Adding Transmission Capacity without Bigger Pipes - Camas Downtown Supply Operational Improvements

PNWS

Vancouver, WA

5/1/2019

City of Camas
WASHINGTON

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Agenda

- Background
- System Operation
- Supply Alternatives
- Operational Study
- Conclusion

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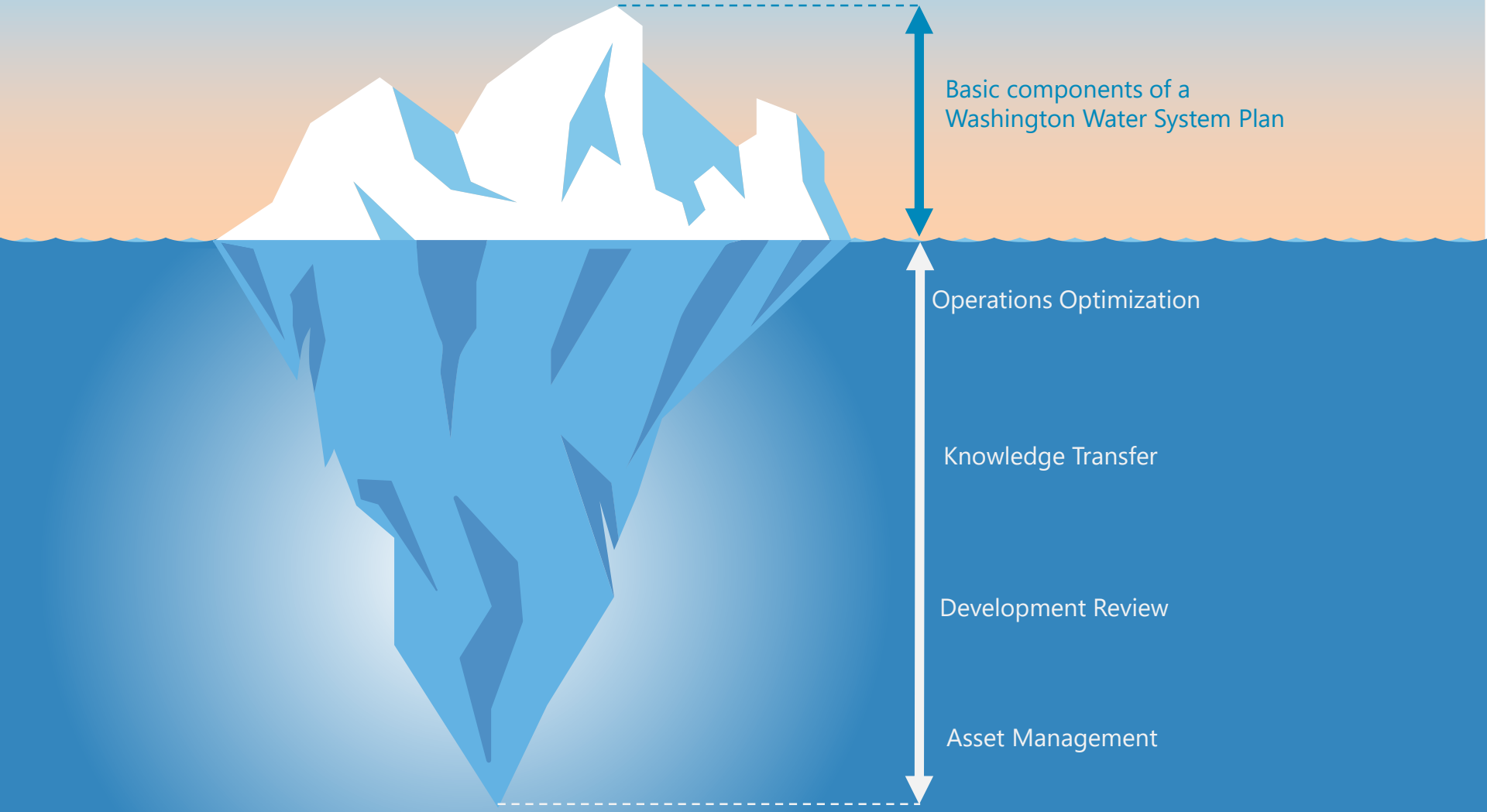
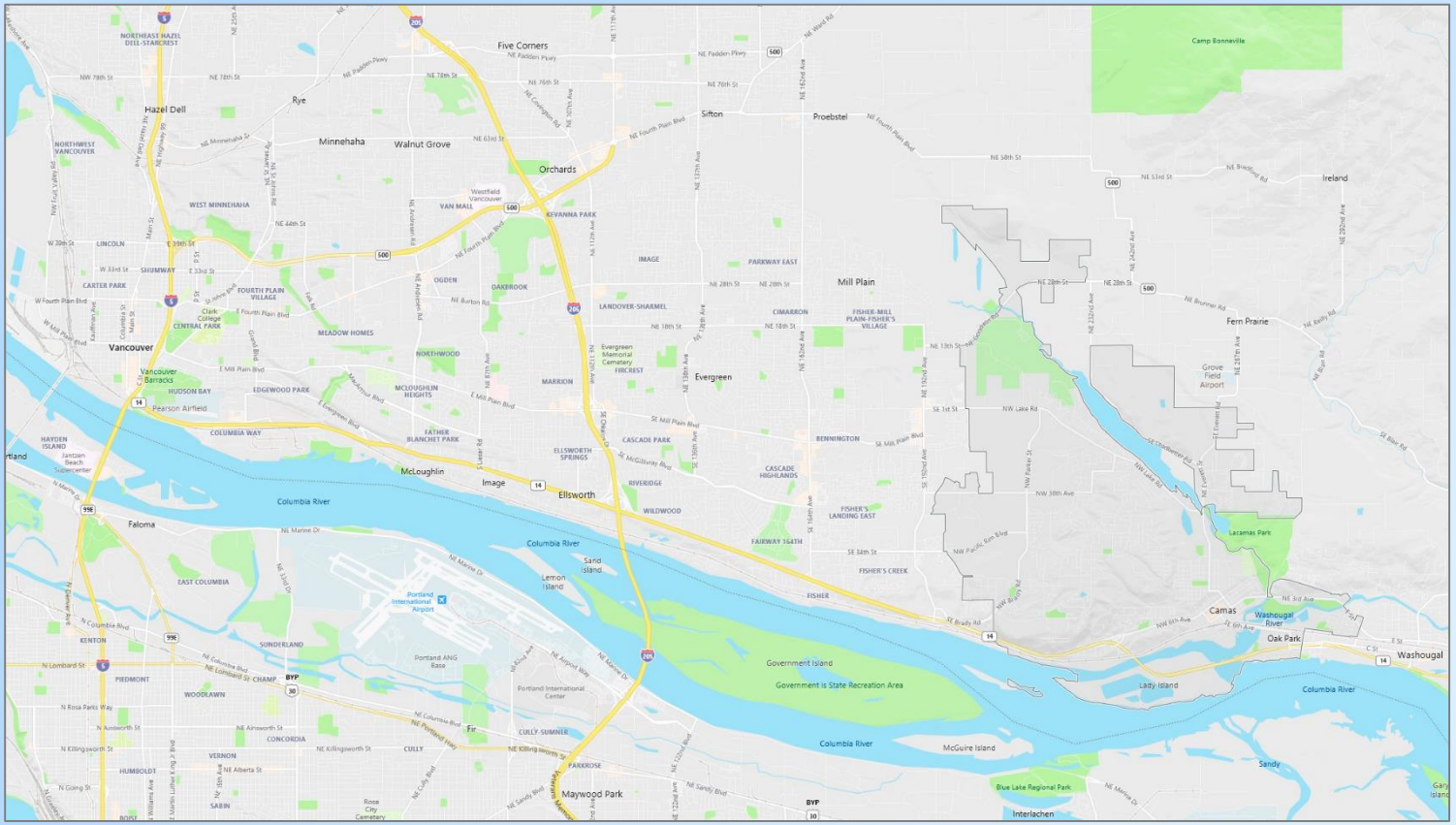
There is more to planning if you look past the surface

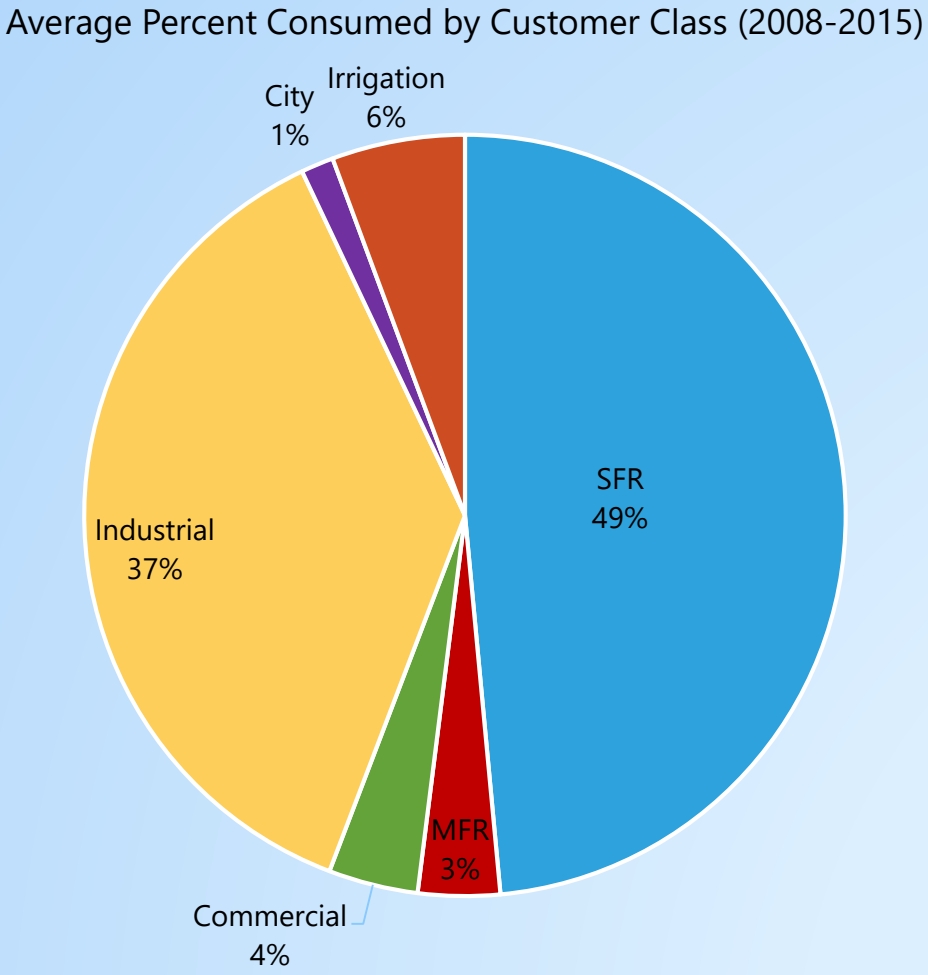


Camas is located on the Columbia River in SW Washington.

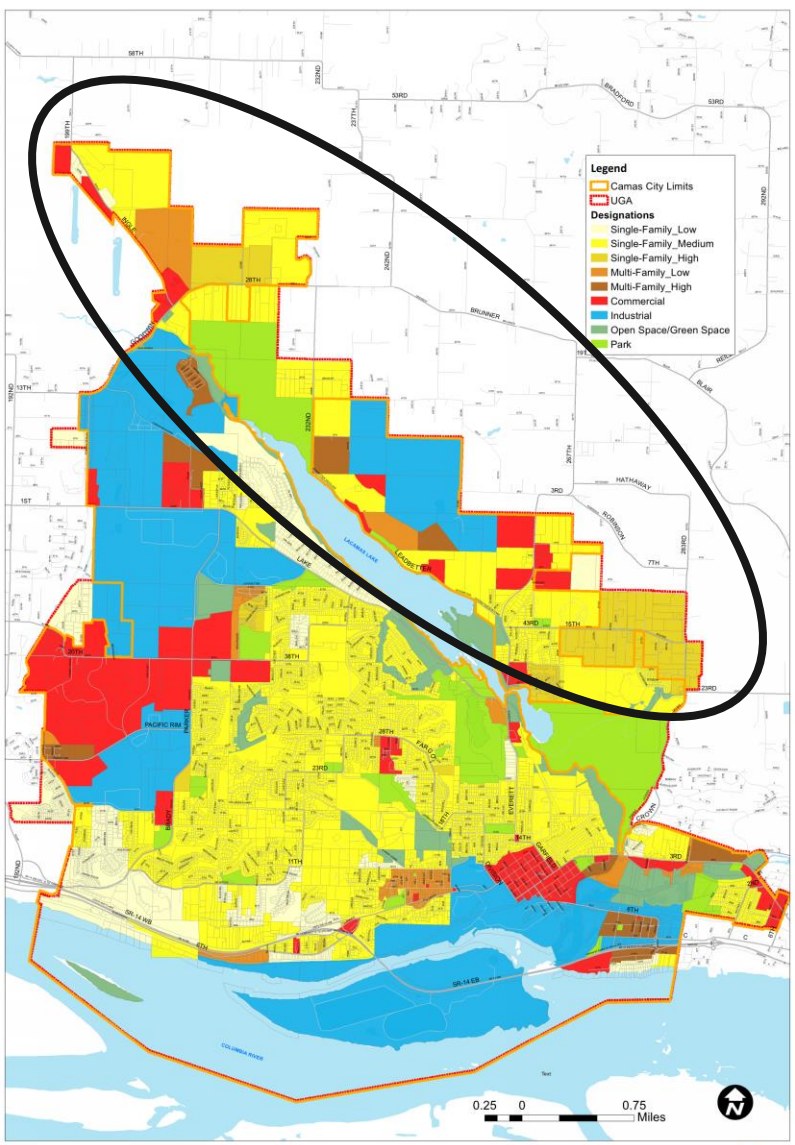


- Water system founded in 1913
- Serves nearly 20,000 residents today
- Average daily demand ~4 MGD

Camas's customers expect a high level of service and reliability



Big changes happening to the water system



- Slow Sand Filtration Plant coming online for non-summer use
- North Shore and Grass Valley are developing
- New wells to supply growth

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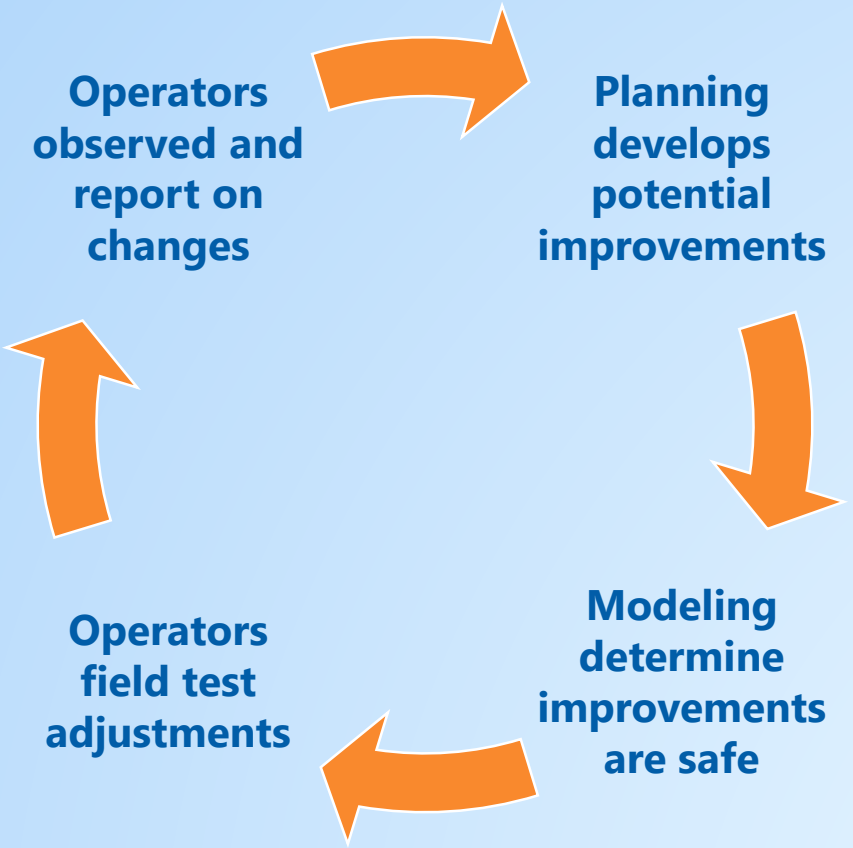
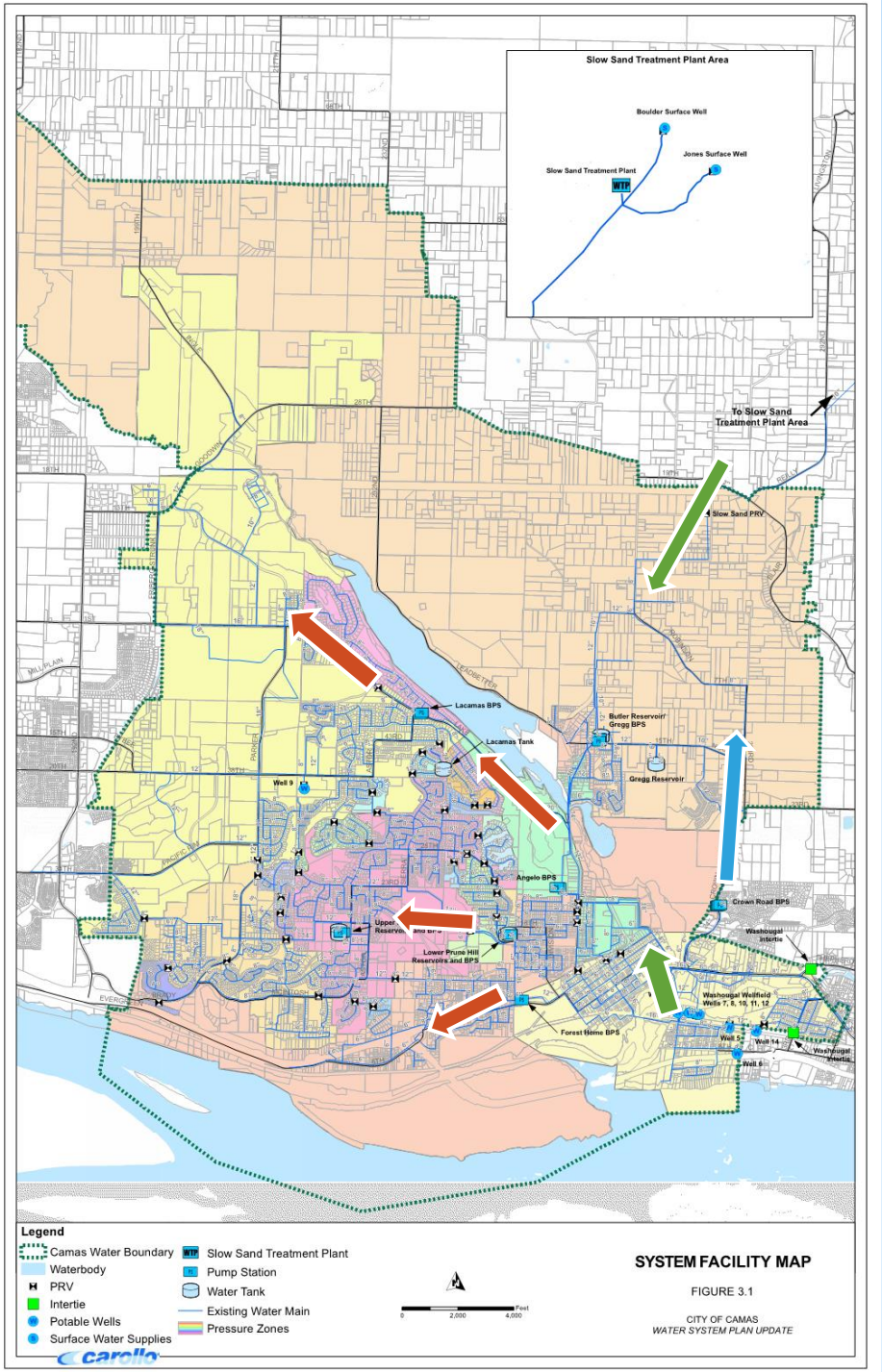
Involving Operators is key to successful water system improvements



Well Supplies are pumped uphill to higher pressure zone

- Wells located near river
- Surface Water flows by gravity to highest pressure zone during the winter

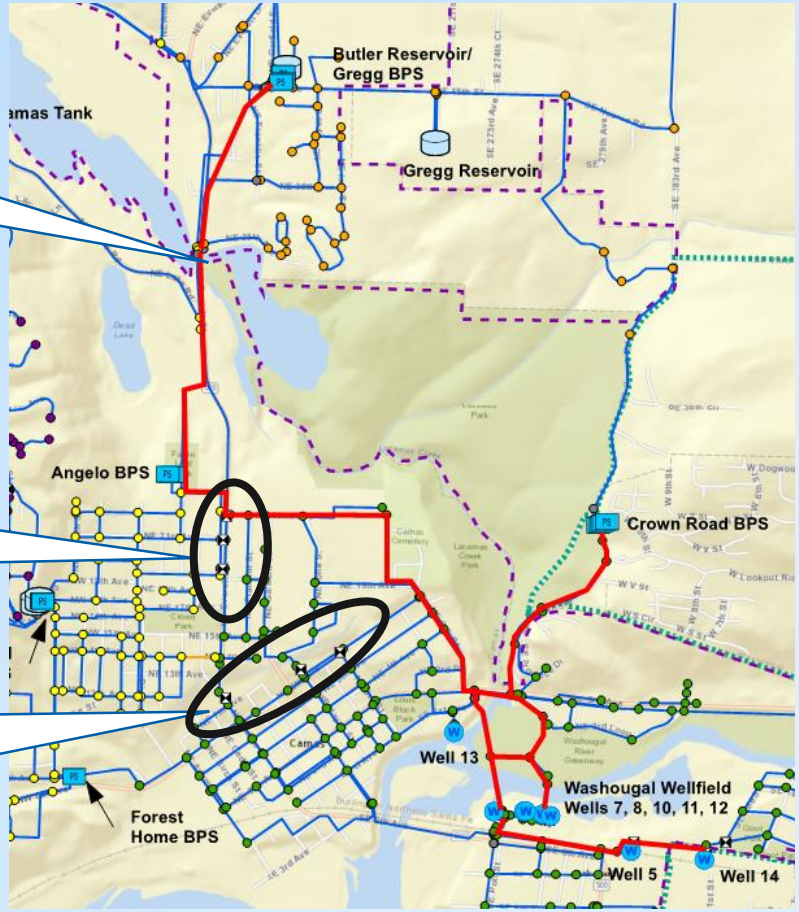


Wells are at a higher grade than surrounding PZ – PRVs are used to supply the 343 PZ

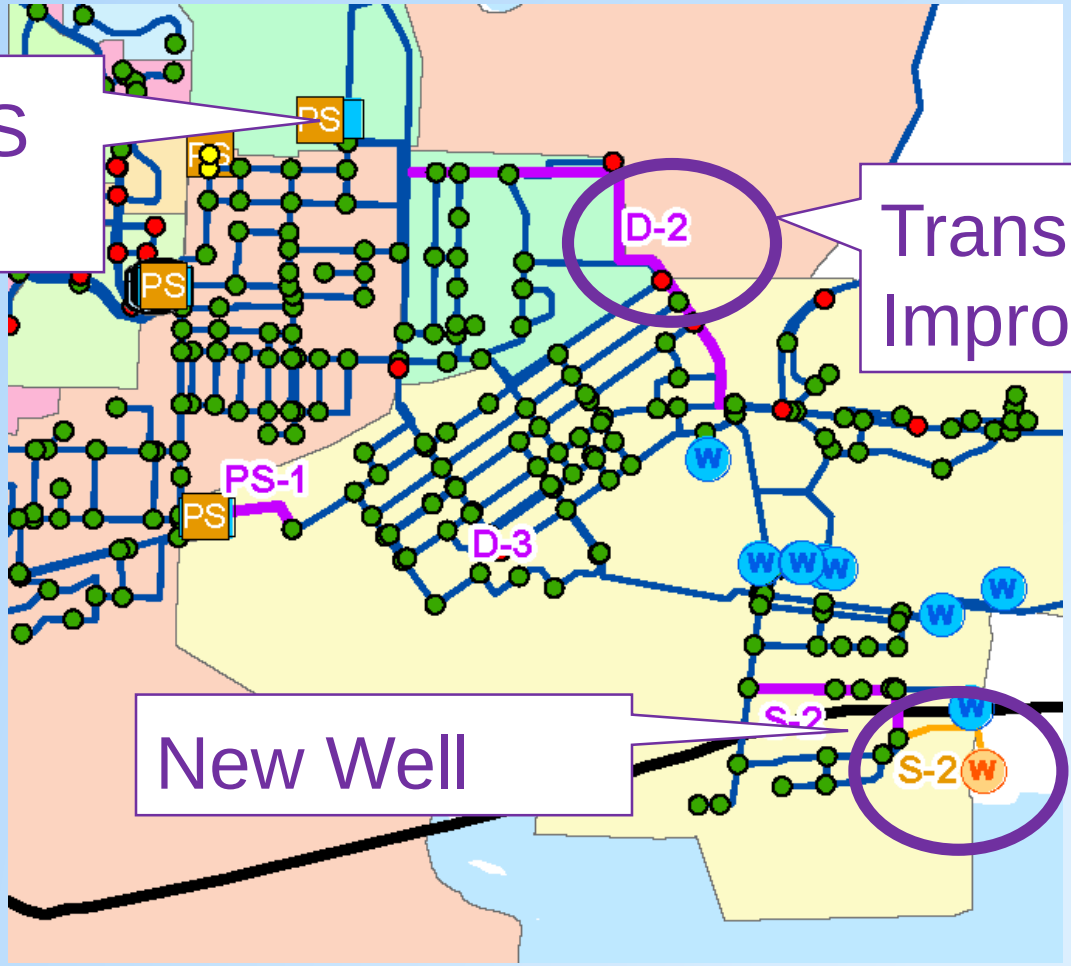
Supply Transmission

455 to 343 Upper PZ PRVs

343 Upper PZ to 343 Downtown PRVs

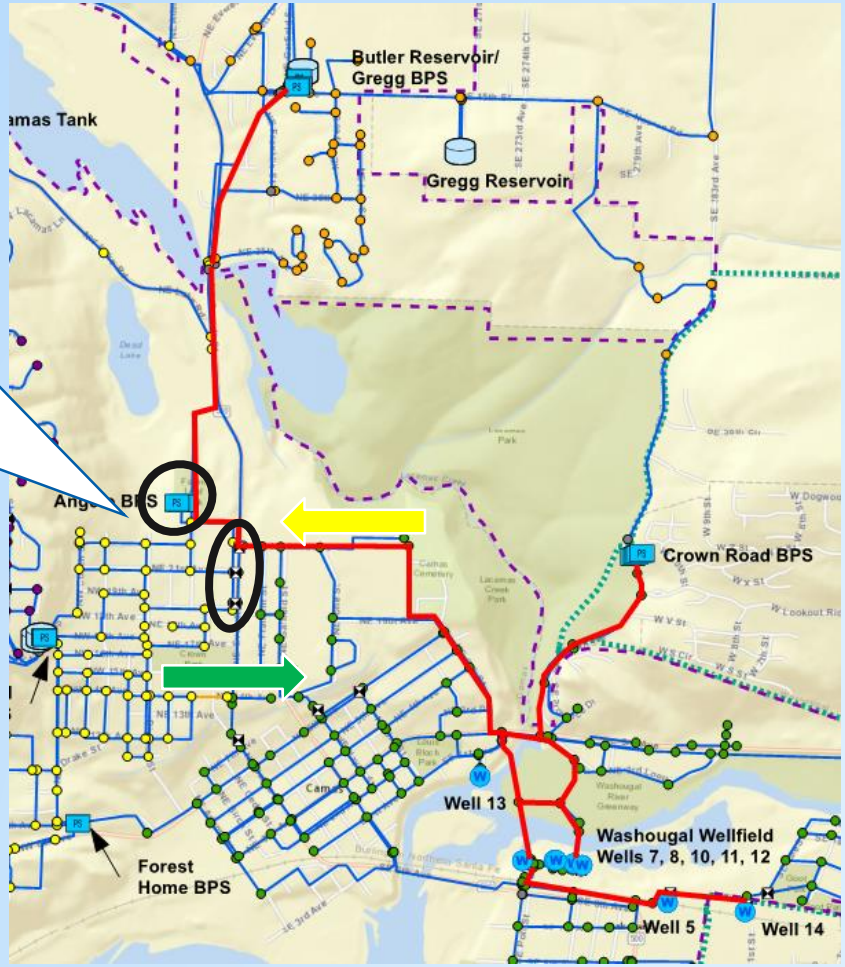


New Well and transmission triggered a harder look at need to upgrade Angelo BPS



City found majority of 343 PZ supply from Angelo BPS

Angelo is operating at its capacity during peak demands



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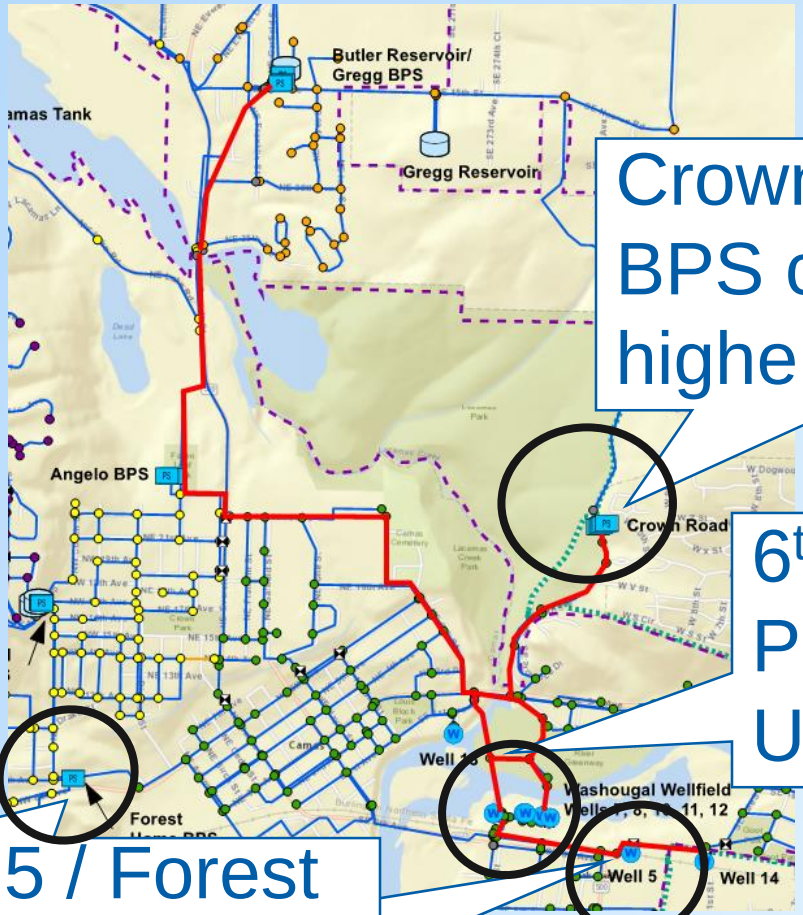
City considered operational changes to delay Angelo BPS / Supply Transmission improvements



Crown Road BPS can supply higher PZ

6th Ave/Polk PRV Underutilized

Well 5 / Forest Home Booster

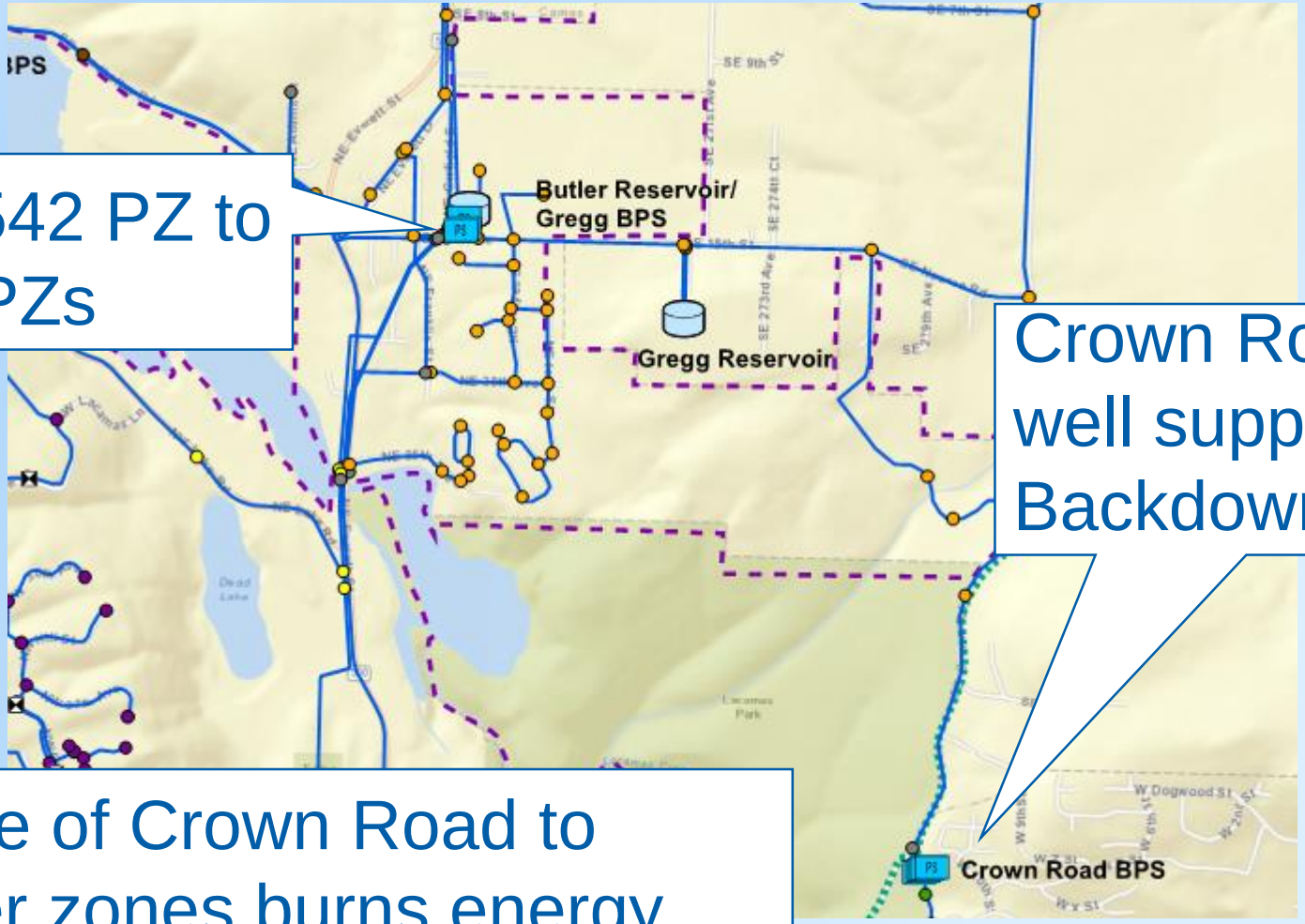
Well 5 must be operated in tandem with Forest Home BPS to prevent over pressurizing of Downtown 343 PZ

- Well 5 (500 gpm) and Forest Home (1,000 gpm) create partial circle pumping

6th Ave/Polk PRV was not intended as a primary supply

16” main not trusted as sole supply transmission

City new "Swiss Army Knife" – Gregg Backdown PRV - provides operational flexibility and reliability



Links 542 PZ to lower PZs

Crown Road links well supplies to Backdown PRV

* Use of Crown Road to lower zones burns energy

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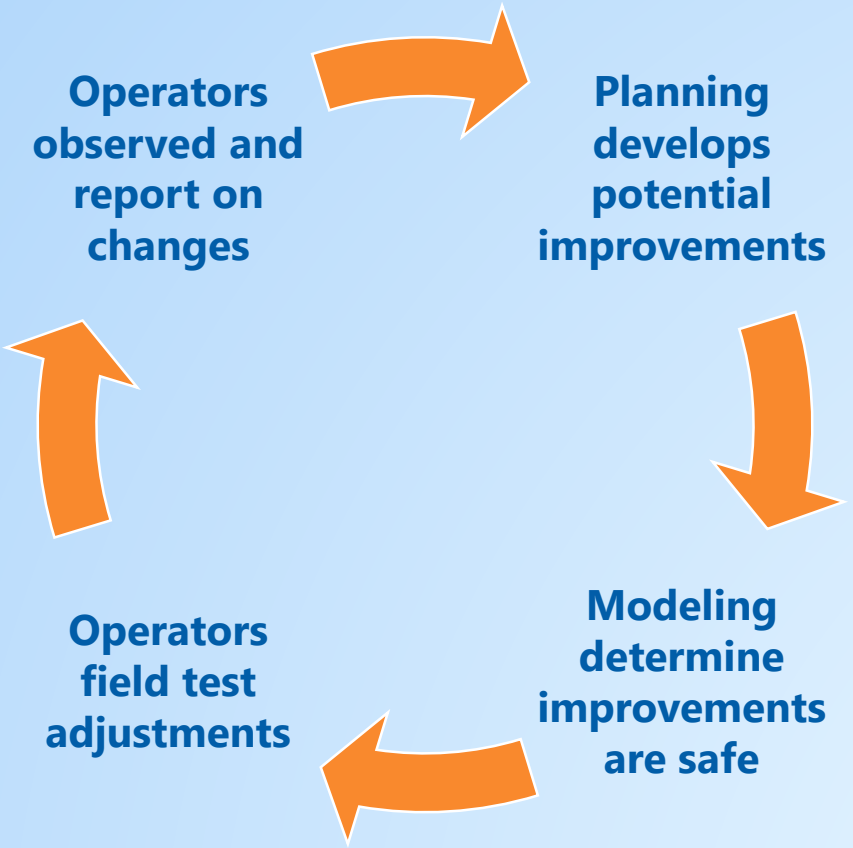
Operational Study used to sort through City's mixed options

1. Operate all pumps at Angelo BPS
2. Increase Well 5 / Forest Home BPS Use
3. Adjust PRV settings for 6th/Polk to provide more direct supply
4. Increase Crown Road BPS / Gregg Backdown PRV Usage
5. Complete North Shore Looping to shift supply from Angelo BPS to Crown Road BPS

Operational Improvements used planning/hydraulic model to support Field Testing



Two options were quickly decided upon

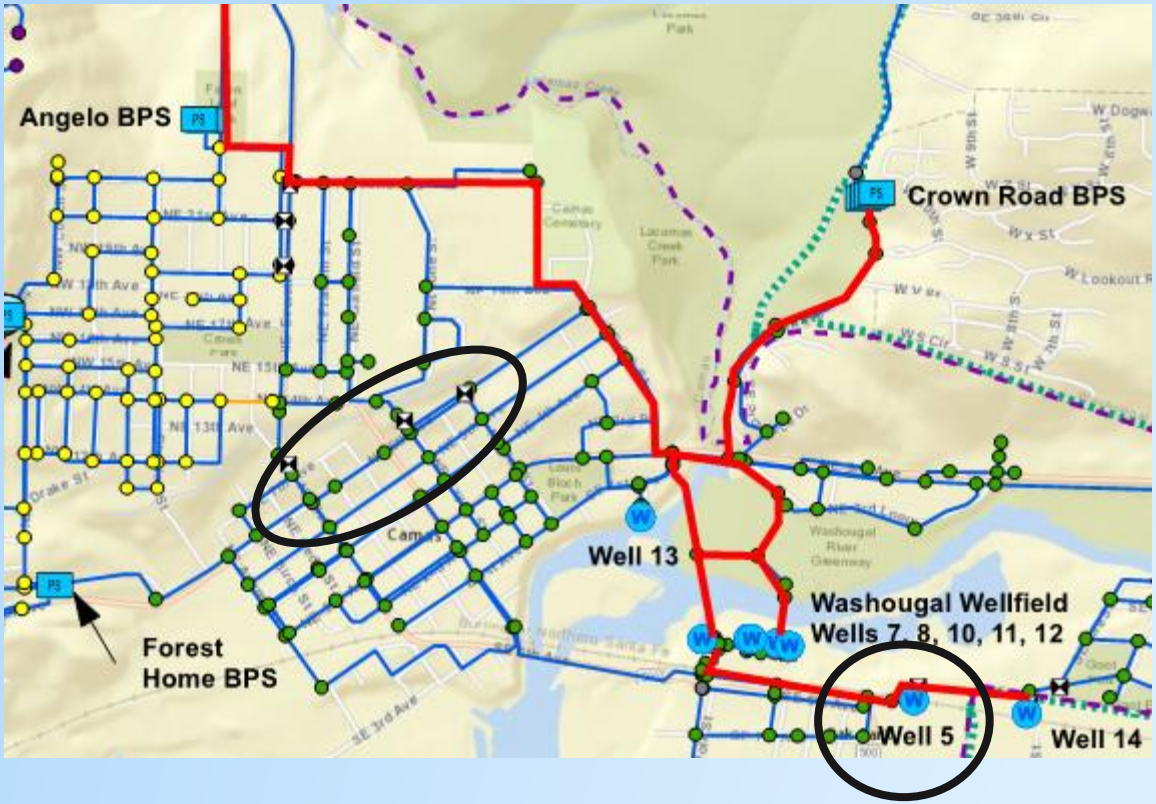
1. Operate all pumps at Angelo BPS

   *Capacity is less than pump name plate due to lower suction pressure

~~5. Complete North Shore Looping to shift supply from Angelo BPS to Crown Road BPS~~

   Modeling showed no near-term benefit

Operator adjusted settings at 6th/Polk PRV to allow more supply into 343 Downtown PZ



- Upper 343 PZ to Downtown 343 PZ were adjusted to Fire Flow Only to limit supply from 455 PZ

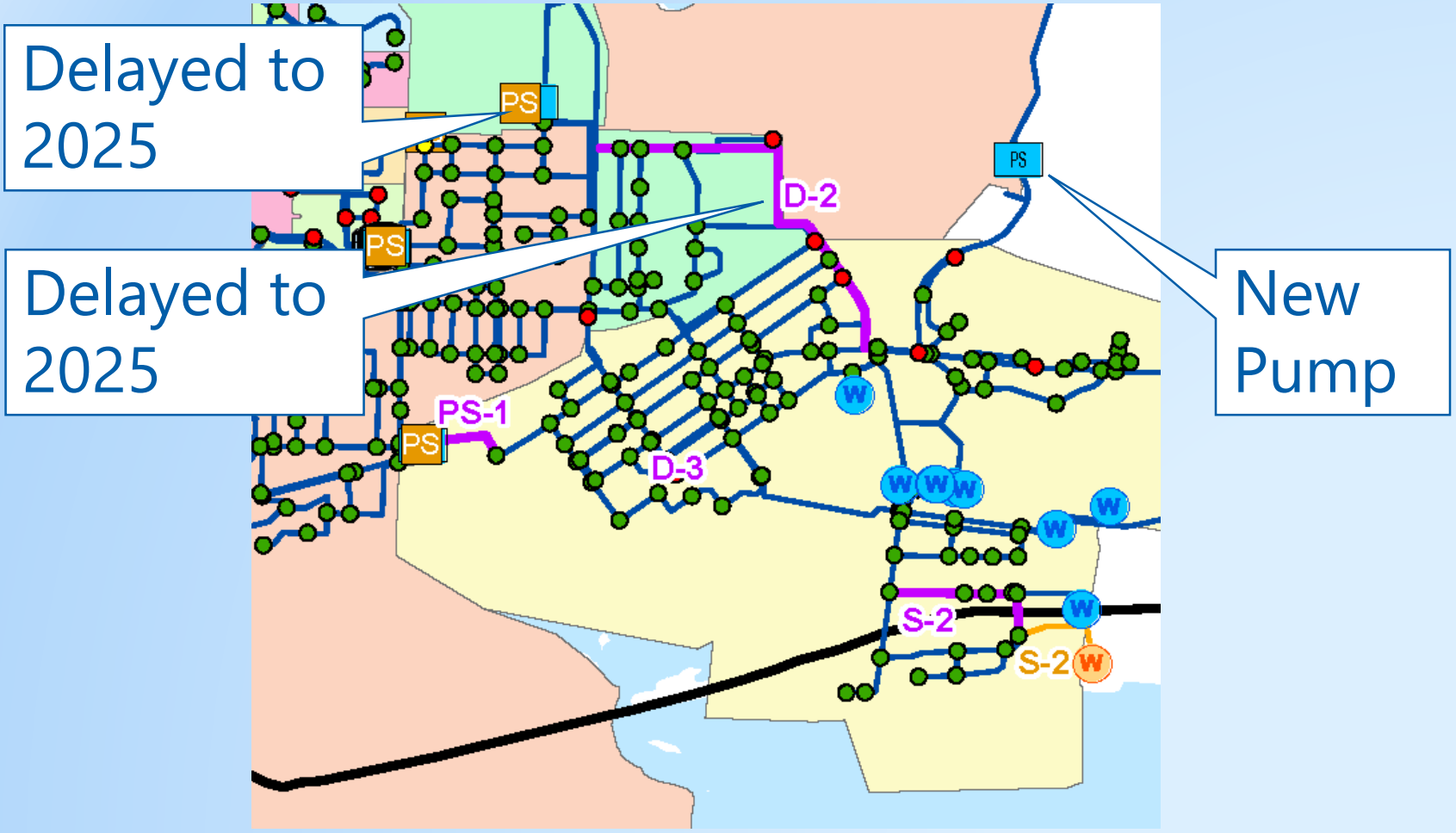
Gregg Backdown PRV / Crown Road BPS has been used in the past

- SCADA improvements added to provide operators more control and partial automation
  - Gregg Backdown PRV has variable setting on downstream pressure
  - Added SCADA controls prevent 100k gal Gregg Reservoir from draining.
  - Additional Crown Road BPS pump call based on number of Angleo pumps running
- New pump on empty pedestal at Crown Road BPS to provide redundancy.

Well 5 plus 6th Ave/Polk PRV successfully supplied Forest Home BPS

- BPS capacity may be reduced during peak demands period due to lower suction pressures
  - Modeling needs to be verified based on actual operation
  - With new operations, BPS improvements should be revisited.

Angelo BPS and Transmission Improvements have been delayed to 2025 with operational changes



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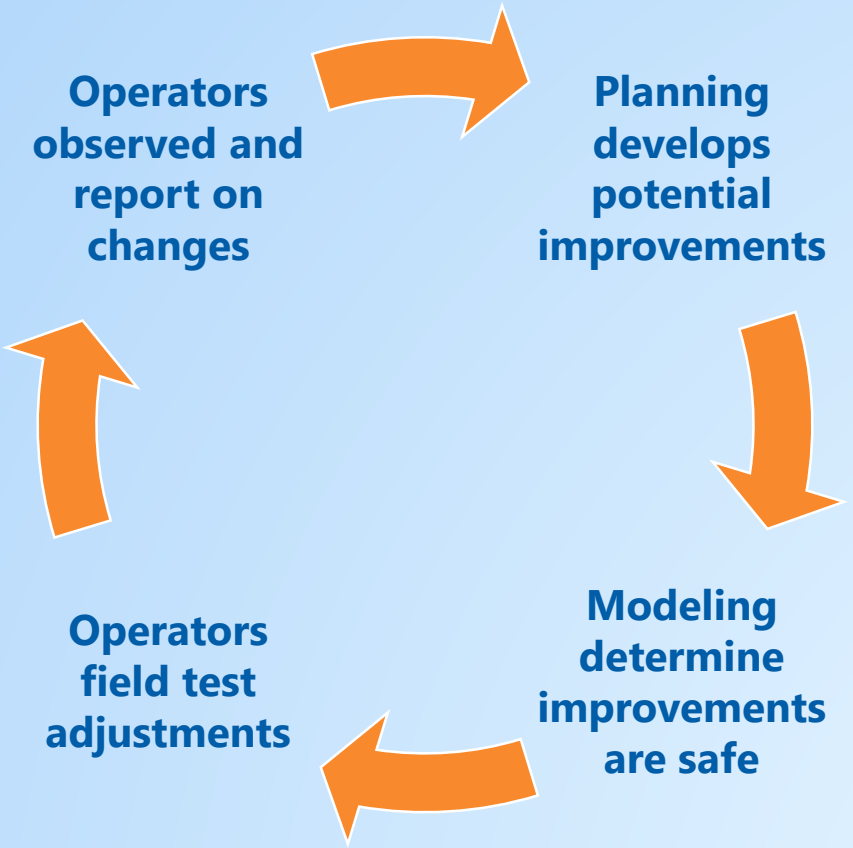
Operators provide invaluable input to operational studies



Thank You!

- Sam Adams - Utilities Manager
- Tobin Reed – Water Utility Lead Operator
- Camas Operators
- Steve Wall – Public Works Director

Daniel L. Reisinger, P.E.
Senior Engineer
dreisinger@carollo.com

Sam Adams, P.E.
Utilities Manager
sadams@cityofcamas.us