

# FEEDING THE MACHINE: WATER FACILITIES TO KEEP UP WITH DEVELOPMENT

Presented by: Dennis Galinato, PE | Murraysmith

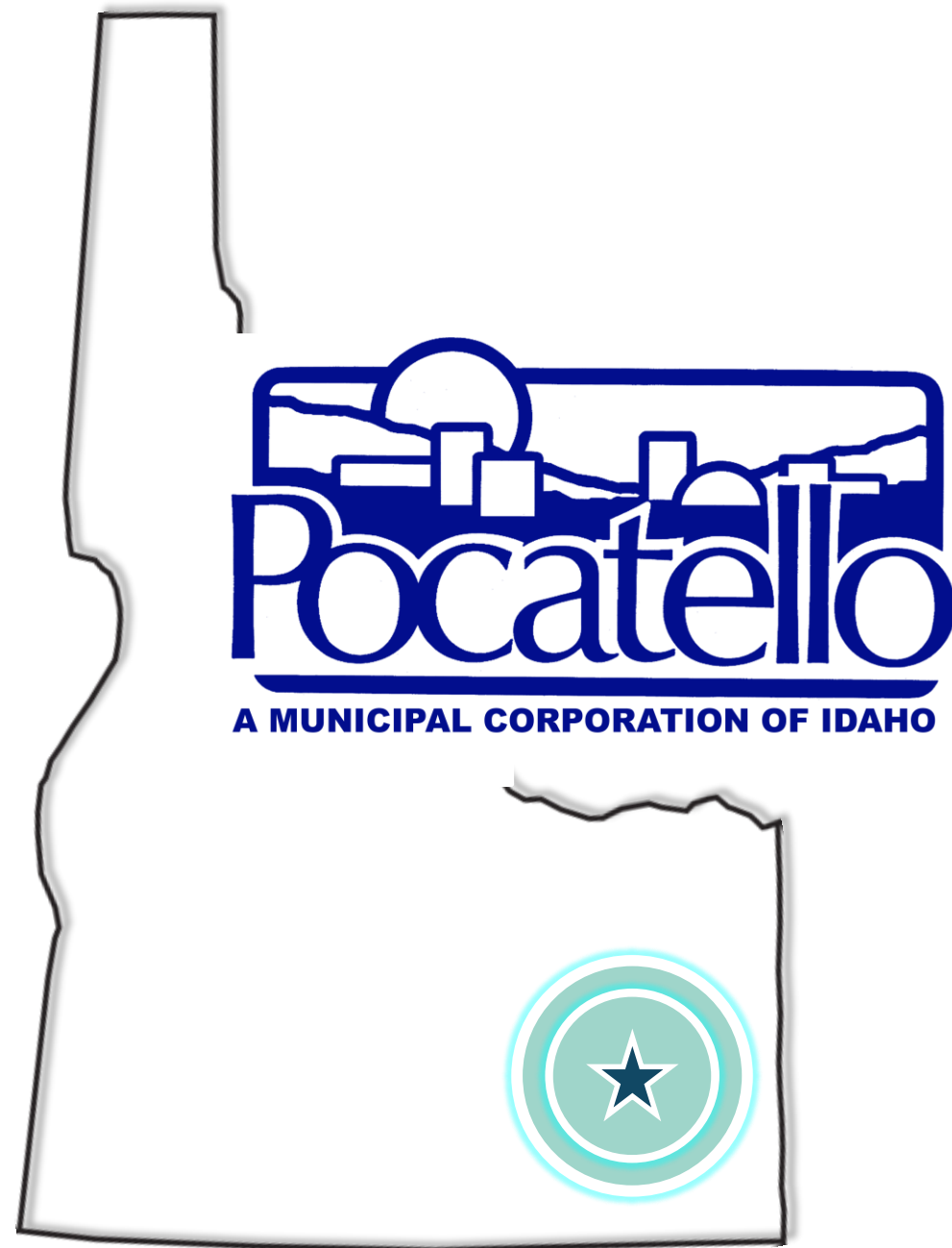
*murraysmith*



# Agenda



- 01 City and System Overview
- 02 2016 Water Facility Plan
- 03 Northeast Area Development
- 04 Water System Improvement Approach
- 05 Next Steps
- 06 Q&A



- Population: 56,000
- Idaho State University
- 5<sup>th</sup> Largest City Idaho
- Home to several corporate headquarters:
  - Farm Bureau Insurance
  - Varsity Contractors
- Home to international companies:
  - ON Semiconductor
  - Petersen, Inc.
  - Great Western Malting
  - Amy's Kitchen
  - ATCO Structures & Logistics.
- Major Railyard for Union Pacific Railroad

# City of Pocatello



- Nestled in the Portneuf River Valley
- Elevation: 4,405-5,290 feet



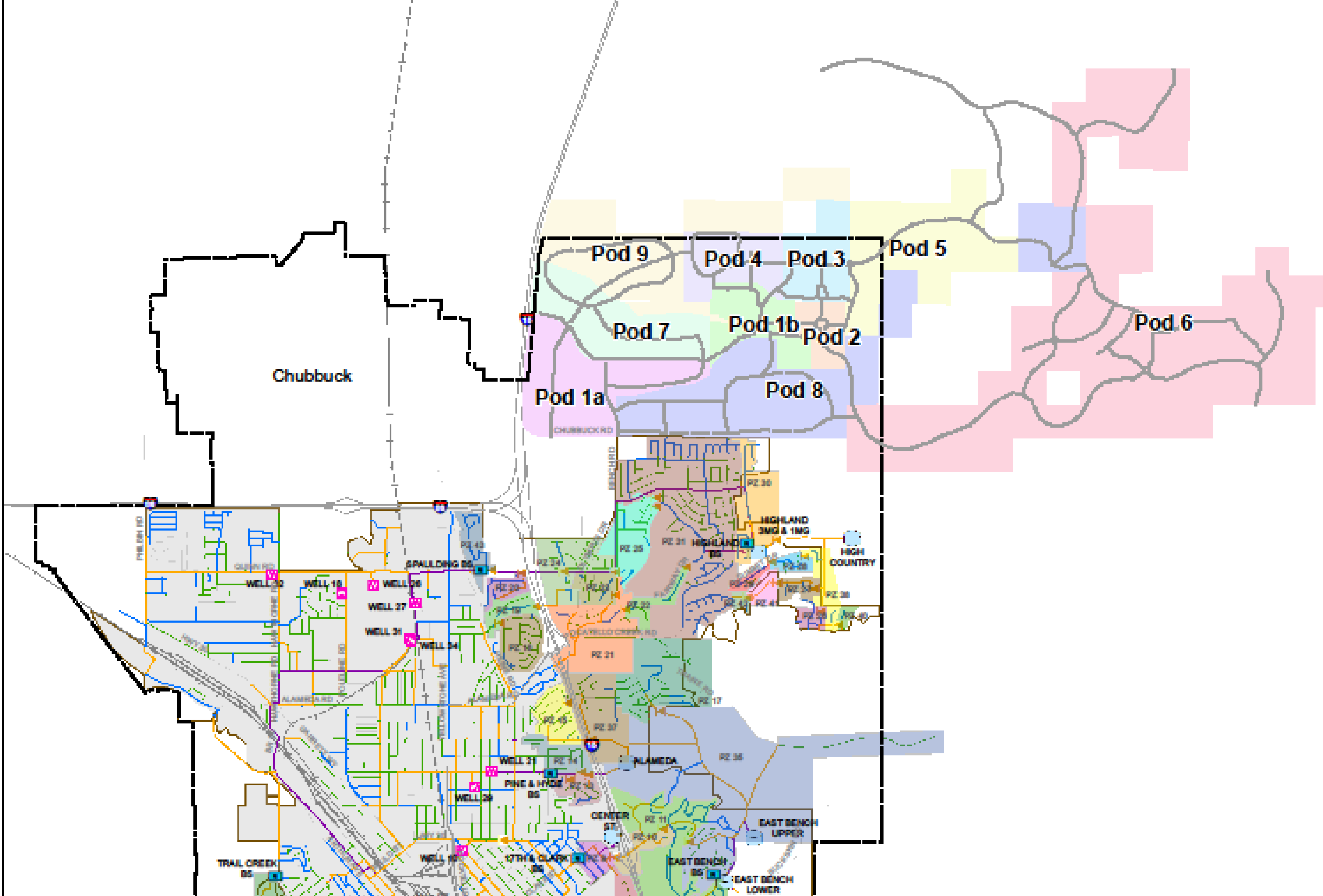
- City recently very low growth rates
- New development projecting buildout that would double the size of the City
- Infrastructure needs
  - Water supply
  - Wastewater conveyance
  - Transportation improvements

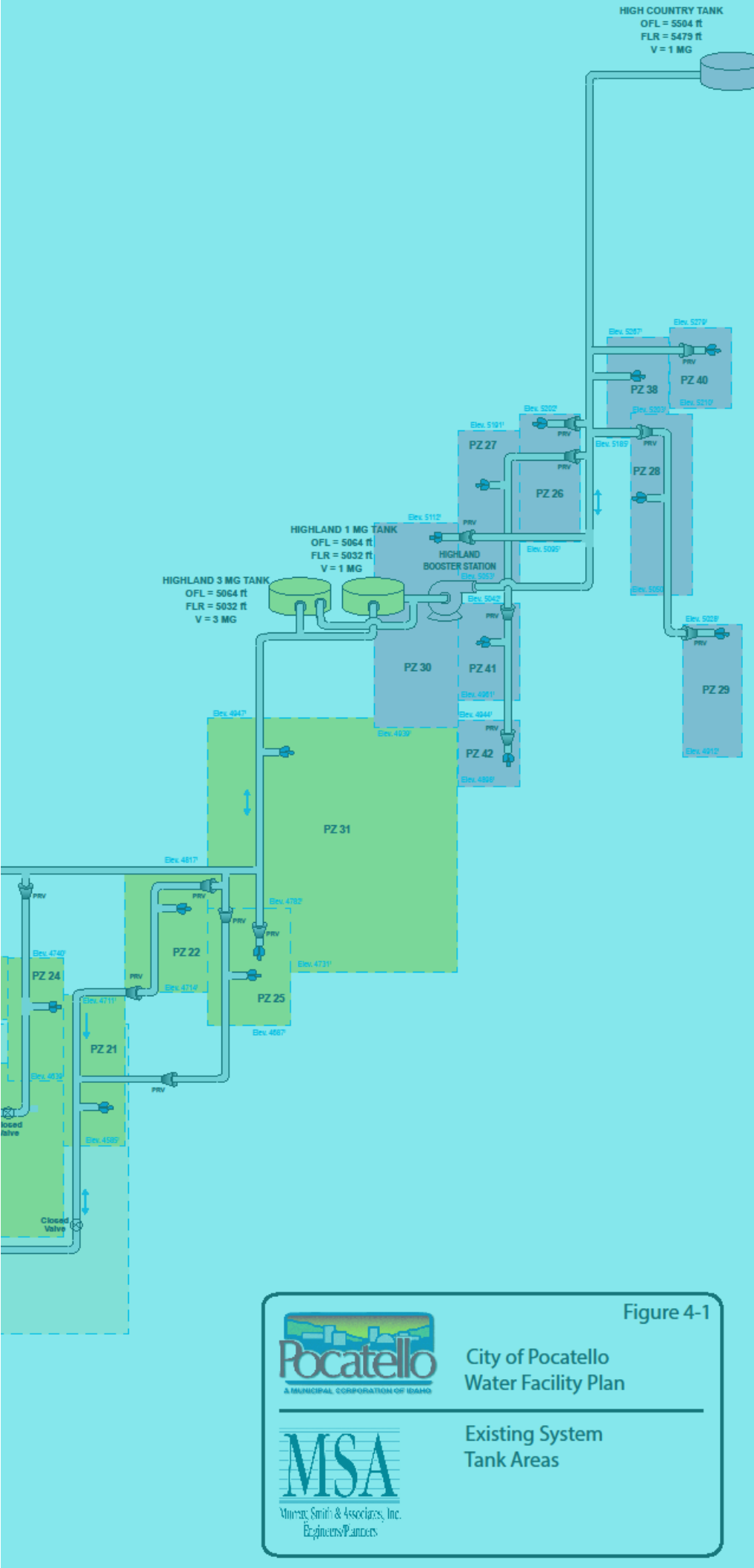
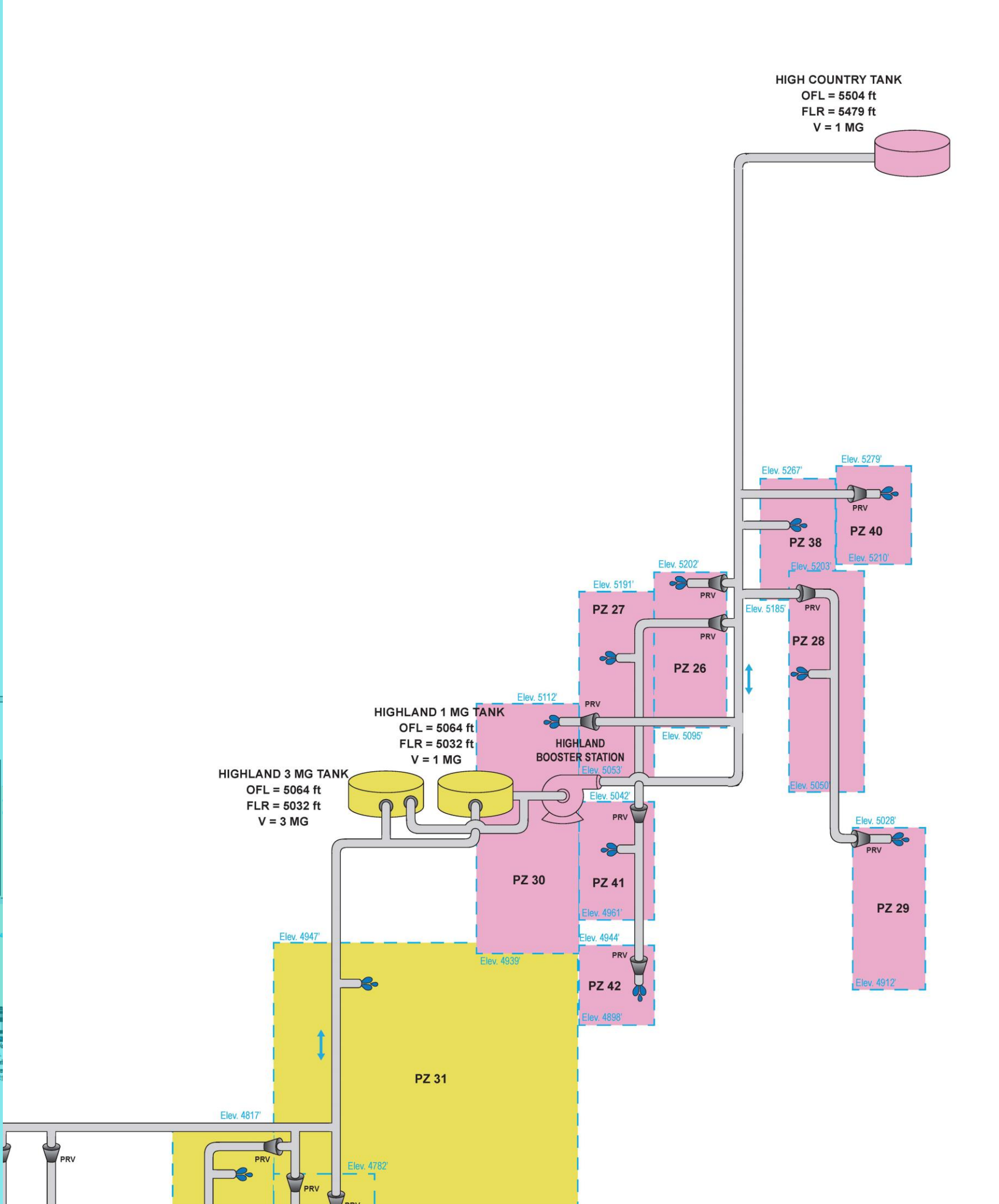
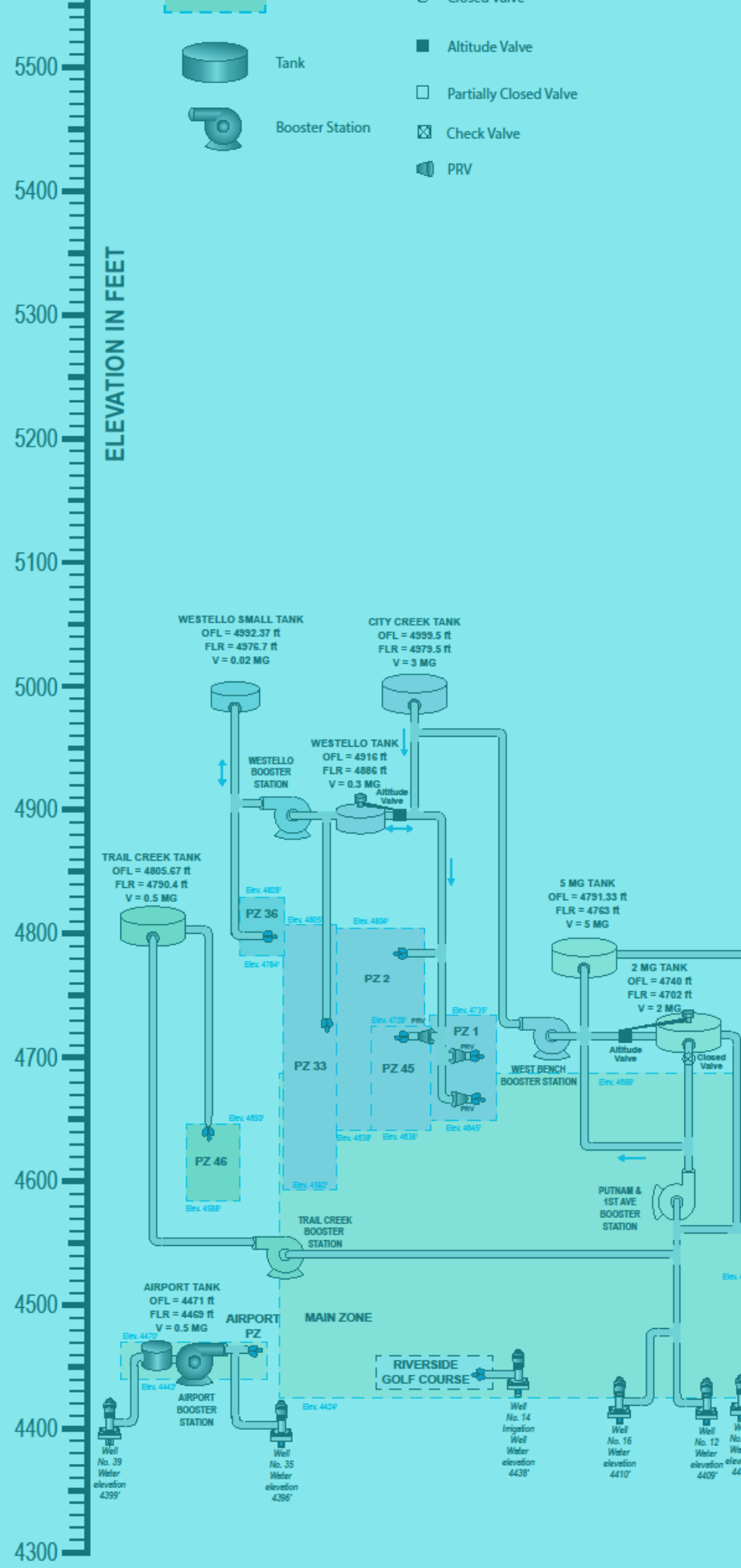


- Customer Accounts: 17,600
- 4.9 Billion Gallons/Year
- Distribution piping: 275 miles
- Pressure Zones: 45

- Water Supply Wells: 20
- Storage Tanks: 16
- Booster Stations: 12
- Pressure Reducing Valves: 45

# New Development Pressure

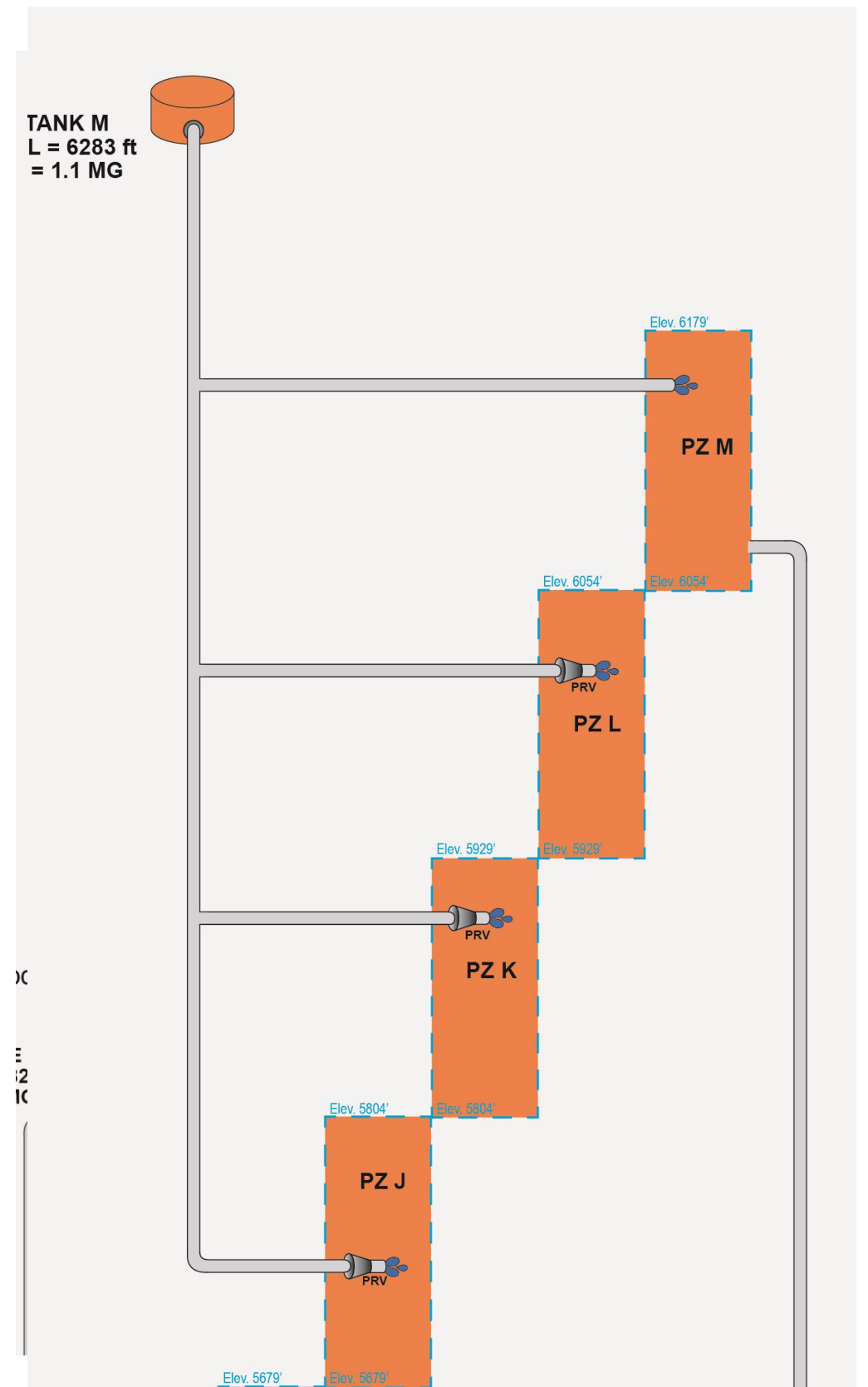
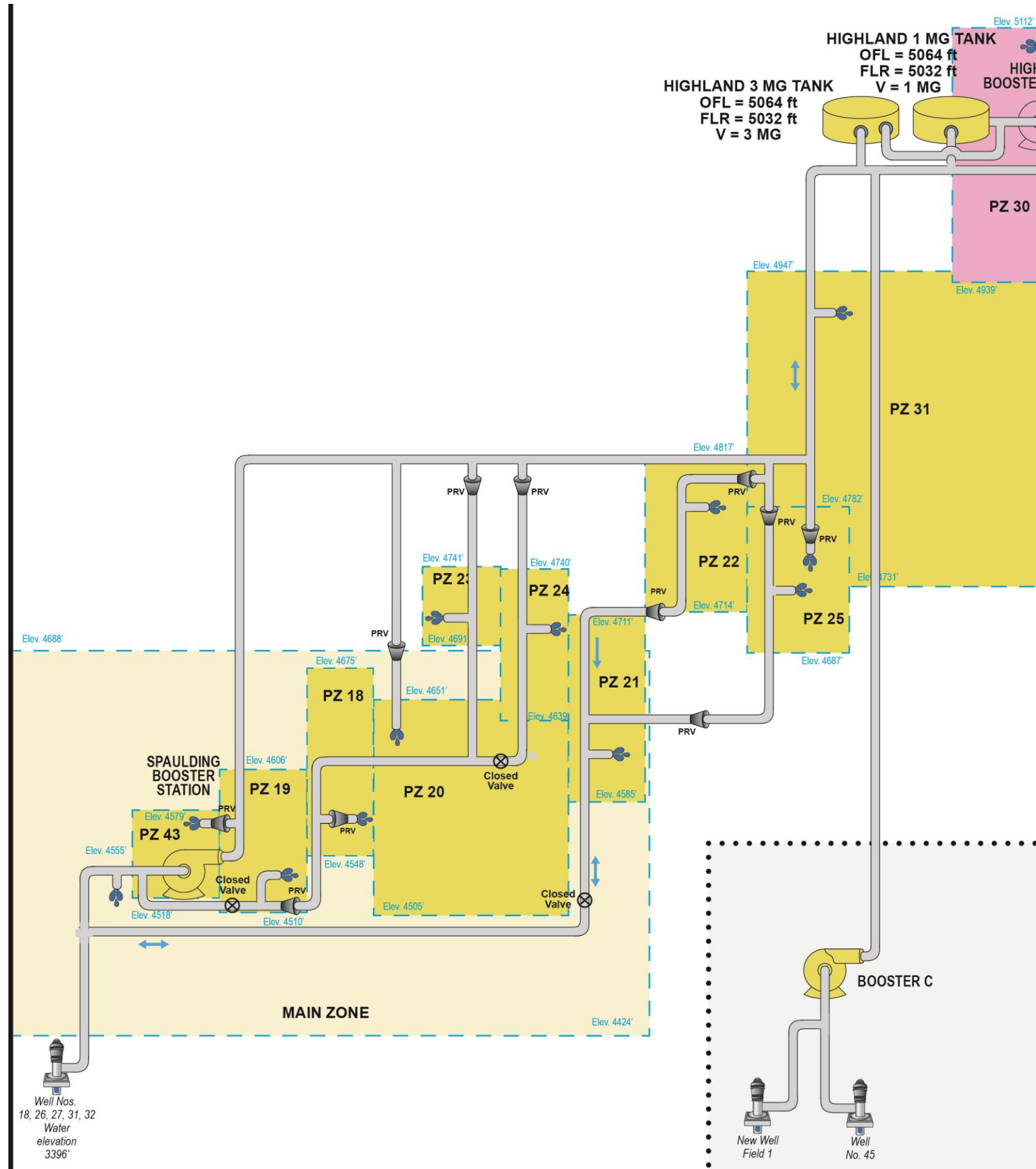
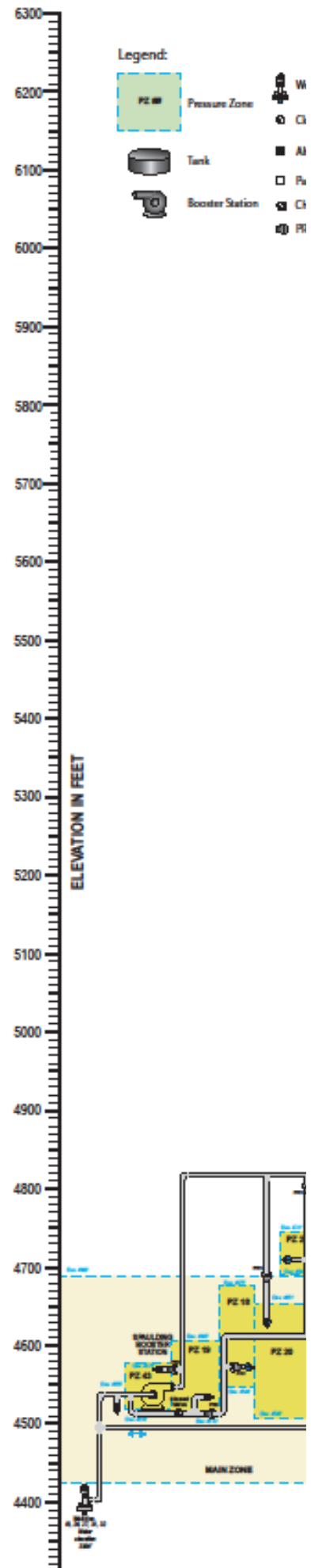




**Figure 4-1**  
**Pocatello** City of Pocatello Water Facility Plan  
 A MUNICIPAL CORPORATION OF IDAHO  
**MSA** Morse, Smith & Associates, Inc. Engineers/Planners  
 Existing System Tank Areas



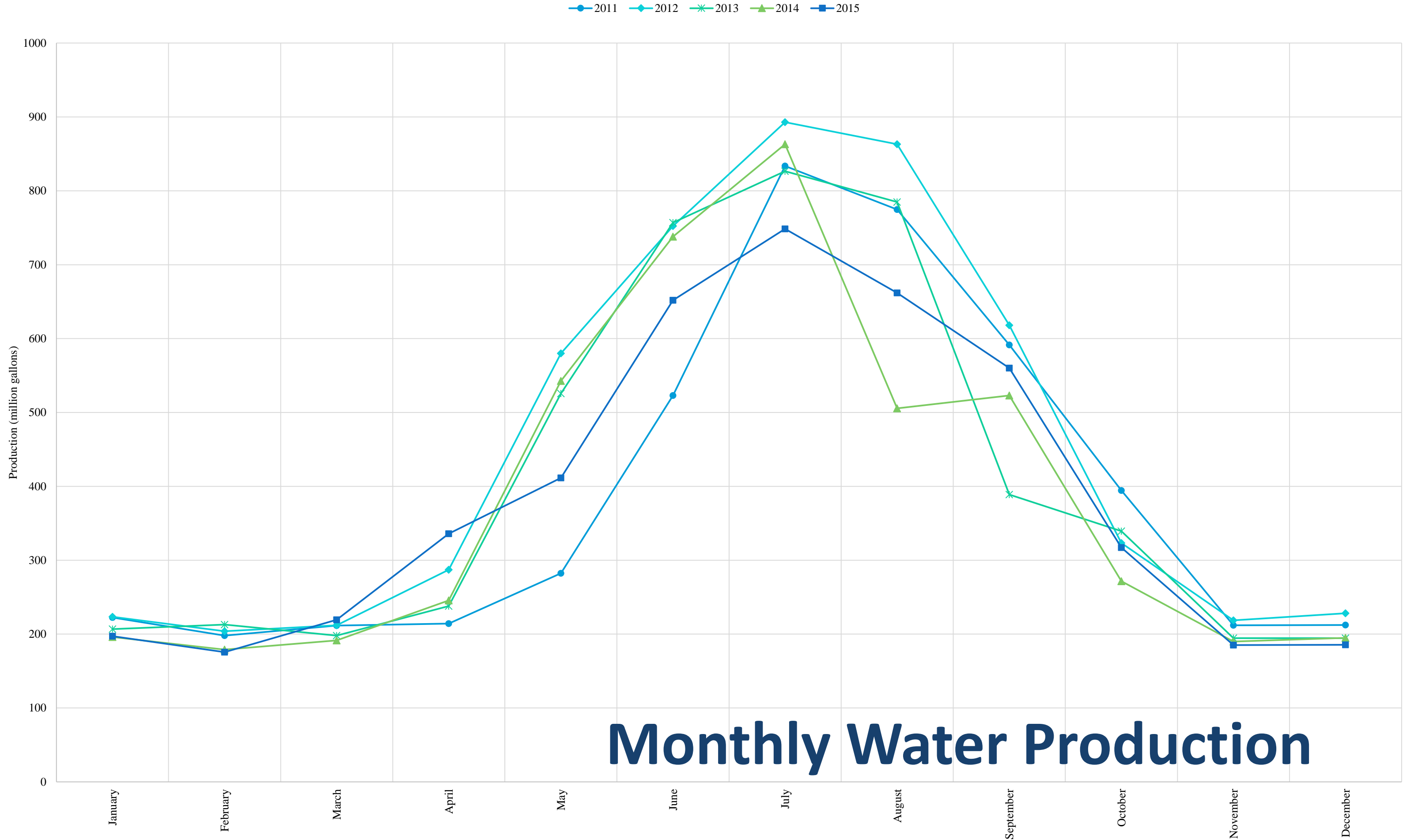
# New Development Pressure



## Historical Pocatello Population Estimates

Year	Population	% Change
2005	51,813	
2006	52,288	0.92
2007	52,614	0.62
2008	53,213	1.14
2009	53,884	1.24
2010	54,406	0.97
2011	54,623	0.40
2012	54,732	0.20
2013	54,350	-0.70
2014	54,292	-0.11
Average		0.5

# Low Growth Rates and Constant Demand



## Monthly Water Production

# Projected Demands

Zone	5-year Historical Average			2020			2035			Buildout		
	ADD	MDD	PHD	ADD	MDD	PHD	ADD	MDD	PHD	ADD	MDD	PHD
<b>2016 WFP (gpm)</b>	9,235	22,784	47,847	10,115	24,955	50,778	11,325	27,925	56,688	?	?	?
<b>New Development</b>	n/a	n/a	n/a	1,362	3,406	7,153	4,116	10,290	21,610	7,292	18,229	38,280
<b>Revised Projections</b>	n/a	n/a	n/a	11,477	28,361	57,931	15,441	38,215	78,298	?	?	?

## Required Improvements

### 2020

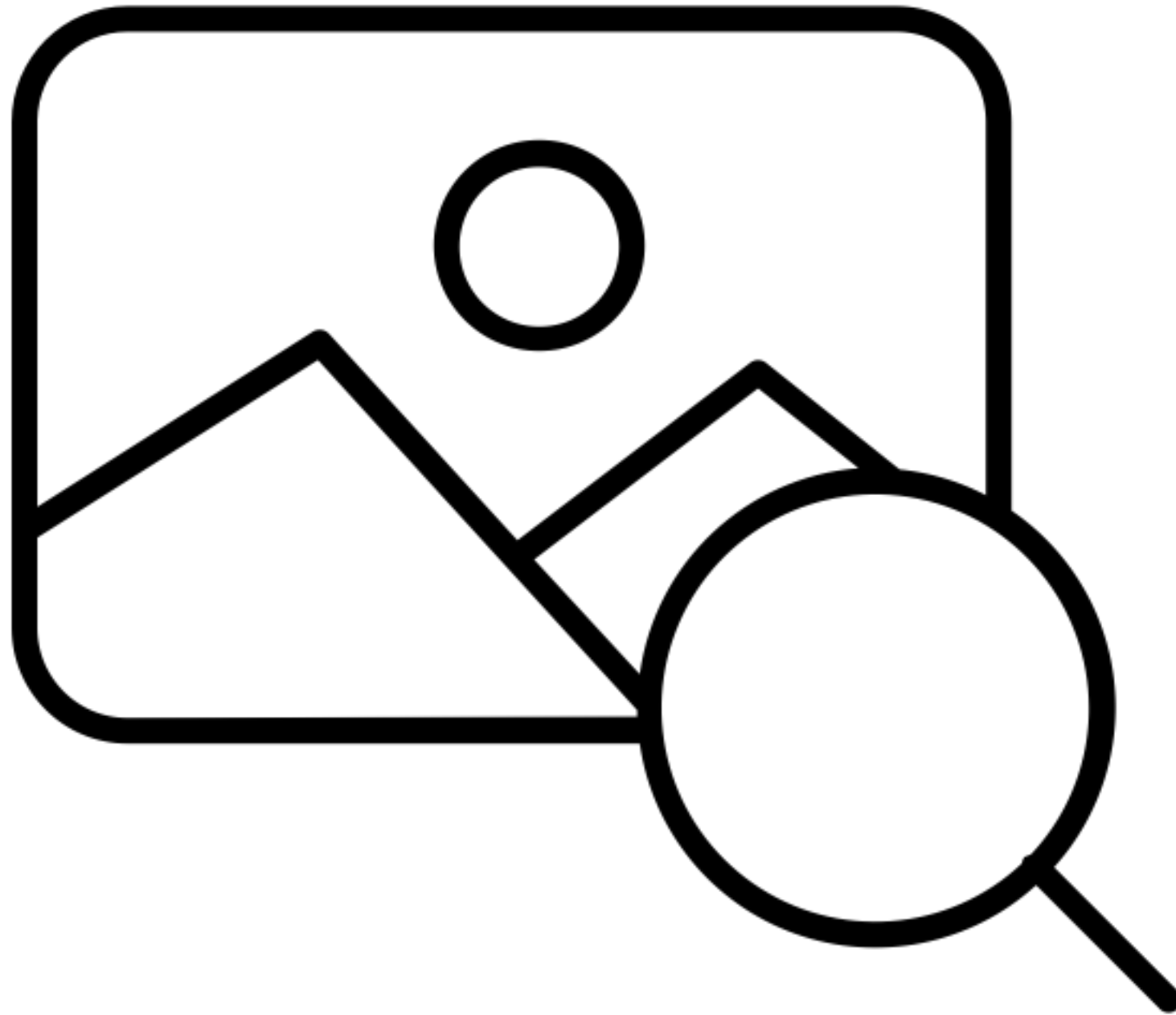
- 4.9 MGD (3,400 gpm) new well capacity
- 2.3 MGD (1,600 gpm) firm capacity pump station (Booster C)

### 2035

- Additional 9.9 MGD (6,800 gpm) new well capacity
- Additional 9.7 MGD (6,750 gpm) firm capacity for Booster C
- Booster stations, PRVs, and piping internal to development

### Buildout

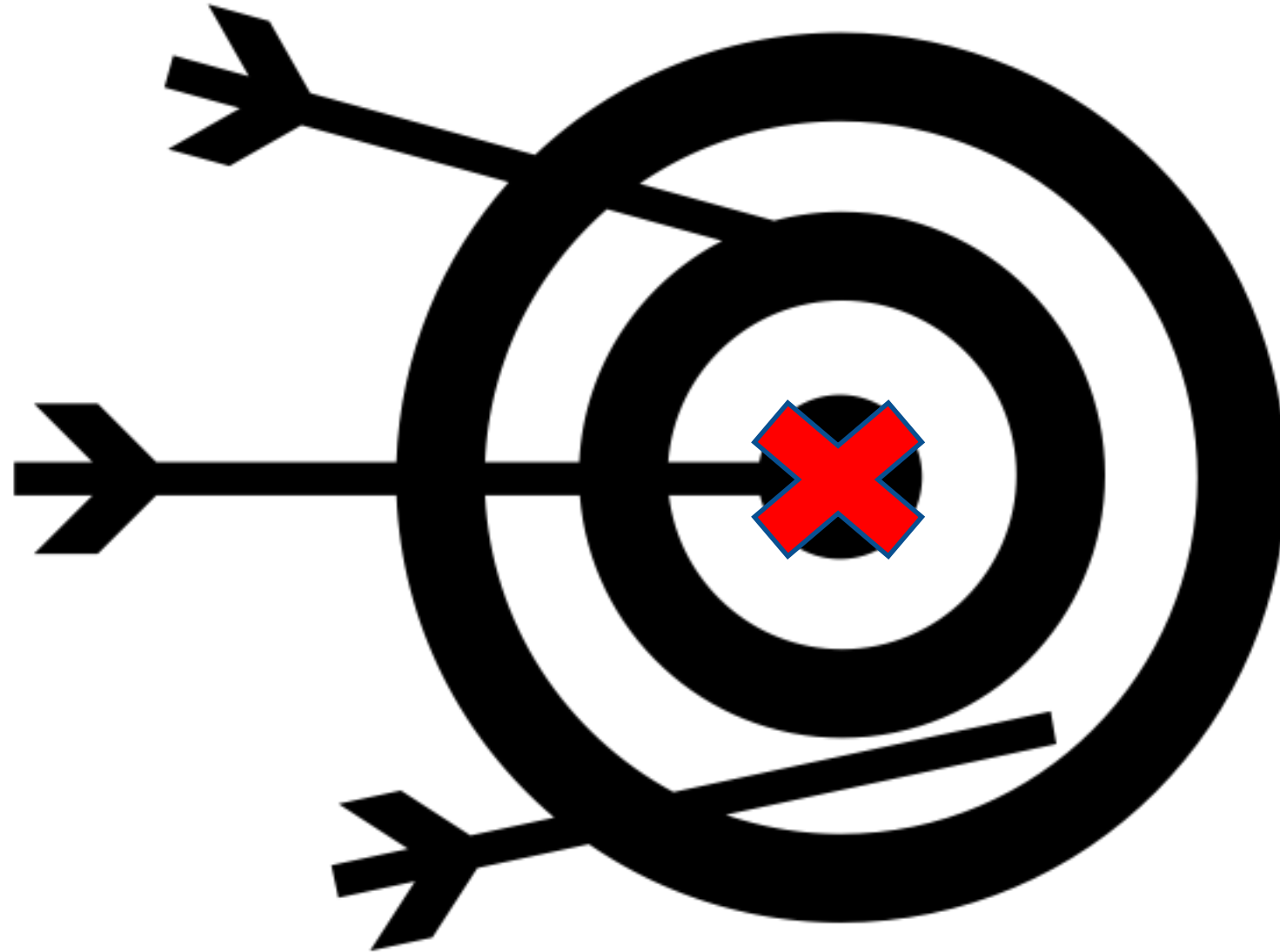
- Additional 11.4 MGD (7,900 gpm) new well capacity
- Booster stations, PRVs, and piping internal to development



## Search for New Well Supply

- WFP recommended new 2,100 GPM well
- 3 sites investigated
- Interagency concept





## Pilot Testing Results

- Poor water quality
- Low yield
- Pocatello Creek Test Well Results
  - 1,500 gpm
  - Hard water
  - High TDS
  - High Chloride





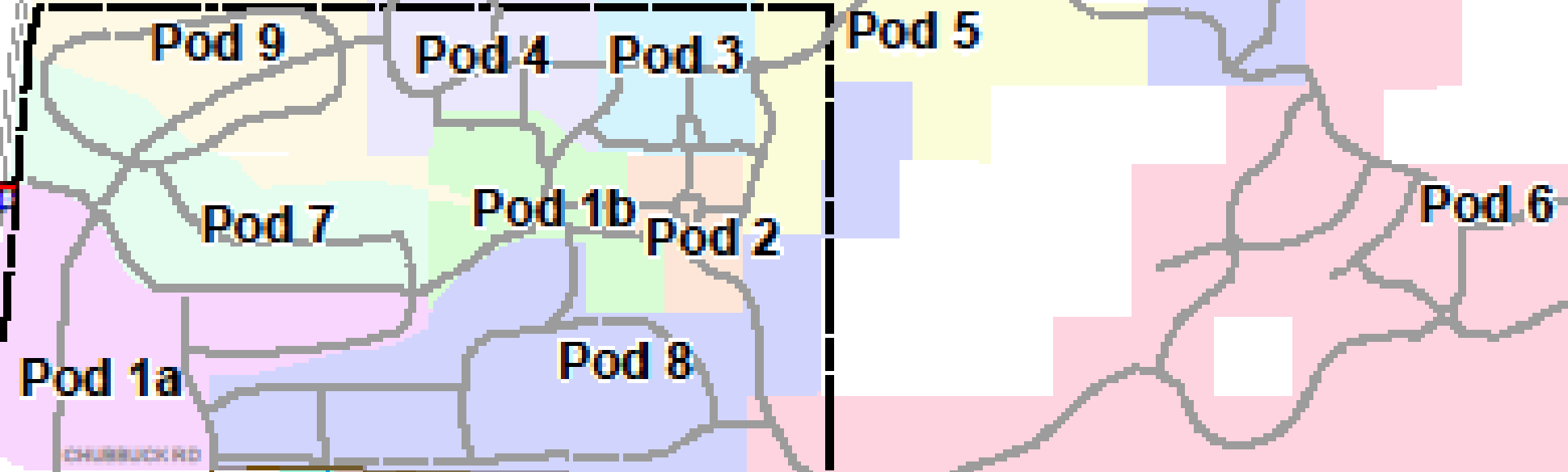
## Interagency Option

- Snake River Plain Aquifer
- Potential Yield 2,500 gpm +
- Interagency Coordination
  - City of Chubbuck
  - Bannock County

## Wells in the Main Zone

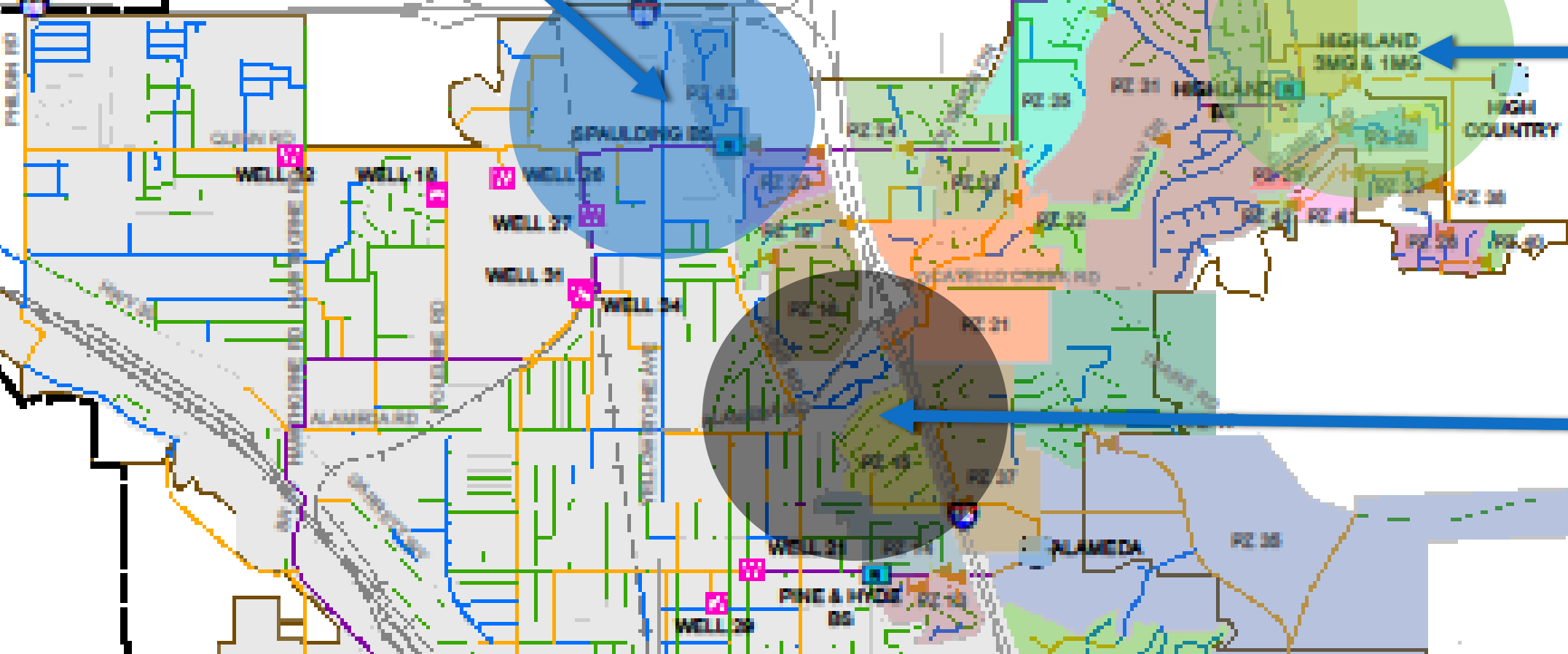
- Retrofit existing wells
- New wells are an option
- Challenges
  - High nitrates observed in existing wells
  - Most existing wells on small lots
  - Limited room for expansion and/or water treatment

Chubbuck  
**SPAULDING  
BOOSTER STATION**



**HIGHLAND TANK**

**BOOSTER C  
POTENTIAL  
LOCATIONS**



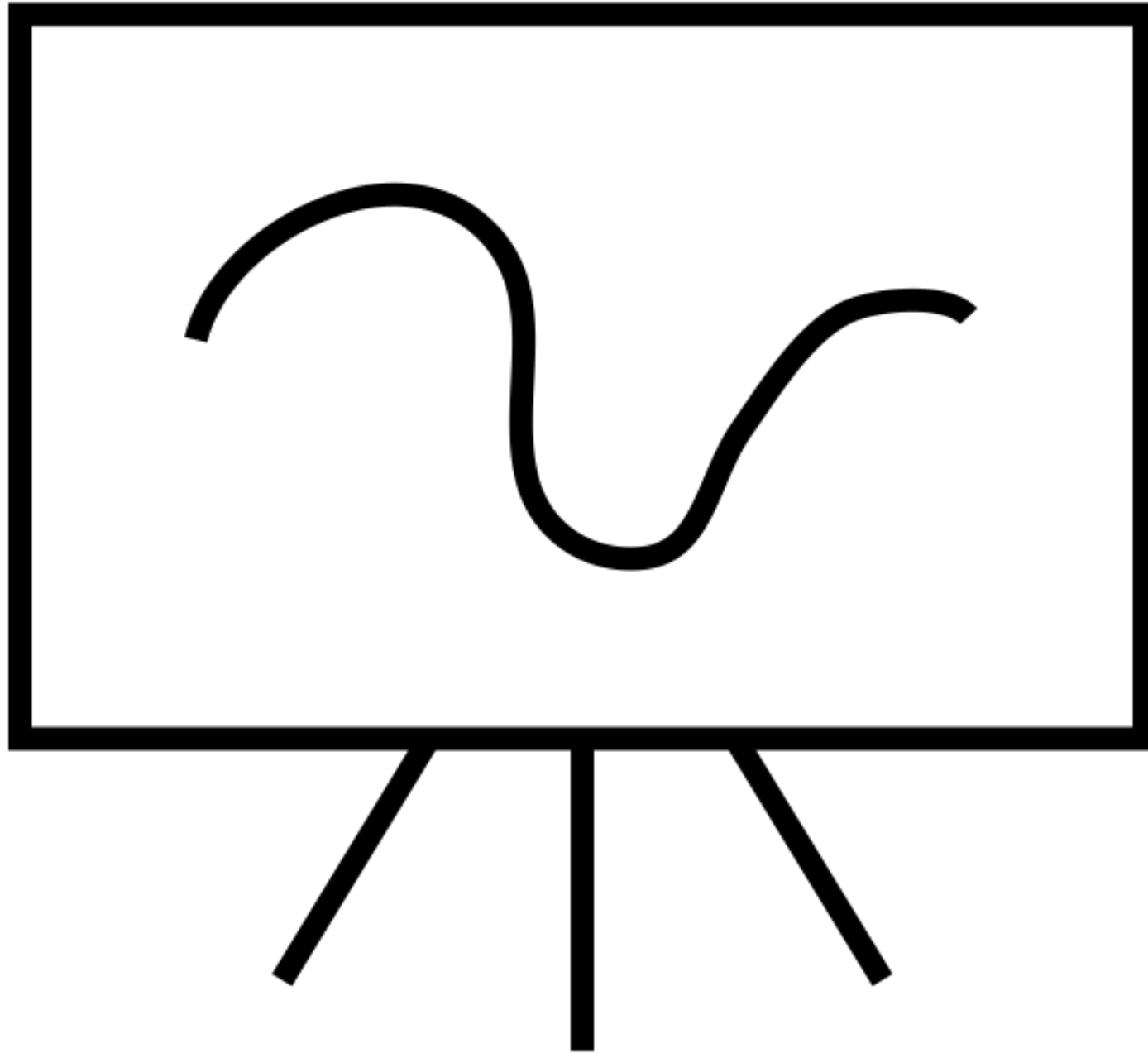


## Goals for Booster C

- Provide redundancy for Spaulding Booster Station and transmission main
- Pump water from Main Zone to Highlands Tank to meet future demand

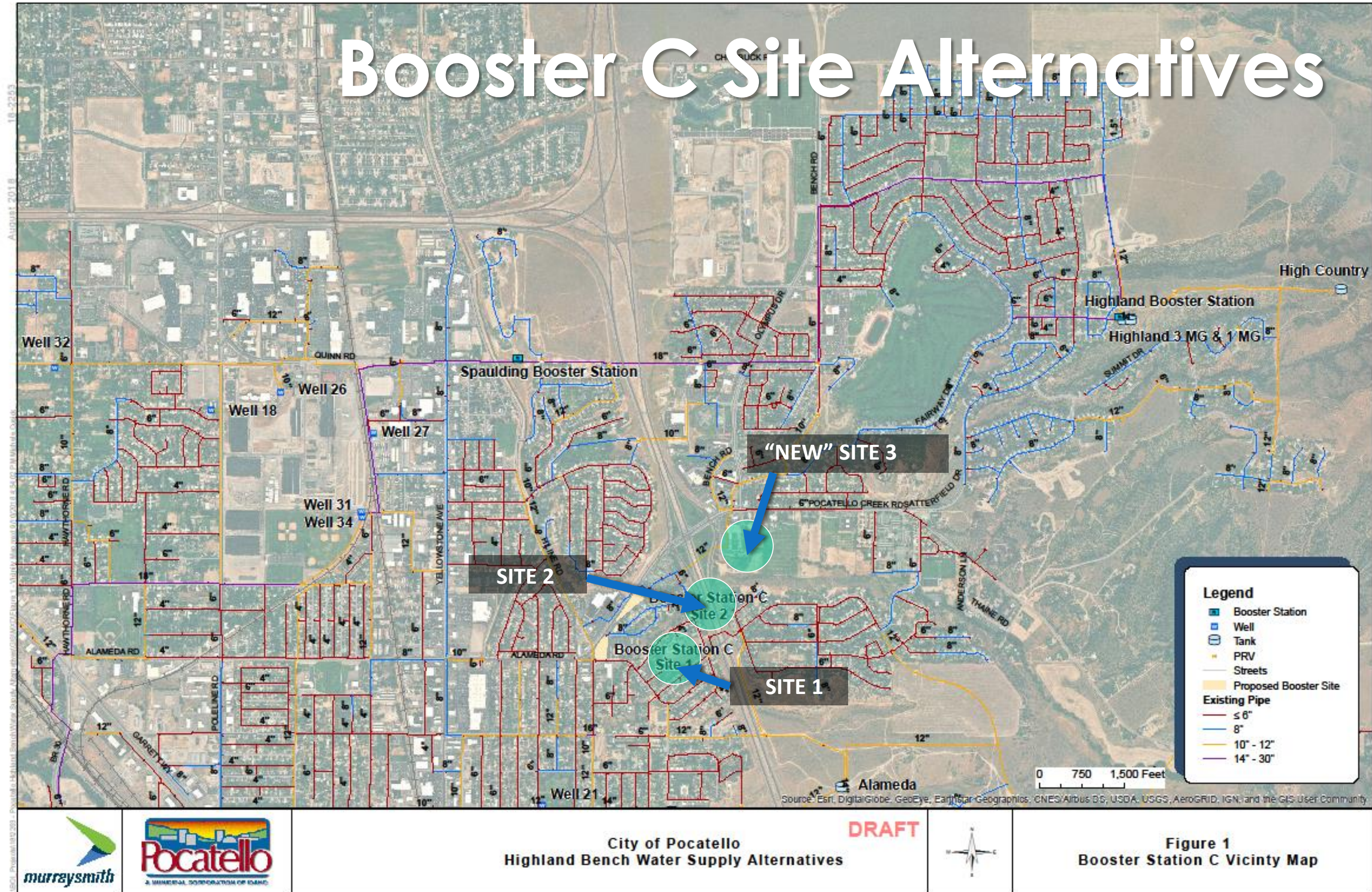
# Redundancy and Increased Capacity

	Spaulding (Existing)	Booster C (Proposed)			Spaulding & Booster C Combined		
	Current	Immediate	Mid-Term	Build-out	Immediate	Mid-Term	Build-out
Pump #1 Design Flow, gpm	3,000	1,935	1,935	1,935	--	--	--
Pump #2 Design Flow, gpm	3,000	1,935	1,935	1,935	--	--	--
Pump #3 Design Flow, gpm	1,400	n/a	1,935	1,935	--	--	--
Pump #4 Design Flow, gpm	1,400	n/a	n/a	1,935	--	--	--
Station Firm Design Flow, gpm	5,800	1,935	3,870	5,805	9,670	11,605	13,540
Station Total Design Flow, gpm	8,800	3,870	5,805	7,740	12,670	14,605	16,540
New Development Demand				7,153 (2020 PHD)		21,610 (2035 PHD)	38,280 (Build-Out PHD)

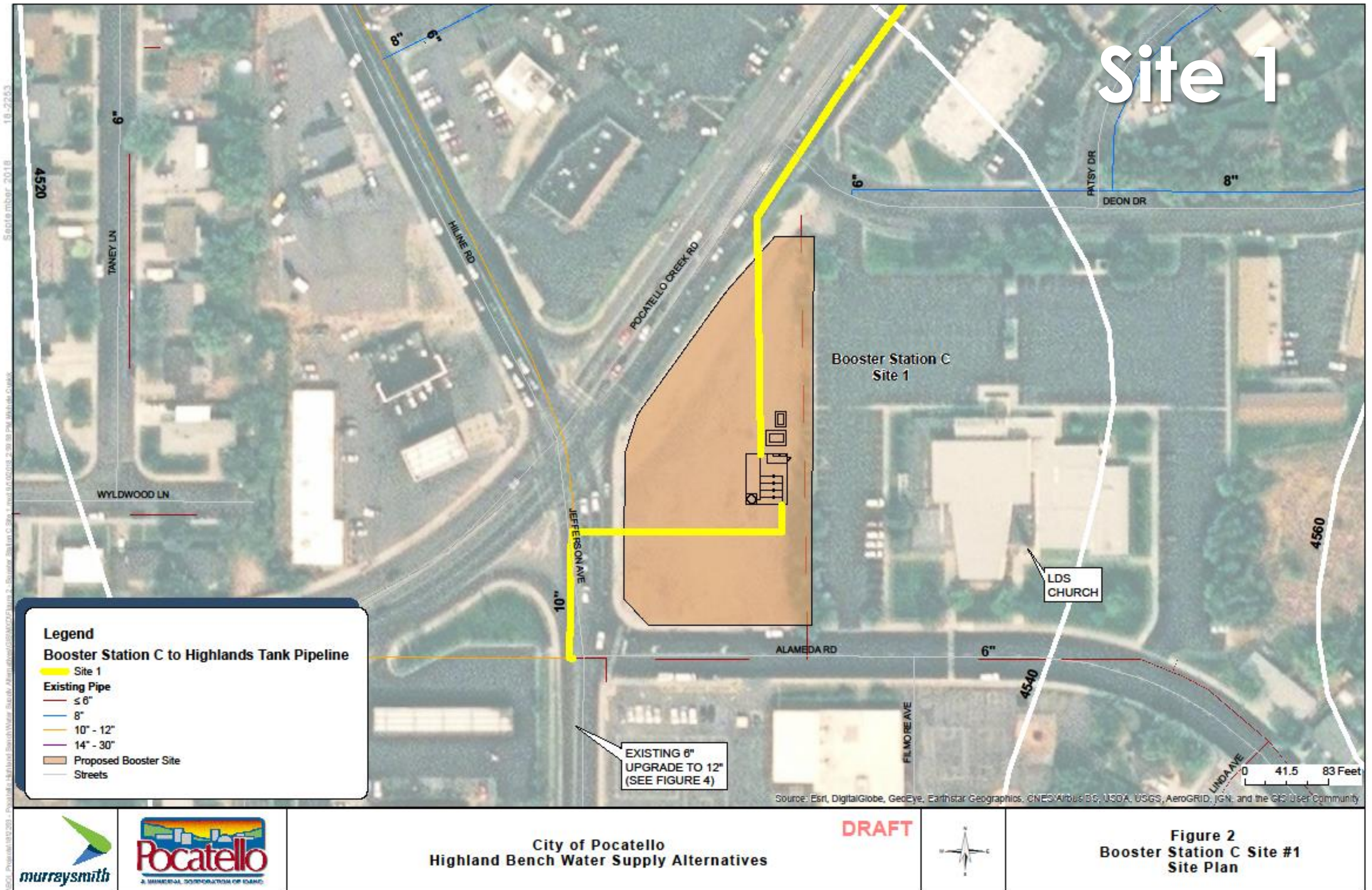


## Design Concepts

- Install two booster pumps initially
- Ability to add two additional pumps to meet future demands
- Emergency generator
- Bladder surge tank



# Booster C Site Alternatives





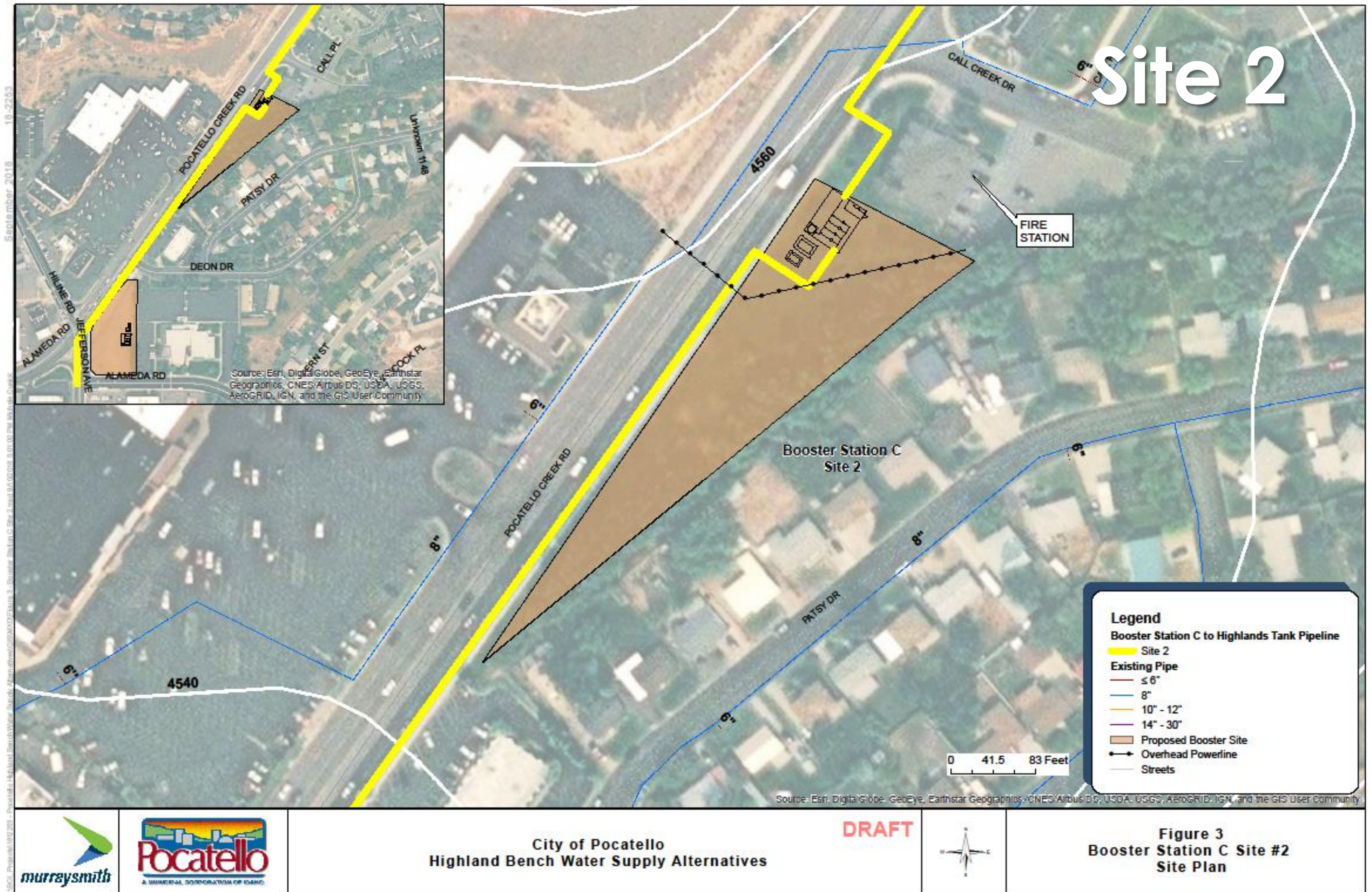
## Site 1

### Advantages

- Larger, more open parcel than Site 2
- Offers vehicle access from multiple entry points
- No existing overhead obstructions or known buried utilities
- Minimal Federal Emergency Management Agency (FEMA)

### Disadvantages

- Site of a former gas station
- A catastrophic failure at the booster station could potentially flood the adjacent intersection, impacting a major transportation artery through the City
- Site is more visible to the public, which could attract tagging or vandalism
- Use of this site would preclude its use for other beneficial uses for the public



City of Pocatello  
Highland Bench Water Supply Alternatives

**DRAFT**



**Figure 3**  
**Booster Station C Site #2**  
**Site Plan**

## Site 2

### Advantages

- Less visibly prominent location
- Leaves the larger and more accessible Site 1 available for other beneficial public uses.
- A catastrophic failure at this site would likely cause less disruption to adjacent roadways and facilities as compared to Site 1.

### Disadvantages

- Small parcel constricted by numerous trees
- Presence of both buried and overhead utilities with potential utility easement
- Limited site access

## Site 3

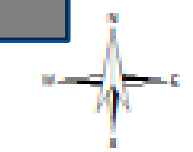
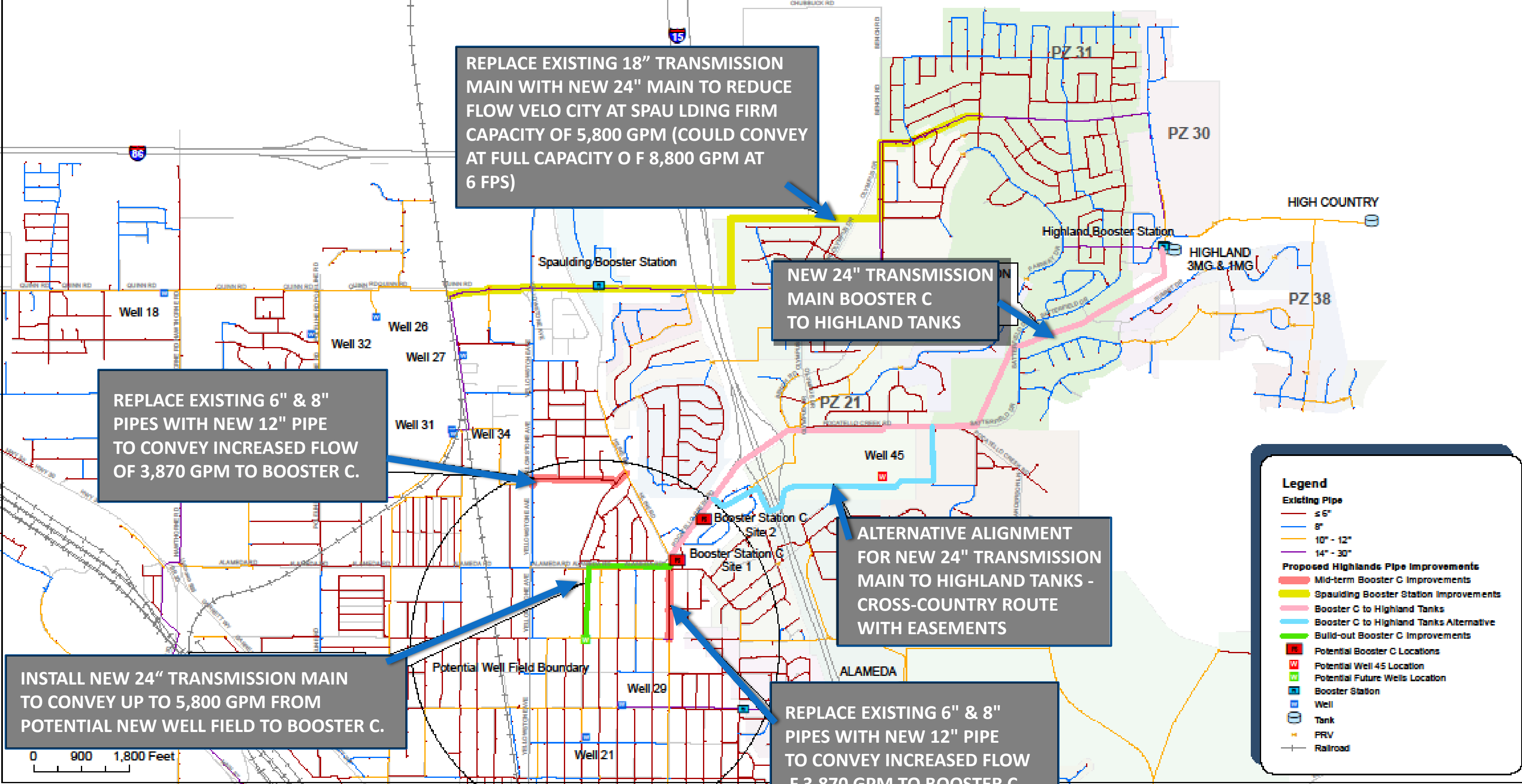
### Advantages

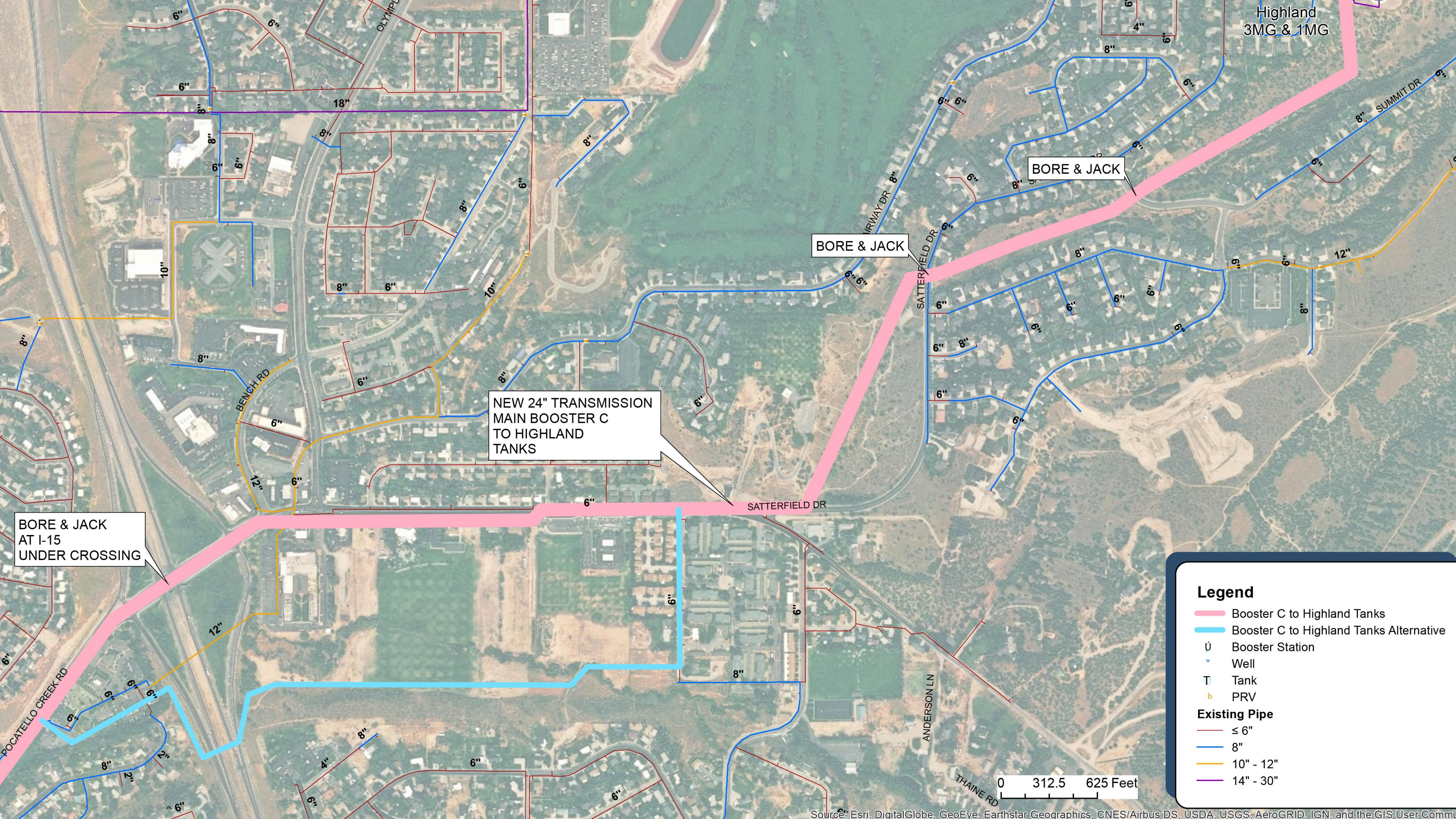
- TBD

### Disadvantages

- TBD

September 2018  
USCJ, Project 18100283 - Pocatello Highland Bench Water Supply Alternatives/CS&M0002/Source 4 - Highlands Pipe Improvements, Updated mod 10/11/2018 2:00:00 PM Michele Cusick





Highland  
3MG & 1MG

BORE & JACK

BORE & JACK

NEW 24" TRANSMISSION  
MAIN BOOSTER C  
TO HIGHLAND  
TANKS

BORE & JACK  
AT I-15  
UNDER CROSSING

**Legend**

- Booster C to Highland Tanks
- Booster C to Highland Tanks Alternative
- Ú Booster Station
- " Well
- T Tank
- b PRV

**Existing Pipe**

- ≤ 6"
- 8"
- 10" - 12"
- 14" - 30"

0 312.5 625 Feet

## Next Steps

- Council update
- Booster C site selection
- Booster C transmission pipe route analysis & selection
- Booster C and transmission line final design & construction
- Identify future water supply source(s)
- Determine funding sources
- Continuing coordination with new development



Q&A



***murraysmith***



**Thank you!**