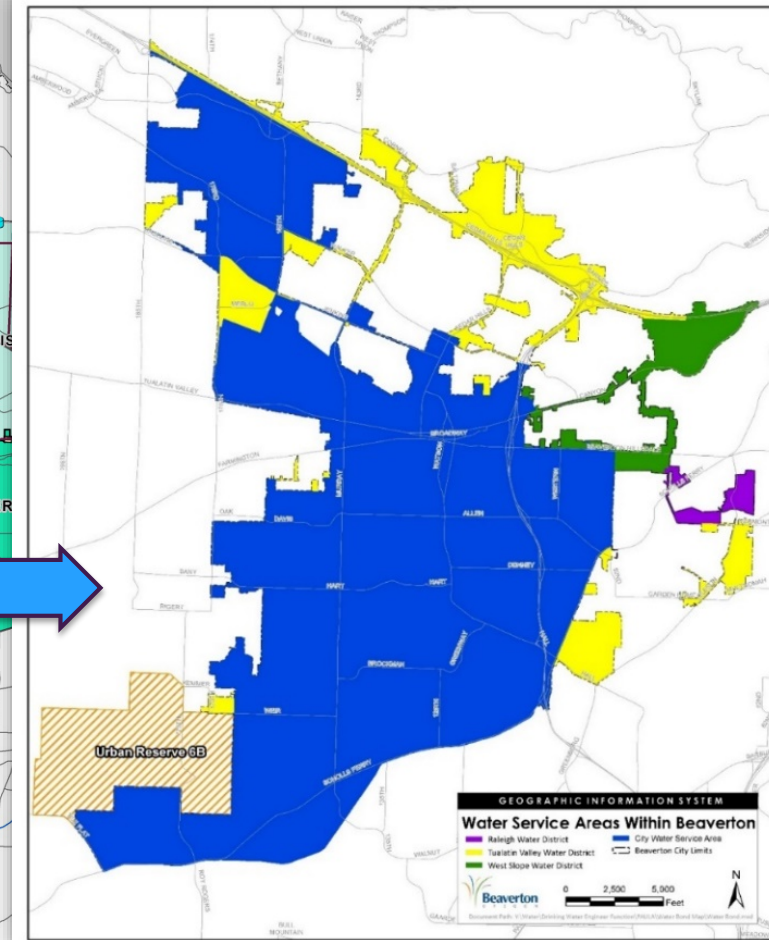


STL - 20 miles to Beaverton

Barney Reservoir
20,000 AF



JWC Water Treatment Plant



2019

ADD 9 mgd PDD 15.8 mgd

2020 - Beaverton's Water Supply System

75% of City's summer water (up to 14 mgd) - Surface Water
ASR 25% summer water (up to 5 mgd) - Potable ASR/Groundwater

Beaverton ASR Program

- Successfully operating ASR wells since 1998.
- Two active ASR wells (ASR 2, ASR 4), 5 mgd capacity
- Currently in ASR expansion phase on a path for up to three future facilities to serve growth, manage emergencies, and create resiliency.

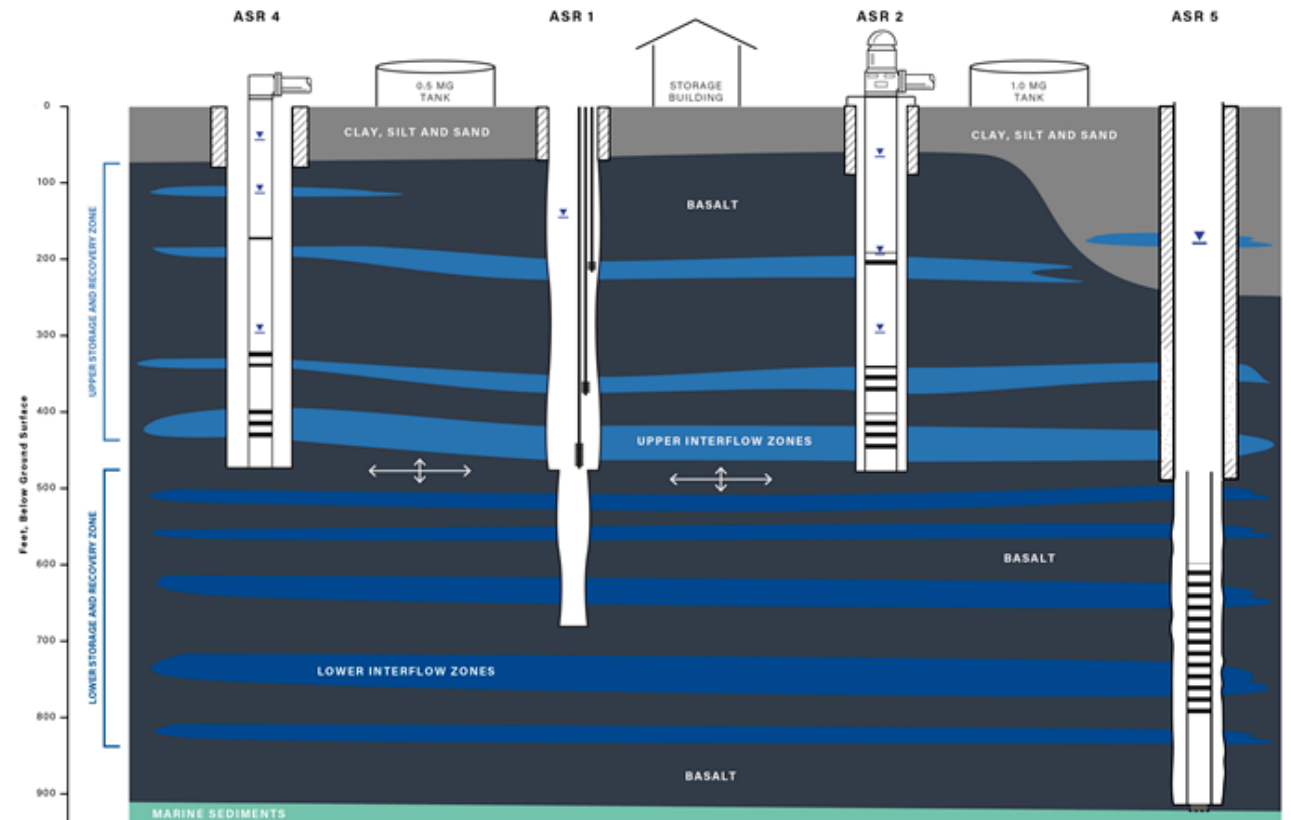
- Potable ASR 5 – 2 mgd (2021)
- Potable ASR 7 - 1.4 mgd (2021)
- Non-potable ASR 3 – injection well
- Non-potable ASR 3A – ~1 mgd pump well



2001 - ASR 2
2 mgd

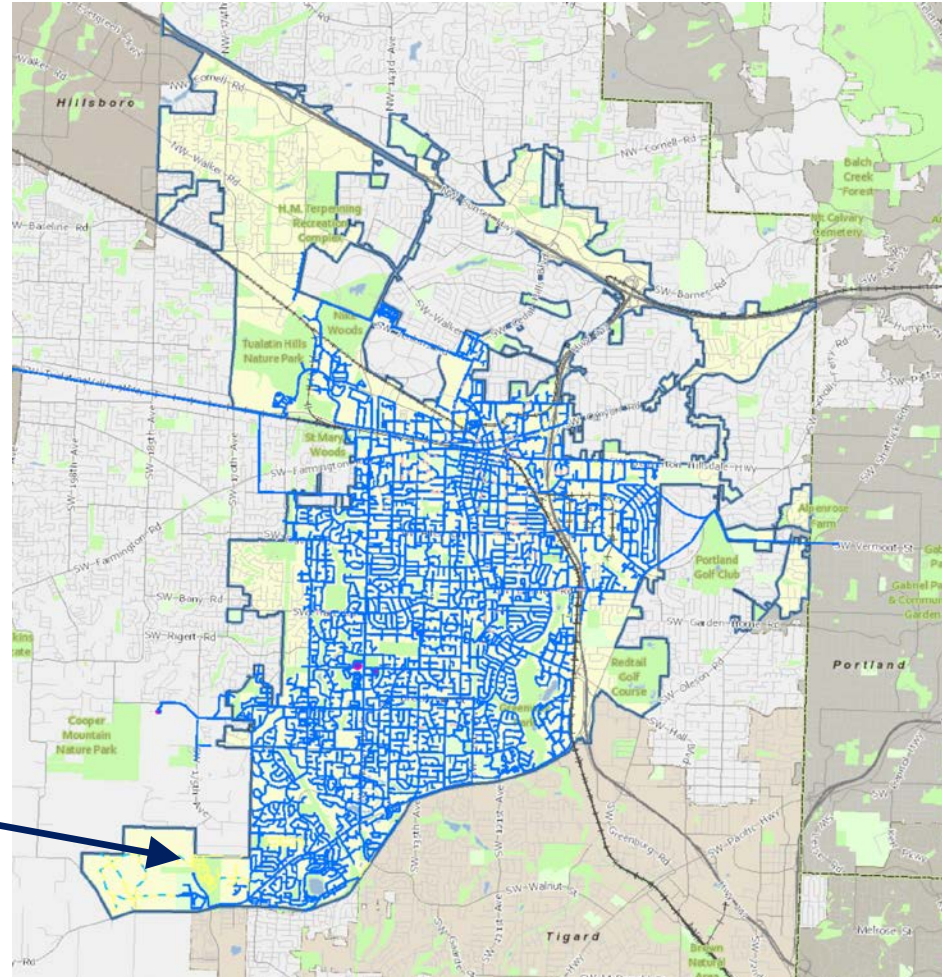
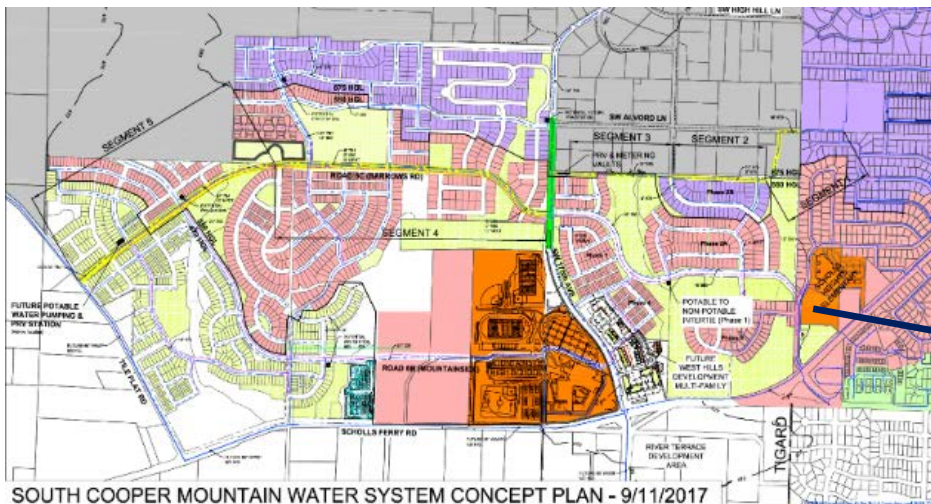


2007 - ASR 4
3 mgd

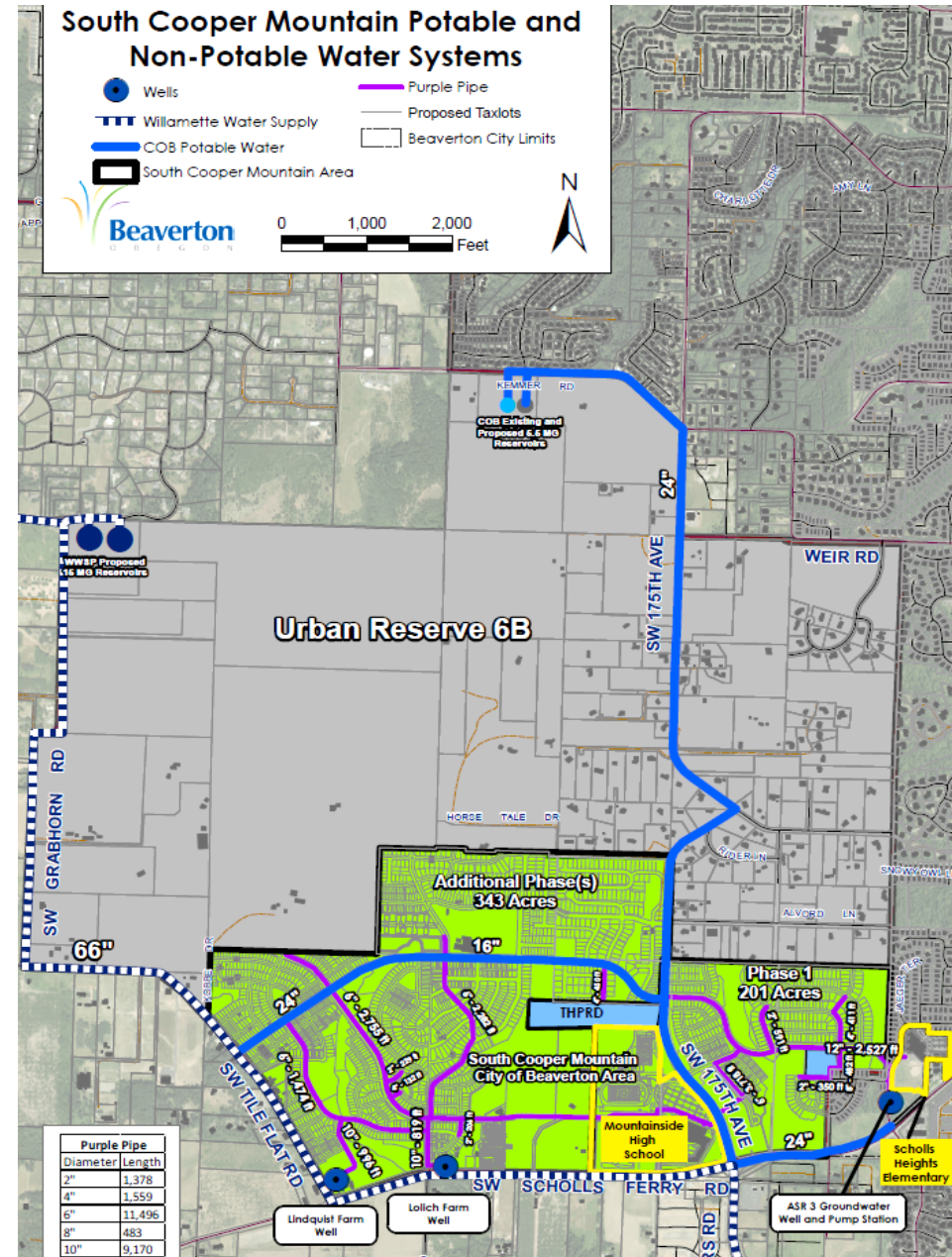


South Cooper Mountain

Annexed in 2013: 544 acres, 3,500 new homes,
2,200-student high school and future elementary school



South Cooper Mountain Mountain Development



544 Acres Annexed to The City in 2013 - 3,500 New Homes; 2,200 Student High School, Future Elementary School; future 1,200-acre expansion area: Total 16,000 future residents

Why a Non-potable (Purple Pipe) System?

- Summer potable water demand is 60% higher than winter demand due to irrigation and outdoor use.
- Water source and treatment is up to 40 and 20 miles away, respectively.
- High peaking demands for irrigation requires additional capacity for storage and pump stations for the potable system.
- **Turf, plants, and trees don't need chlorinated/fluoridated drinking water**
- Non-potable system reduces/postpones timing for new potable supply needs
- Reduced peak demands on potable system frees up capacity in storage and pump stations for fire protection, emergency outages, and interruptions



Non-Potable Water System

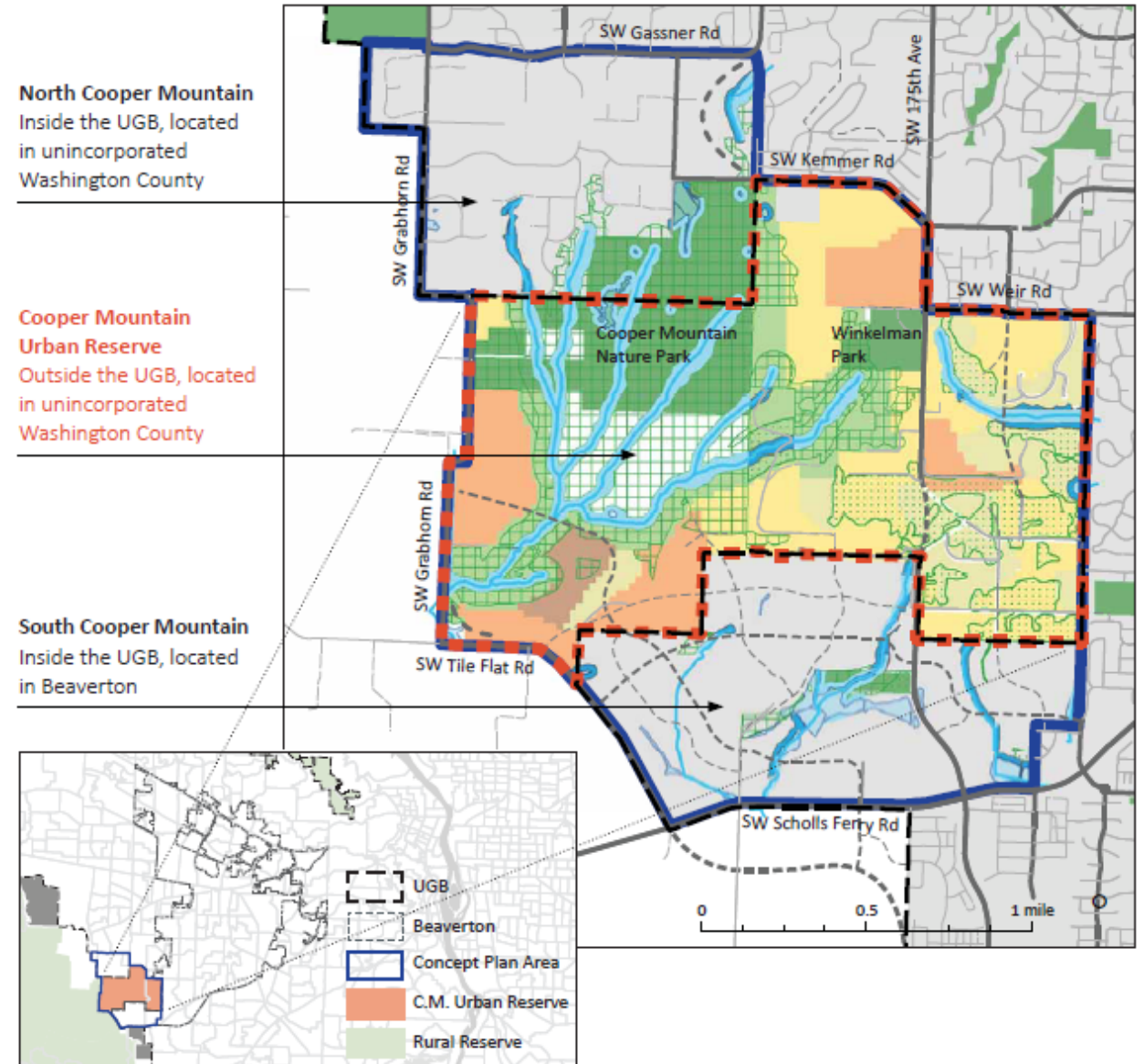
ASR 3 at Sterling Park

- Groundwater is not suitable for direct potable use because of water quality aesthetics
- Location is attractive as source for irrigation (non-potable) for newly developing South Cooper Mountain Area



Greater Opportunities with City's Expansion

- SCM set the stage for decision of expanding the non-potable system
- Larger new customer base (3,800 homes and 9,000 people)
- SCM was clean slate for new development and infrastructure. Urban Reserve has both vacant and partially developed lands.
- Further conserve and postpone expansion of potable infrastructure





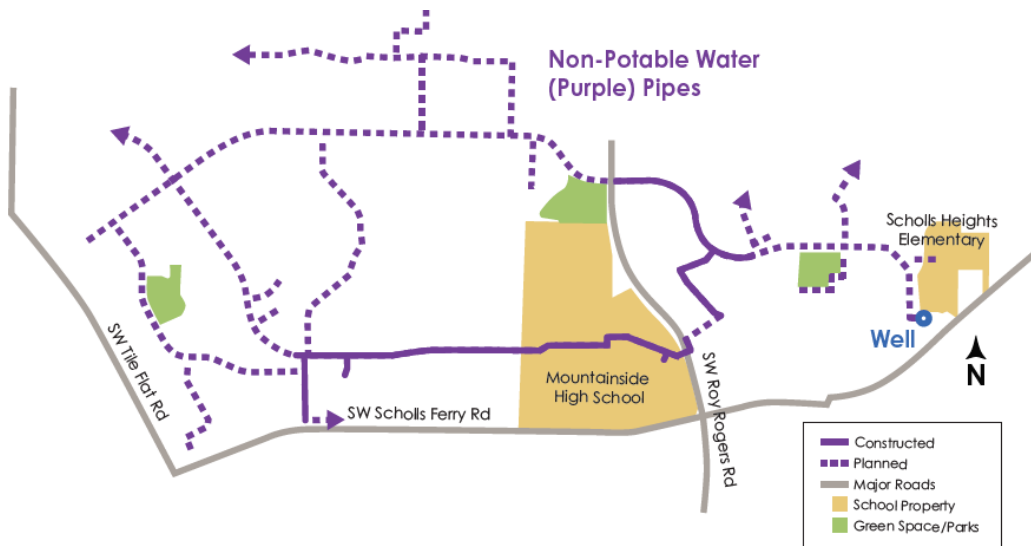
Initial Program Management Focus

1. Outreach and Education
2. Formation of New Utility – Ordinance
3. Formation of New Utility – SDC

Outreach and Education

BEAVERTON PURPLE PIPE

Connecting the right water with the right uses.



UTILITY ORDINANCE: Metering

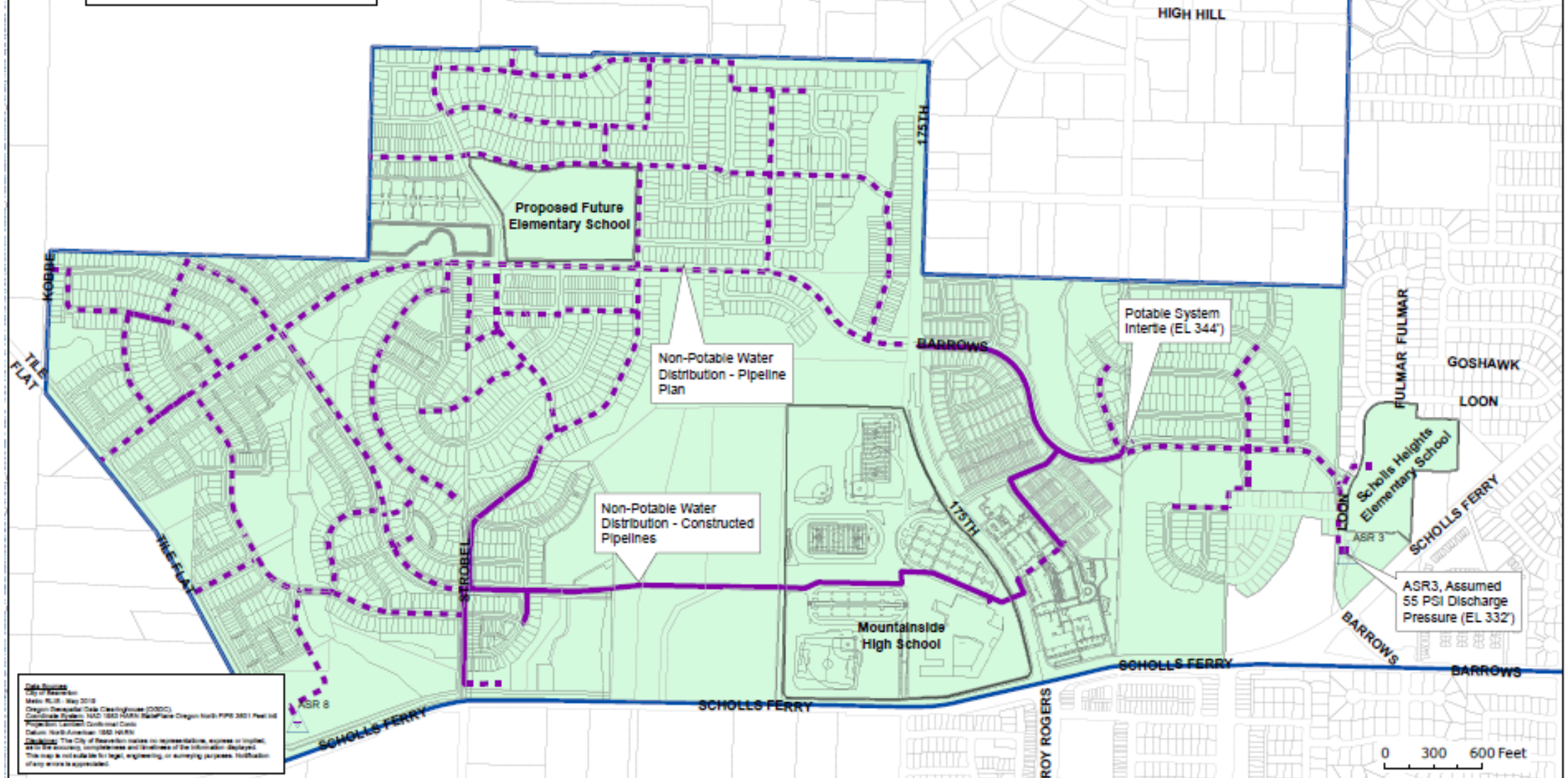
Connection and Metering:

- The purple pipe system is to be a “parallel system” to the potable system to provide certainty for construction, billing and administration, account set up with the end users, and service availability.
- Each property is required to have a non-potable meter, *separate* from the potable water meter (i.e. dual meters).



Non-Potable Irrigation System Plan

- City of Beaverton - City Limits
- Taxlots
- Non-Potable Water System Service Area
- Non-Potable Pipe**
 - Constructed
 - Planned



Data Source:
City of Beaverton
Main: RUS - May 2018
Oregon Topographic Data Clearinghouse (OTDC)
Coordinate System: NAD 1983 North StatePlane Oregon North FIPS 3601 Feet S83
Projection: Lambert Conformal Conic
Datum: North American 1983 datum
Disclaimer: The City of Beaverton makes no representation, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, or surveying purposes. Notification of any errors is appreciated.



City of Beaverton Non-Potable Water System
Utility Service Area

South Cooper Mountain
Service Area



Stormwater Treatment and Recharge

Stormwater to Augment Non-potable Supply

- City partnered with CWS to conduct a feasibility study with OWRD grant
- Benefits of the concept:
 - Enhance groundwater supply
 - Reduce runoff
 - Mitigate flow and temperature issues to local streams
 - Reduce surface water demand
 - Increase capacity to stormwater infrastructure

ASR at Sterling Park

Groundwater Restricted Areas in Oregon

