

HERMISTON CITY COUNCIL

Work Session

November 13, 2018

Mayor Drotzmann called the work session meeting to order at 6:00pm. Present were Councilors Gutierrez, Hardin, Primmer, Smith, Myers, Barron, and Davis. Councilor Kirwan was absent. Staff members in attendance were City Manager Byron Smith, City Attorney Gary Luisi, Chief Edmiston, Clint Spencer, Mark Morgan, Mark Krawczyk, Roy Bicknell, Nate Rivera (arrived at 6:24pm), and Lilly Alarcon-Strong.

Water System Master Plan

Anderson Perry Associates, Dave Wildman and Chas Hutchins, presented the Council with information regarding the Water System Master Plan (PowerPoint Presentation attached). Mr. Wildman stated the City is required by the State of Oregon to have a water system master plan. Besides having the plan, each city must review and submit for approval, to the state, a new plan every 20 years. The planning document must include water supply and storage and projecting growth rates, among other things.

Mr. Wildman and Mr. Hutchins gave information regarding:

- System overview
- Monthly production of combined well sources monthly production
- The amount of water each well is producing
- Costs involved with pumping each well
- Critical ground water area
- Current and projected water capacity and water rights
- Regional Water System- its usage and costs compared to the city's well usage

Nate Rivera arrived at 6:24pm

- Improving pump stations throughout the city
- Constructing a water treatment facility adjacent to the existing Recycled Water Treatment Plant
- Development of a water management and conservation plan
- Additional basalt and alluvial well capacity and the difference between each
- Water storage improvement options and upgrades with other water systems
- Distribution system and pressure zones and how power outages impact the water flow
- Prioritization and estimated costs of water system capital improvements

Mr. Wildman stated Anderson Perry will continue working on the draft plan and return to the Public Infrastructure Committee prior to submission and presentation of the final draft to the City Council.

Mayor Drotzmann ended the work session at 6:56pm. The Councilors took a short recess before the regular City Council meeting convened at 7:00pm.

Water System Master Plan City Council Work Session

Dave Wildman, P.E.

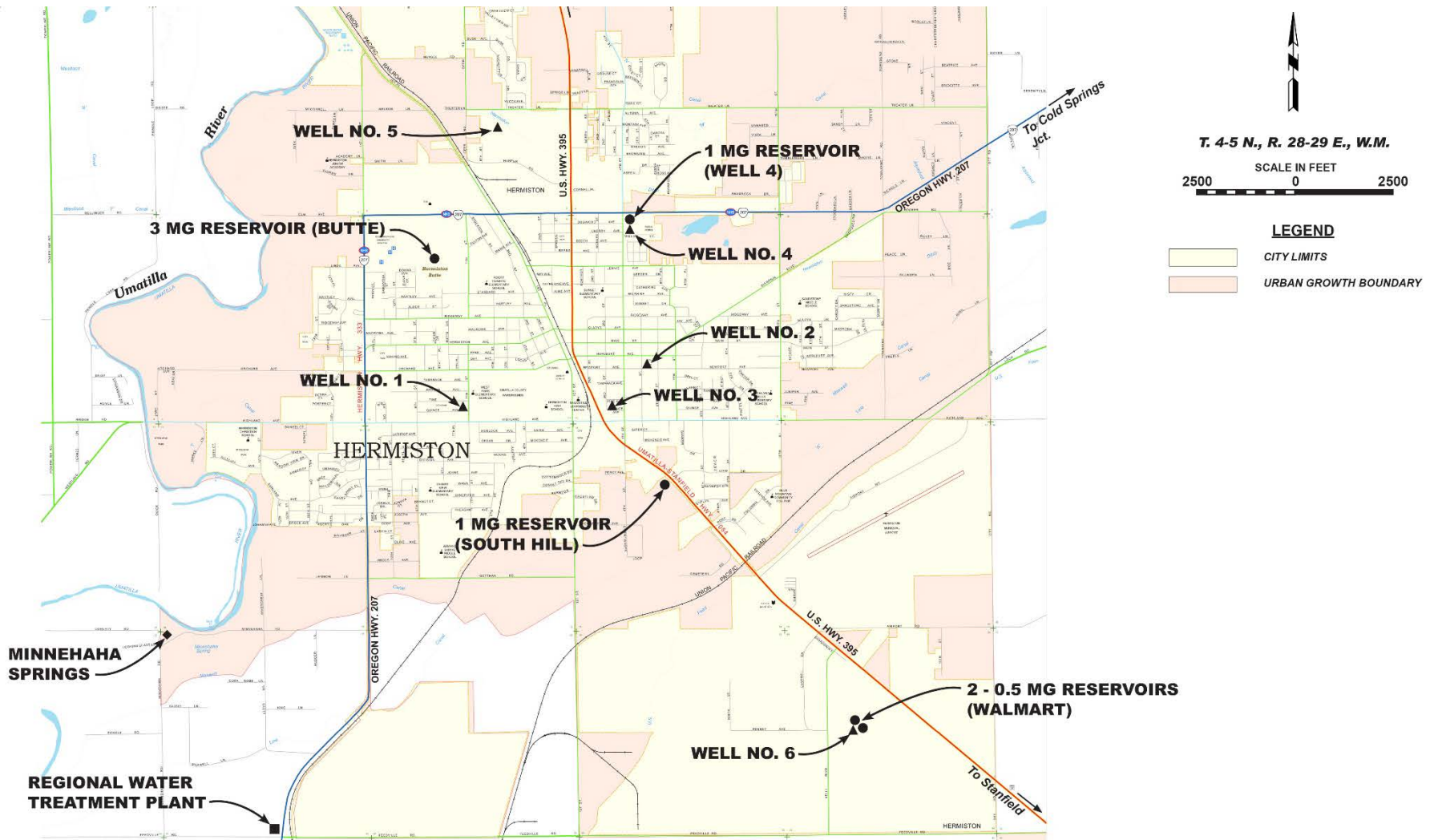
Chas Hutchins, P.E.



Where Life is Sweet



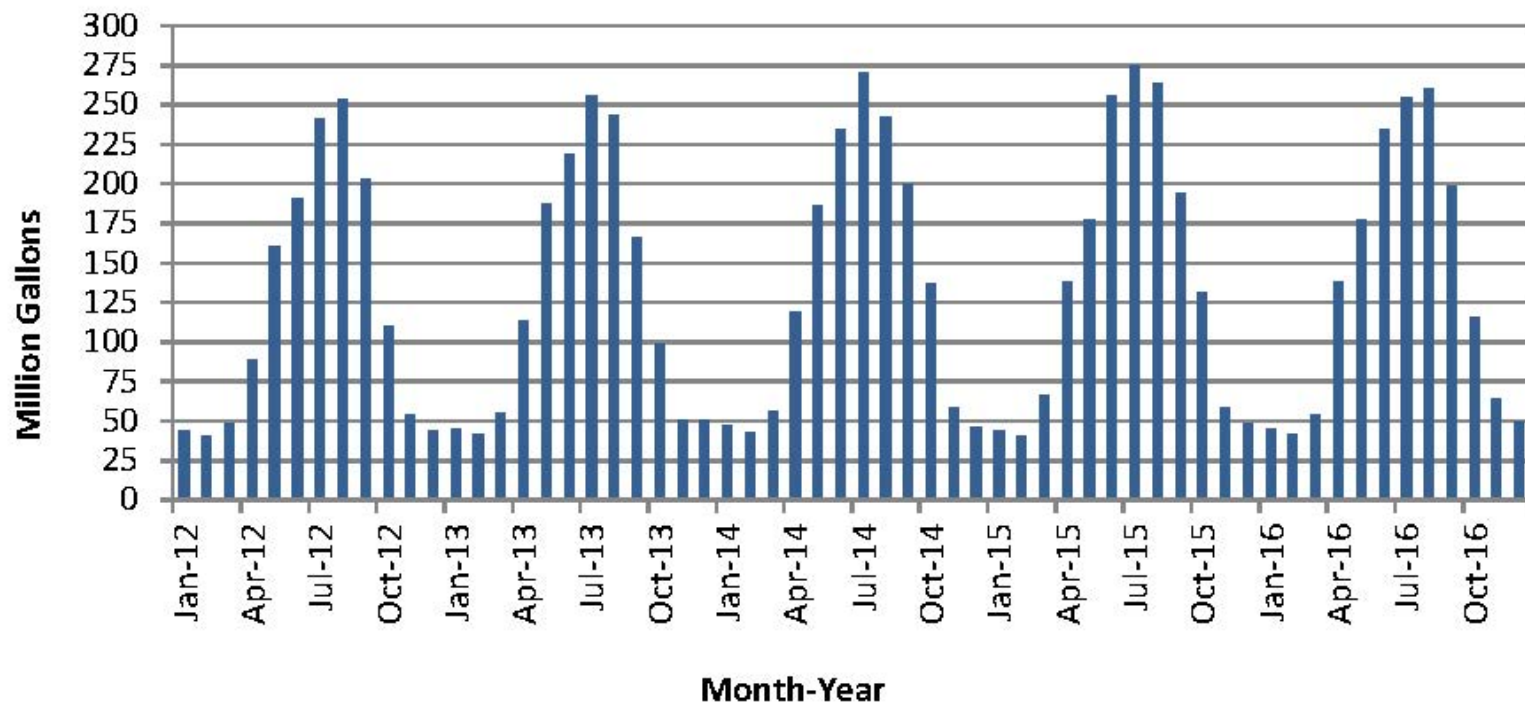
System Overview



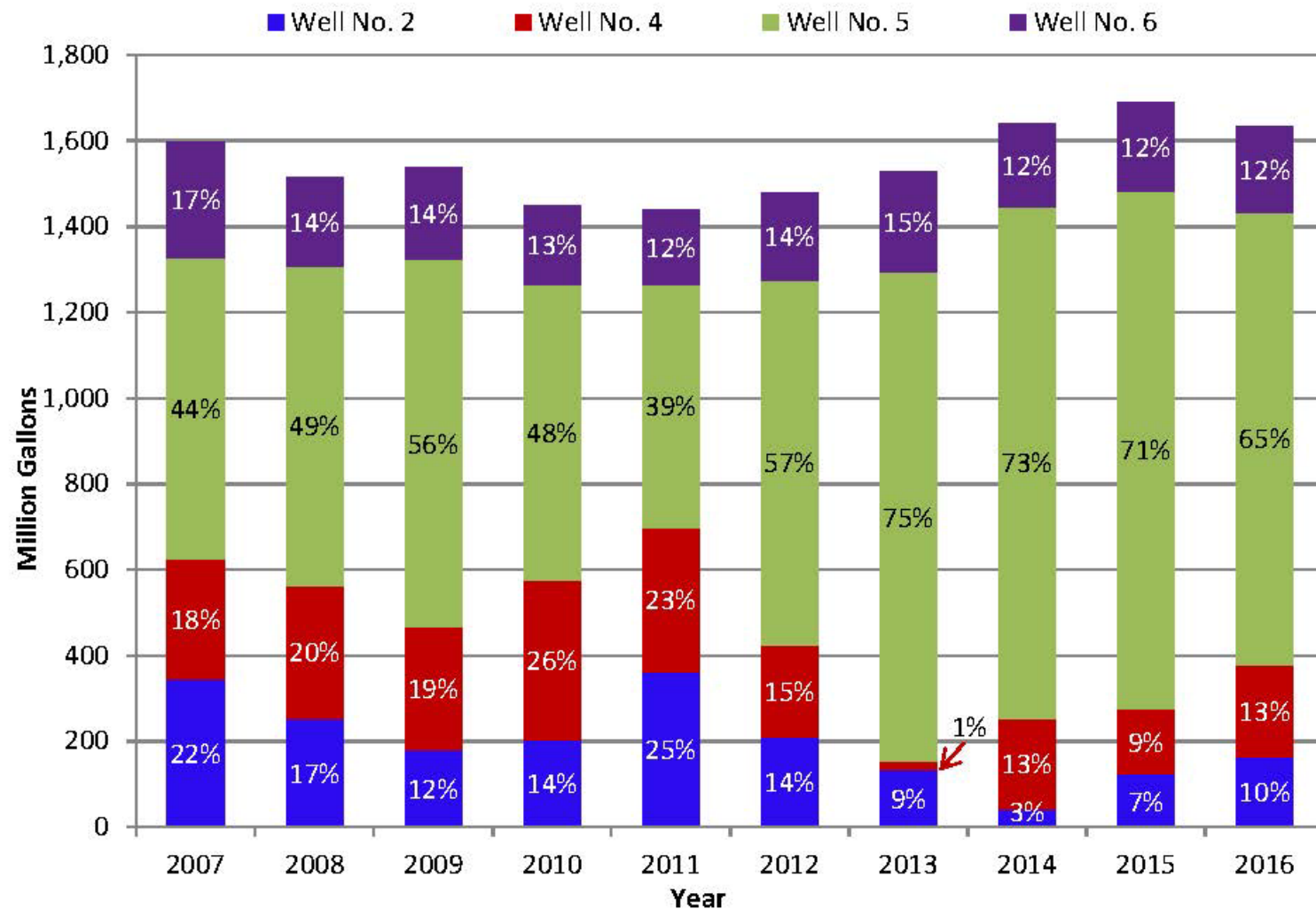
	Year 2018	Year 2038 (1.5 Percent AAGR)	Year 2038 with Growth from Service Area Expansion Including Half UGB ²
Design Population ¹	17,730	24,605	27,220
Supply			
Average Daily Demand (gpcd)	250	250	250
Average Daily Flow (gpd)	4,432,500	6,151,250	6,805,000
Average Daily Flow (gpm)	3,080	4,270	4,730
Peak Daily Demand ³ (gpcd)	600	600	600
Peak Daily Flow ³ (gpd)	10,638,000	14,763,000	16,332,000
Peak Daily Flow (gpm)	7,390	10,250	11,340
Peak Hourly Flow ⁴ (gpm)	18,480	25,630	28,350
Estimated Well Supply Flow Available ⁵ (gpm)	8,780	8,780	8,780
Estimated Supply Flow Needed ⁶ (gpm)	9,850	13,670	15,120
Estimated Additional Supply Flow Needed (gpm)	1,070	4,890	6,340
Fire Demand			
Residential (gpm)	1,000	1,000	1,000
Low Density Commercial (gpm)	3,000	3,000	3,000
High Density Commercial (gpm)	3,500	3,500	3,500
Industrial (gpm)	3,500	3,500	3,500
Duration (hour)	2	2	2
Minimum System Pressure Under Peak Demands (psi)	50	50	50
Minimum Residual Line Pressure Under Peak Demands Plus Fire Flow (psi)	20	20	20
Storage			
Operating Storage ⁷ (gal)	703,000	703,000	703,000
Equalization Storage ⁸ (gal)	1,453,000	2,527,000	2,936,000
Fire Reserve ⁹ (gal)	420,000	420,000	420,000
Emergency Reserve ¹⁰ (gal)	4,432,000	6,151,000	6,805,000
Total Recommended Storage (gal)	7,008,000	9,801,000	10,864,000
Total Existing Available Storage (gal)	6,000,000	6,000,000	6,000,000
Potential Storage Deficit (gal)	1,010,000	3,810,000	4,870,000

Water Supply

CHART 2-6
COMBINED WELL SOURCES MONTHLY PRODUCTION



Water Supply



Parameter/Year	2018	2038 with Service Area Expansion
Water Demand		
Average Daily Demand, gpd	4,432,500	6,805,000
Peak Daily Demand, gpd	10,641,600	16,329,600
Source Capacity - All Wells		
All Current Well Production Sources, gpm	8,800	8,800
Reliable Well Production Capacity*, gpd	9,504,000	9,504,000
<i>Well Production Capacity Compared to Peak Day Demand, gpd</i>	<i>-1,137,600</i>	<i>-6,825,600</i>
Water Rights - All Wells		
Well Permitted Capacity, gpm	9,750	9,750
Well Water Right Production Capacity, gpd	14,040,000	14,040,000
<i>Well Water Right Capacity Compared to Peak Daily Demand, gpm</i>	<i>3,398,400</i>	<i>-2,289,600</i>
Source Capacity with Wells and Regional Water System		
All Current Well Production and Regional Water System Sources, gpm	10,300	10,300
Reliable Well Production Capacity* with Current Regional Water System Capacity**, gpd	11,124,000	11,124,000
<i>Supply Capacity compared to Peak Day Demand, gpd</i>	<i>482,400</i>	<i>-5,205,600</i>
Water Rights - All Wells and Regional Water System		
Well Water Right Capacity and Regional Water System** - Peak Daily Flow, gpm	11,250	11,250
Supply Water Right Capacity, gpd	16,200,000	16,200,000
<i>Supply Water Right Capacity compared to Peak Daily Demand, gpd</i>	<i>5,558,400</i>	<i>-129,600</i>

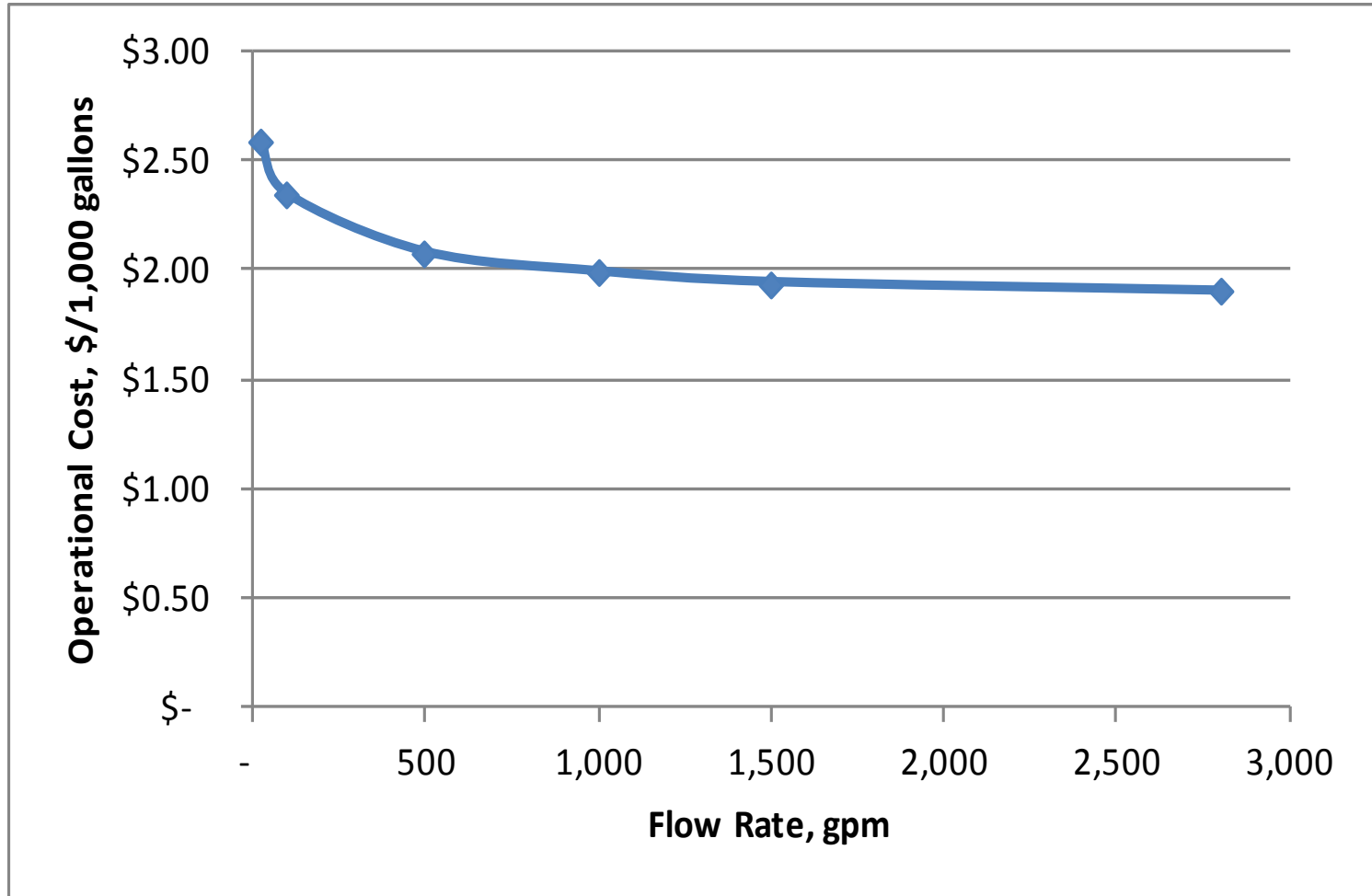
* Assumes 18 hours per day well pump operation

** Assumes current regional water supply capacity of 1,500 gpm without system improvements

gpm = gallons per minute

gpd = gallons per day

Water Supply



Water Supply

Summary of Regional Water Treatment Systems (RWS) Flow Rate Thresholds and Projected Costs⁽¹⁾

Approximate Flow Capacity (gpm)	Description of Use/Development	Potential Daily Usage, MGD ⁽²⁾	Projected Annual Water Cost (Rounded) ⁽³⁾	Capital Improvements	
				Required Infrastructure Improvement	Projected Capital Cost ⁽⁴⁾
27	2015/2016 Average Usage	0.019	\$3,100	None	\$0
1,500	City's existing developed capacity at Regional Water Treatment Plant (RWTP)	1.1	\$800,000	Install larger distribution piping to handle flows above 1,500 gpm.	Included in distribution system cost estimate.
2,500	Maximum current RWTP capacity allowance. Assumes City acquires 1,000 gpm capacity allowance from existing users.	1.83	\$1,300,000	Larger distribution system piping (see above). Possible mitigation cost to existing user.	Included in distribution system cost estimate.
3,000	City's allocated capacity on Regional Influent Pump Station (RIPS) and 42-inch transmission main.	2.16	\$1,500,000	Install third filter at RTWP (provides operational capacity of 3,300 gpm and peak capacity of 4,700 gpm).	\$4,000,000
7,000	City's total RWS allocation. Significant system expansion is required.	5.04	\$3,400,000	Improve RIPS, 42-inch transmission main and construct new 4 MGD water treatment facility adjacent to existing RWTP.	\$26,000,000

⁽¹⁾ – Information primarily derived from Stantec April 20, 2018 Memo on Draft Water Treatment Plant Cost Evaluation.

⁽²⁾ – Annual average daily usage based on the flow rate for 12 hours per day.

⁽³⁾ – Based on projected RWTP operation and maintenance (O&M) costs.

⁽⁴⁾ – Projected capital costs provided in Stantec April 20, 2018 Memo that includes allowance for project contingency and change orders; the projected costs would be cumulative with each flow threshold.

gpm = gallons per minute

MGD = million gallons per day

Water Supply - Summary

1. Water Conservation

- Rate structure that encourages water demand efficiency
- Education that emphasizes timing of water use (i.e., lawn irrigation in the evening or early morning)
- City facility conservation

2. Additional Basalt Well Capacity

- Develop or obtain additional basalt well capacity with a target flow of approximately 2,000 gpm
- Add a point of appropriation to existing basalt well water rights

3A. Additional Alluvial Well Capacity

- Develop or obtain additional alluvial well capacity with a target flow of at least 4,000 gpm (to match Well No. 5)
- Maximize the City's current alluvial well water right permit allowance (5,000 gpm) and provide redundant alluvial well
- Consider applying for additional alluvial well water right

Water Supply - Summary

3B. Regional Water System

- Utilize the City's existing water allocation of the Regional Water System when needed and pursue obtaining additional RWTP flow capacity up to 2,500 gpm
- Revise water rates to recover additional costs associated with water purchased from the Regional Water System

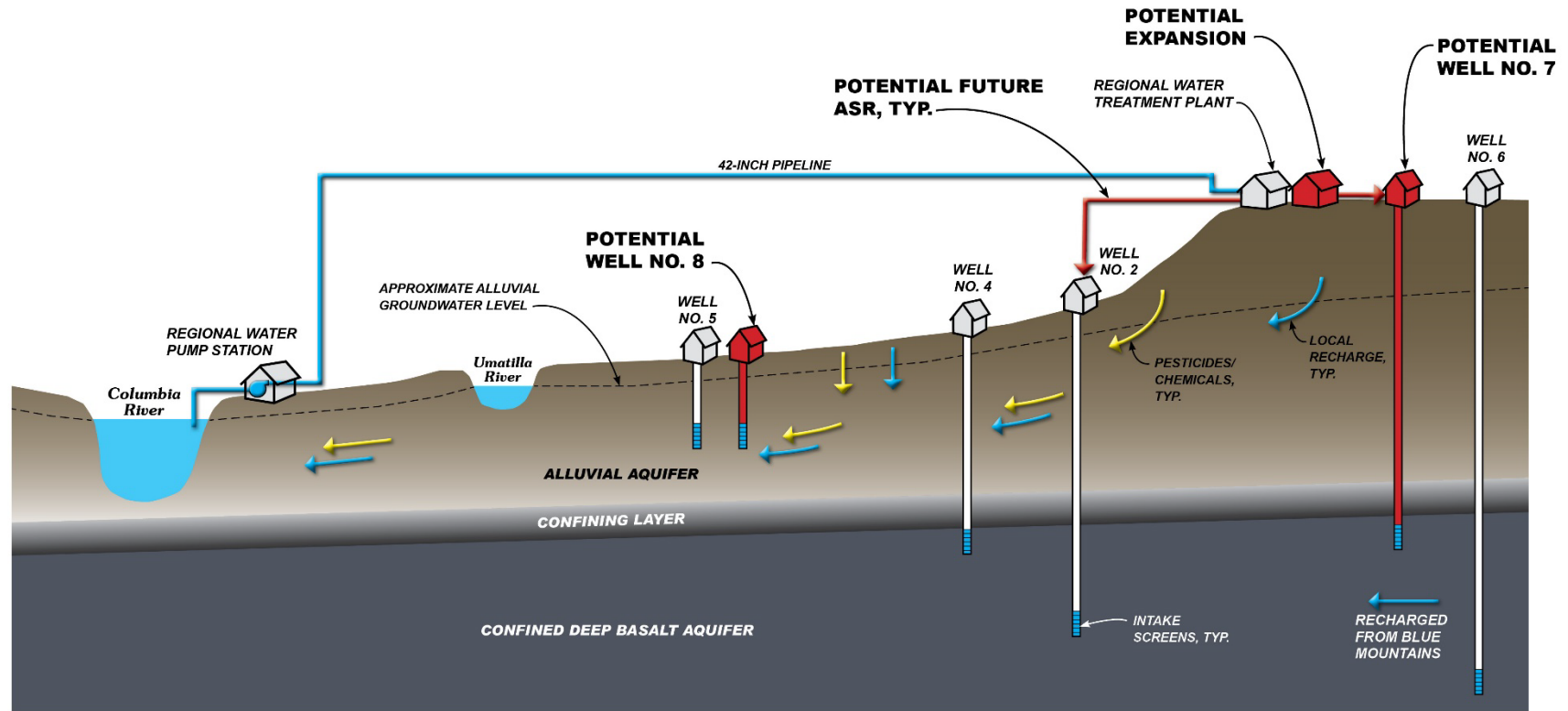
4. Aquifer Storage and Recovery (ASR)

- Pursue implementing ASR on the City's basalt well sources
- Potential sources of water to inject into basalt wells include Well No. 5, the Regional Water System, and Minnehaha Springs
- This measure is recommended to mitigate declining water levels in the City's basalt wells

5. Minnehaha Springs

- Perform additional investigations on the springs to further determine the viability and reliability of this water source
- Discuss potential development needs associated with this source with regulatory authorities
- Potential transfer of water right to Regional Water System

Water Supply Recommendations



apanderson
perry
& associates, inc.

CITY OF
HERMISTON, OREGON
WATER SYSTEM MASTER PLAN
EXISTING AND PROPOSED WATER
SUPPLY SOURCES SCHEMATIC

FIGURE
3-5

Water Storage Improvement Options

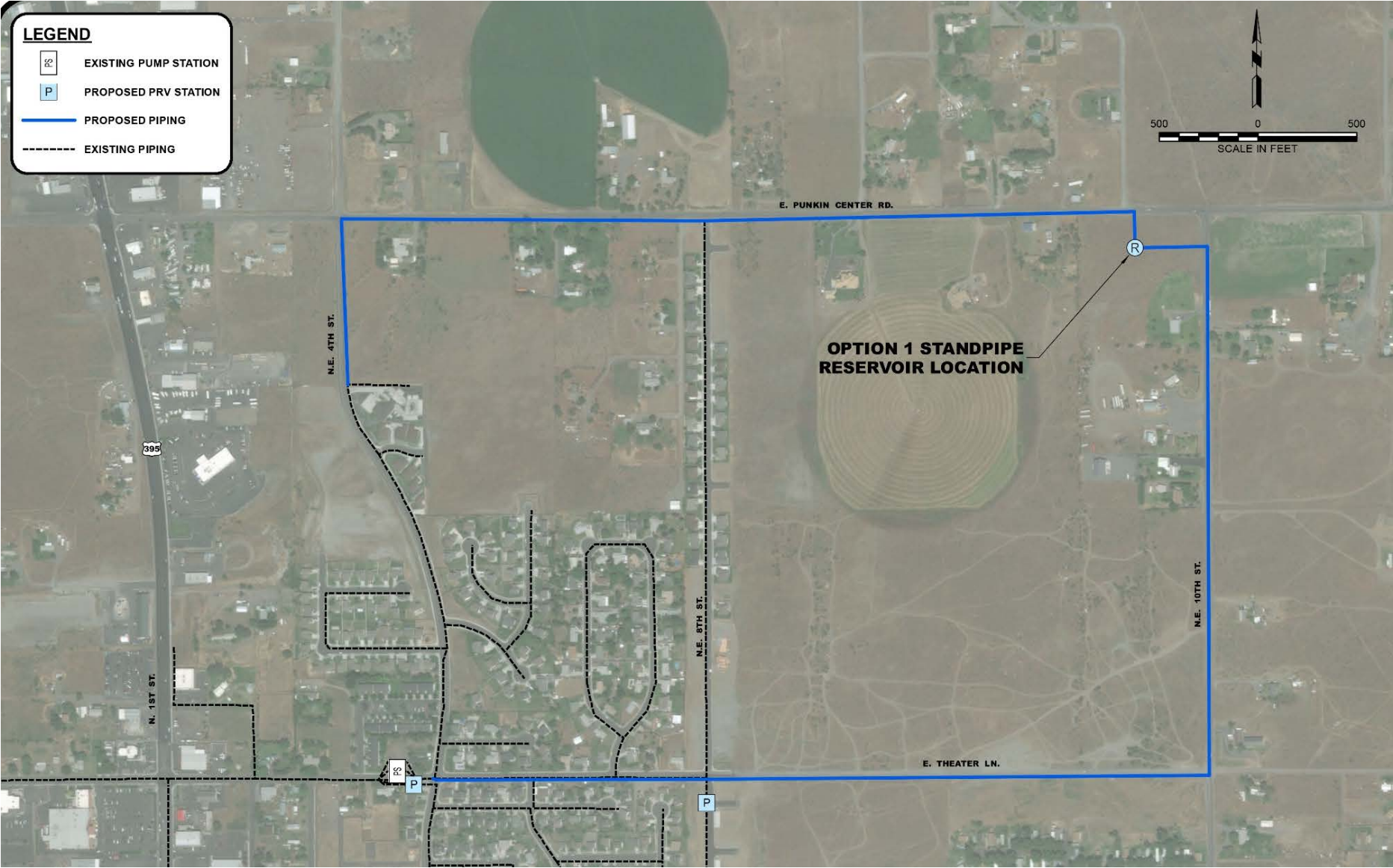
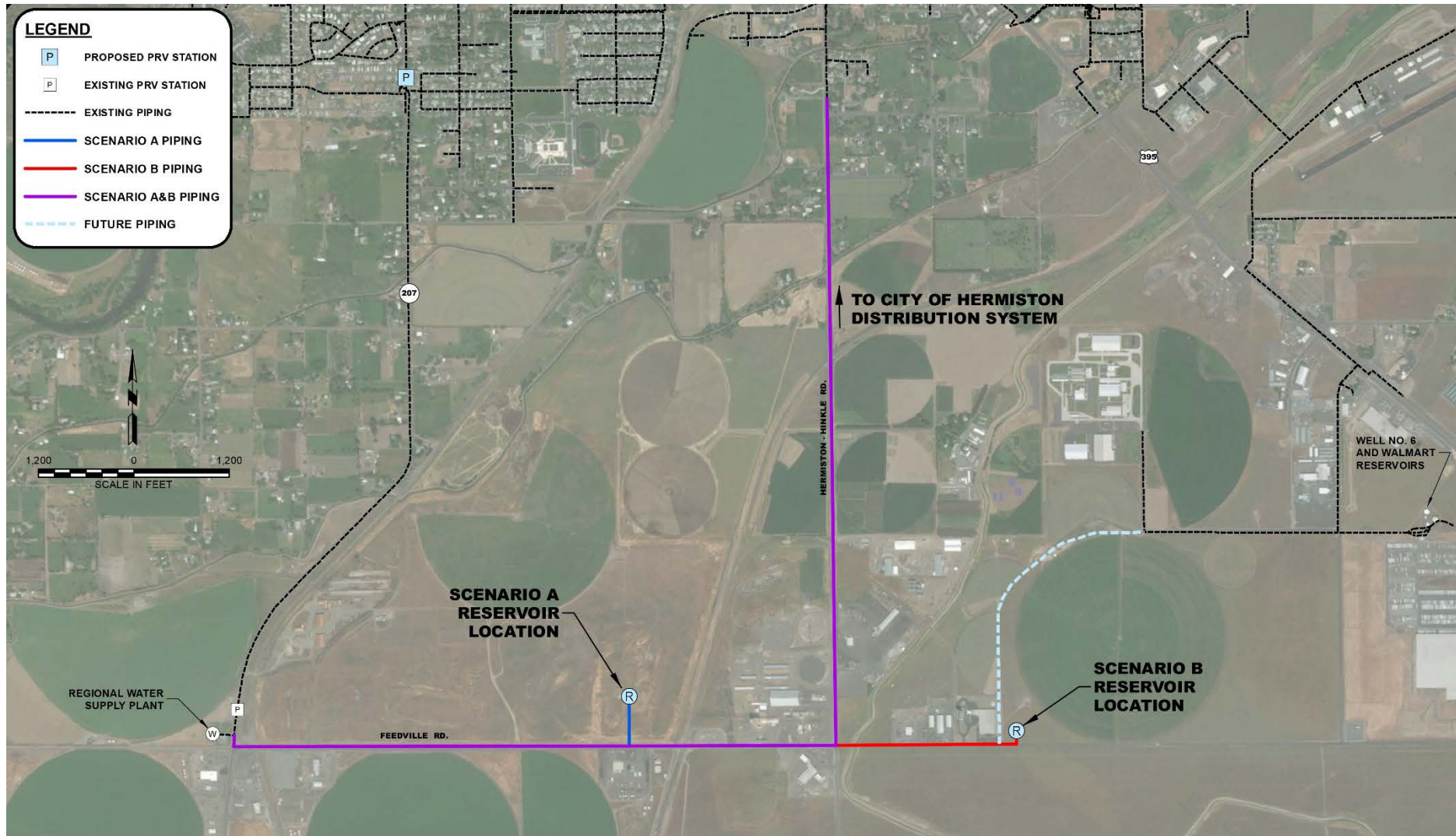


Figure 4-4 Northeast Reservoir

Water Storage Improvement Options



Water Storage Improvement Options - Summary

1. Develop a new 1.0 million gallon (MG) standpipe water storage reservoir in the northeast area of the City

- Requires modification of existing Alora Heights booster pump station and new transmission main piping
- Improves system capacity to handle development expansion currently proposed for this area
- Site developed for potential additional storage

Water Storage Improvement Options – Summary

2. Develop a 2.0 MG storage reservoir as demands dictate (approx. 3 to 10 years) in the southwest area of the City

- Simplifies booster pump operations and the maintenance of several different pressure zones on the southwest side of the City
- Location allows a lower height reservoir (approximately 65 feet tall) to be constructed
- Allows the City flexibility to utilize water supply from the Regional Water System or a potential new groundwater well
- Allows for potential future development of a second reservoir at the site

Distribution System

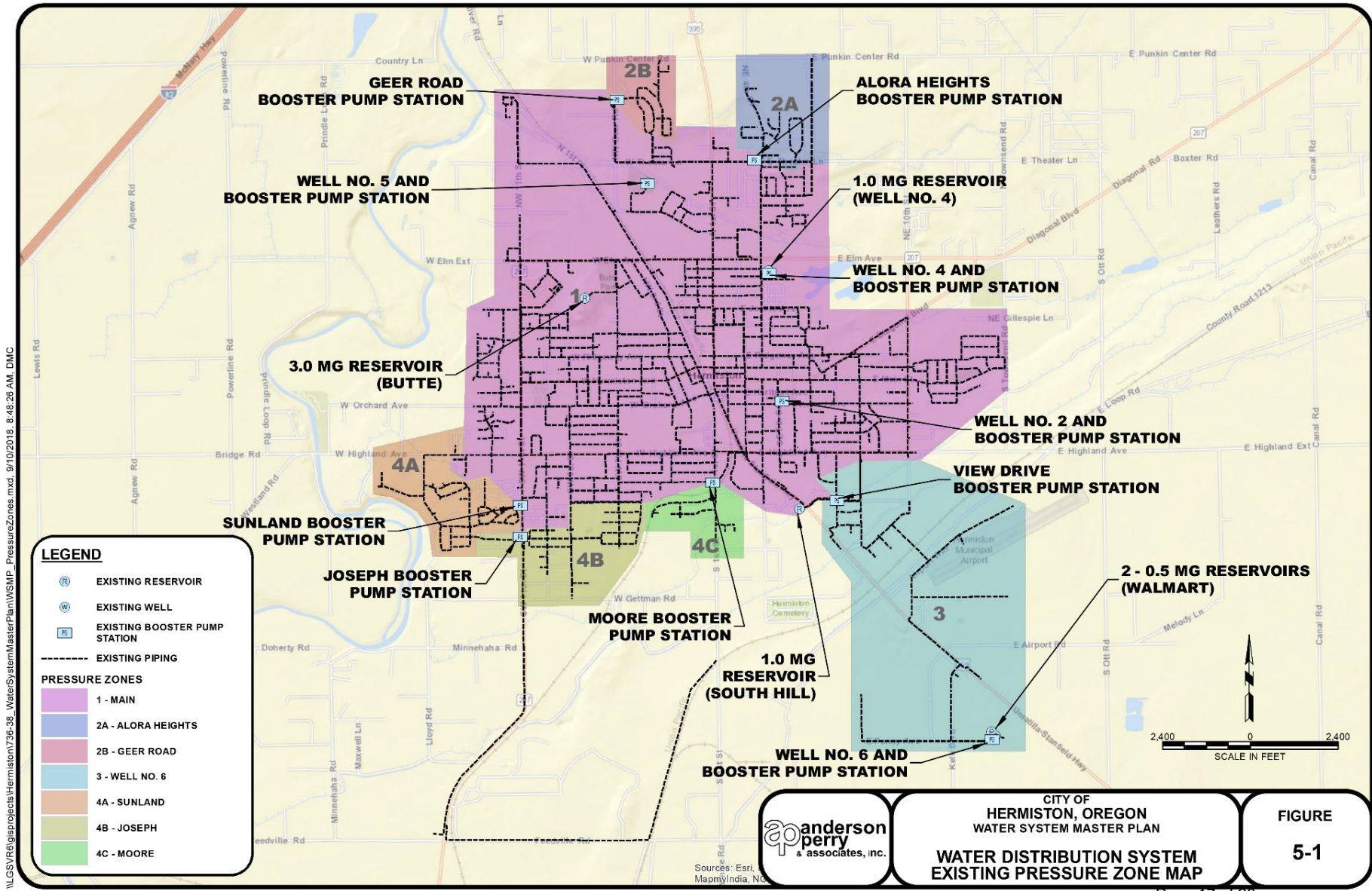
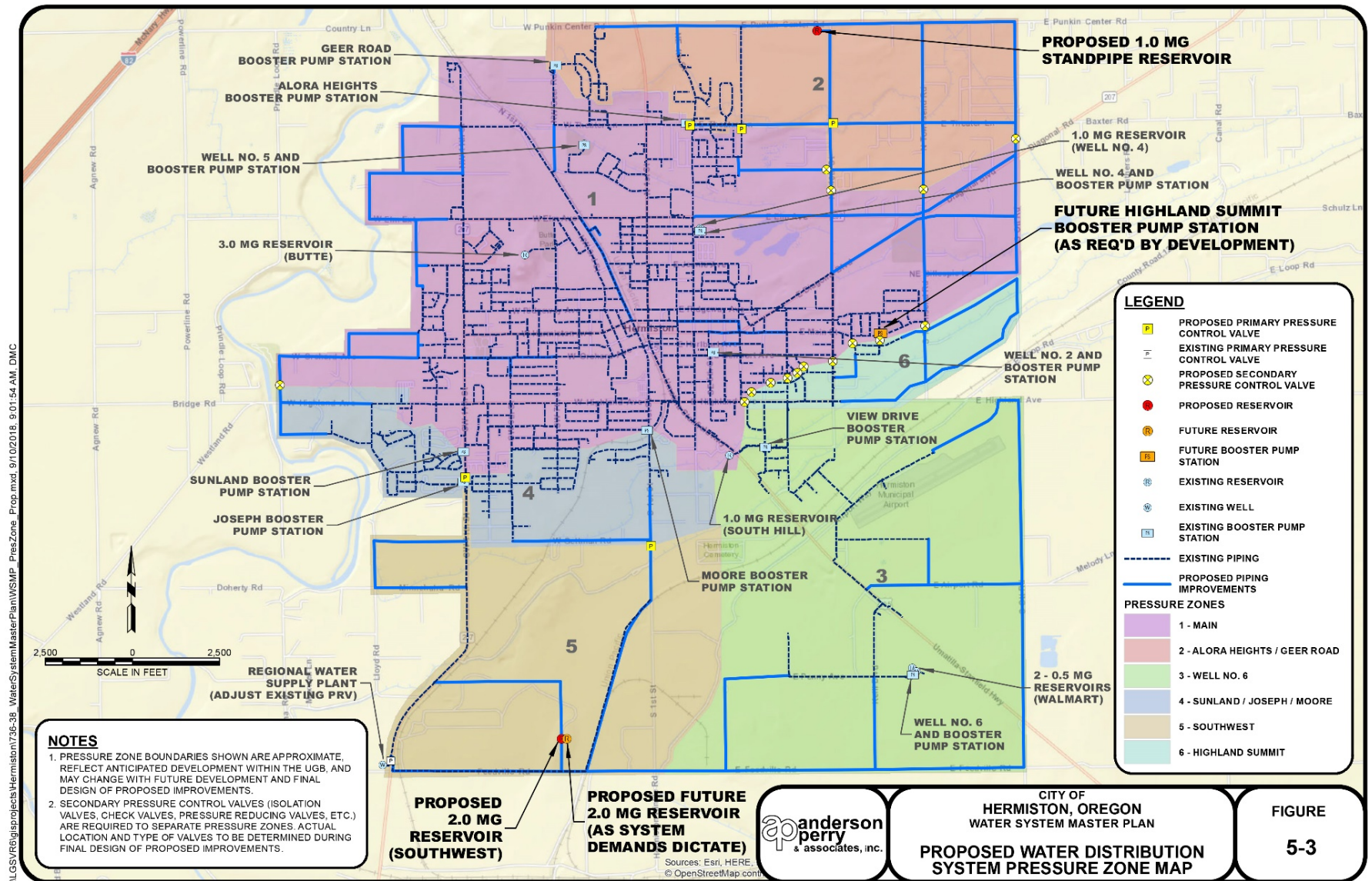
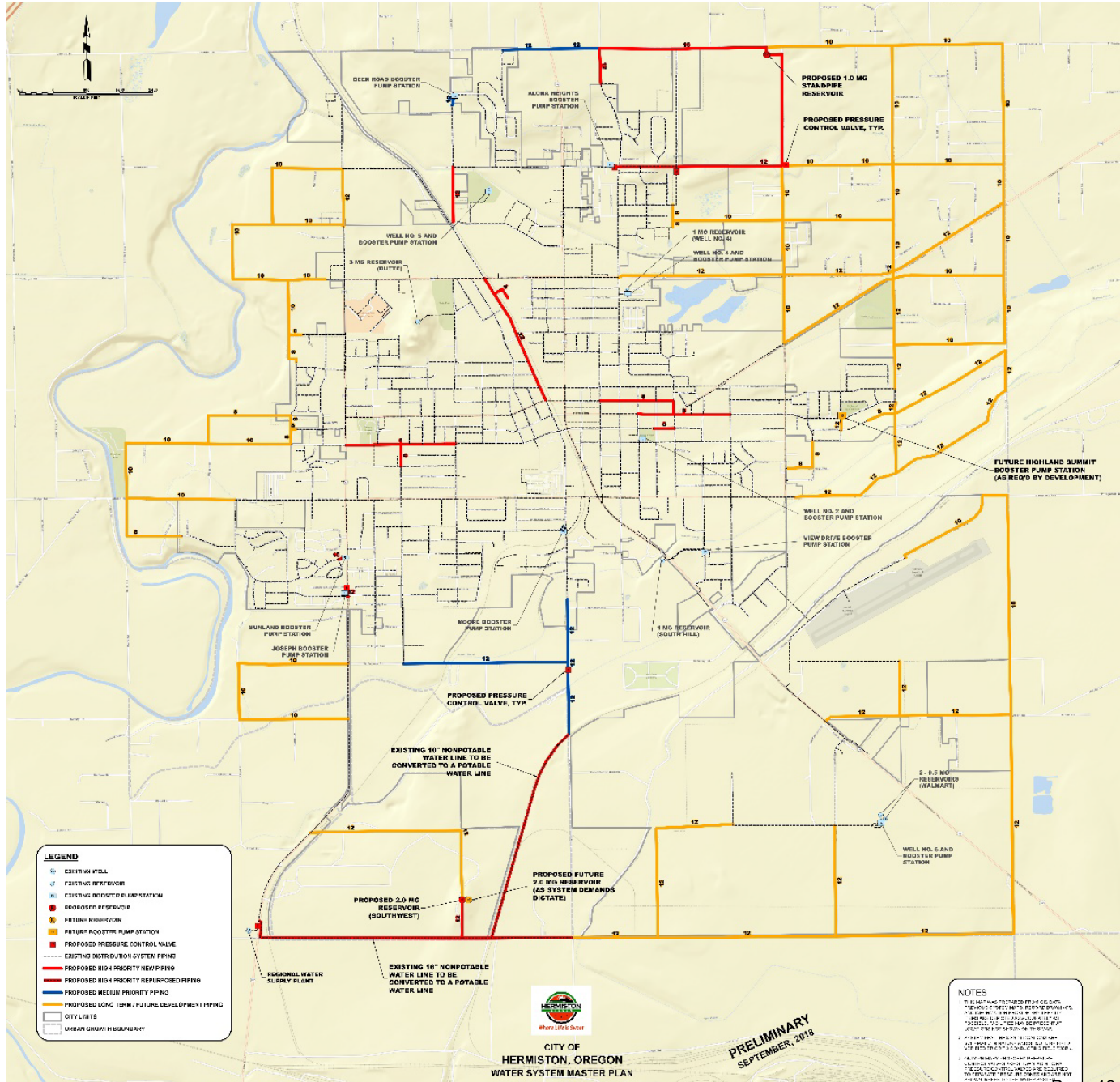


Figure 5-1 Existing Pressure Zones

Distribution System





Estimated Cost of Water System Capital Improvements

Improvement	Estimated Project Cost Range ¹ (Year 2018)			
Water Supply²				
New 750-foot Deep Well No. 7	\$	300,000	to	\$ 500,000
New Well Pump Station and Piping to Future Reservoir		900,000	to	1,100,000
Water Storage				
Option 1 - New 1,000,000-gallon Northeast Standpipe Reservoir (with Alora Heights Booster Pump Station Modifications and Transmission Piping Upgrades)		4,000,000	to	5,000,000
Option 2 - New 2,000,000-gallon Southwest Standpipe Reservoir (with Associated Improvements)		2,500,000	to	3,500,000
Water Distribution				
High Priority Distribution System Improvements		2,500,000	to	3,500,000
Medium Priority Distribution System Improvements		1,500,000	to	2,000,000
Fire Hydrant Replacement/Increased Coverage-related Improvements		TBD	to	TBD
Total Estimated Improvement Costs	\$	11,700,000	to	\$ 15,600,000
For Budgeting Purposes Say	\$	12,000,000	to	\$ 16,000,000

Notes:

¹Includes direct project costs associated with administration, engineering, and contingency.

²Does not include annual operating cost of increased usage associated with the Regional Water System.

³Does not include pump station or reservoir operation and maintenance improvements.

Proposed Improvements Implementation Schedule

Improvement	Estimated Implementation Time Frame		
Water Supply			
Increased Regional Water System Use	2020	to	2025
New 750-foot Deep Well No. 7	2022	to	2025
New Well Pump Station and Piping to Future Reservoir	2022	to	2025
Water Storage			
Option 1 - New 1,000,000-gallon Northeast Standpipe Reservoir (with Alora Heights Booster Pump Station Modifications and Transmission Piping Upgrades)	Fall 2018	to	Fall 2019
Option 2 - New 2,000,000-gallon Southwest Standpipe Reservoir (with Associated Improvements)	2022	to	2028
Water Distribution			
High Priority Distribution System Improvements	2019	to	2024
Medium Priority Distribution System Improvements	2025	to	2030
Fire Hydrant Replacement/Increased Coverage-related Improvements	2019	to	2038

Next Steps to Plan Completion

- | | | |
|----|---|-----------------------|
| 1. | Authorization to send draft Plan to Oregon Health Authority - Drinking Water Services (DWS) | November 13, 2018 |
| 2. | Draft Plan to City staff and City PIC Committee for review | Late November 2018 |
| 3. | Submission of updated draft Plan to DWS for review | Early December 2018 |
| 4. | Submission of Northeast Water Storage Reservoir and associated improvement design to DWS for review | Mid-December 2018 |
| 5. | Receive DWS review comments | Early January 2019 |
| 6. | Finalize and adopt Water System Master Plan | January/February 2019 |

Comments and/or Questions

Dave Wildman, P.E.

dwildman@andersonperry.com

(541) 963-8309

