

Annual Update on Water Systems (DW, WP & NP)

Clay Moseley, Deputy Utility Manager – Gas, Water, Sewer (GWS) Services

Board of Public Utilities Work Session – March 4, 2026



Water Distribution PRV Rehabilitation Project

Continuing with the PRV rehabilitation project through the next 5-7 years. Shown here is a debris-clogged “low flow” PRV.

Water Production NM-4 Transmission Line Replacement

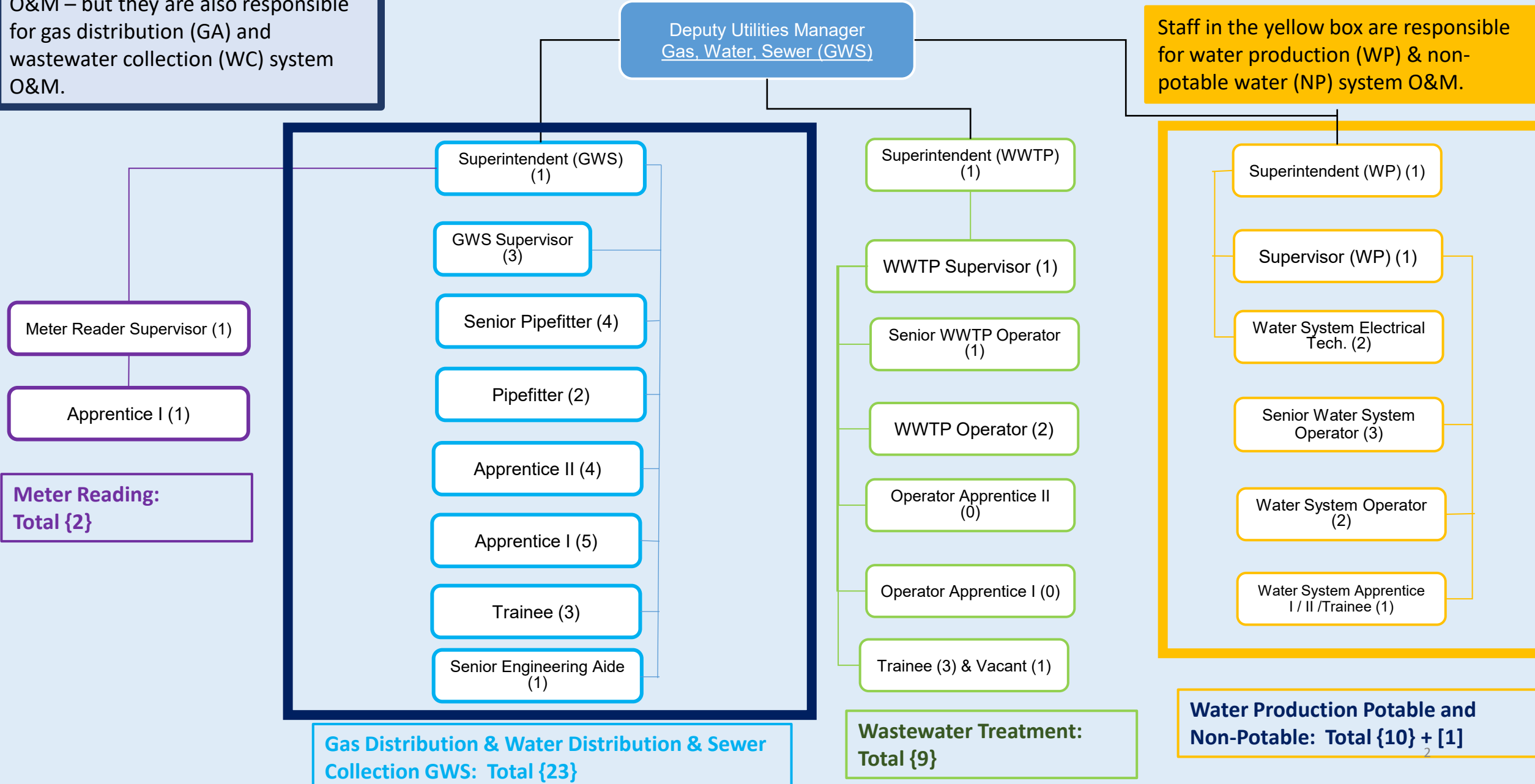
Very difficult project that vastly improves system reliability and resiliency.



GWS ORGANIZATIONAL STRUCTURE

Staff in the blue box are responsible for water distribution (DW) system O&M – but they are also responsible for gas distribution (GA) and wastewater collection (WC) system O&M.

Staff in the yellow box are responsible for water production (WP) & non-potable water (NP) system O&M.



Meter Reader Supervisor (1)

Apprentice I (1)

**Meter Reading:
Total {2}**

Gas Distribution & Water Distribution & Sewer Collection GWS: Total {23}

Wastewater Treatment: Total {9}

Water Production Potable and Non-Potable: Total {10} + [1]

DW – NEW/ONGOING ISSUES & ACHIEVEMENTS

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- ▶ **DW** – Water line breaks continued to occur, but at a slightly lower rate in FY25, vs. 24 in FY24. For the second year in a row, the rate is above the national average per 100 miles of pipeline, which is 11.1 per year, but below the “target break rate” of 21 breaks per 100 miles of pipeline. Main factors are age, corrosion, shifting soils, water hammer events, and third-party damage. Average break rates vary by age and material. We rarely see breaks on newer PVC pipe, with most breaks occurring on old cast iron pipe.
 - ▶ Age: much of the original system was installed in the late 1940s and 1950s and is seeing the end of its functional life span. Certain factors accelerate that, while some areas are not subject to the factors.
 - ▶ Corrosion: ice melt salts, age, storm water intrusion, leaks on the pipes themselves – all contribute to accelerated pipe deterioration from corrosion.
 - ▶ Shifting soils: with so much of town sitting on sloping terrain, soils move ever so slightly over time and settle into new configurations. Wet periods and winter conditions act as a catalyst for these miniscule movement events.
 - ▶ Water hammer events: operation of fire hydrants is the primary culprit of water hammer events in the distribution system. The production/transmission system occasionally experiences water hammers from pump operation or surges, but it is not common and usually is in conjunction with some sort of outage due to projects or putting something back into operation after an incident.
 - ▶ Third-Party Damage – there were two breaks caused by contractors working near water lines.

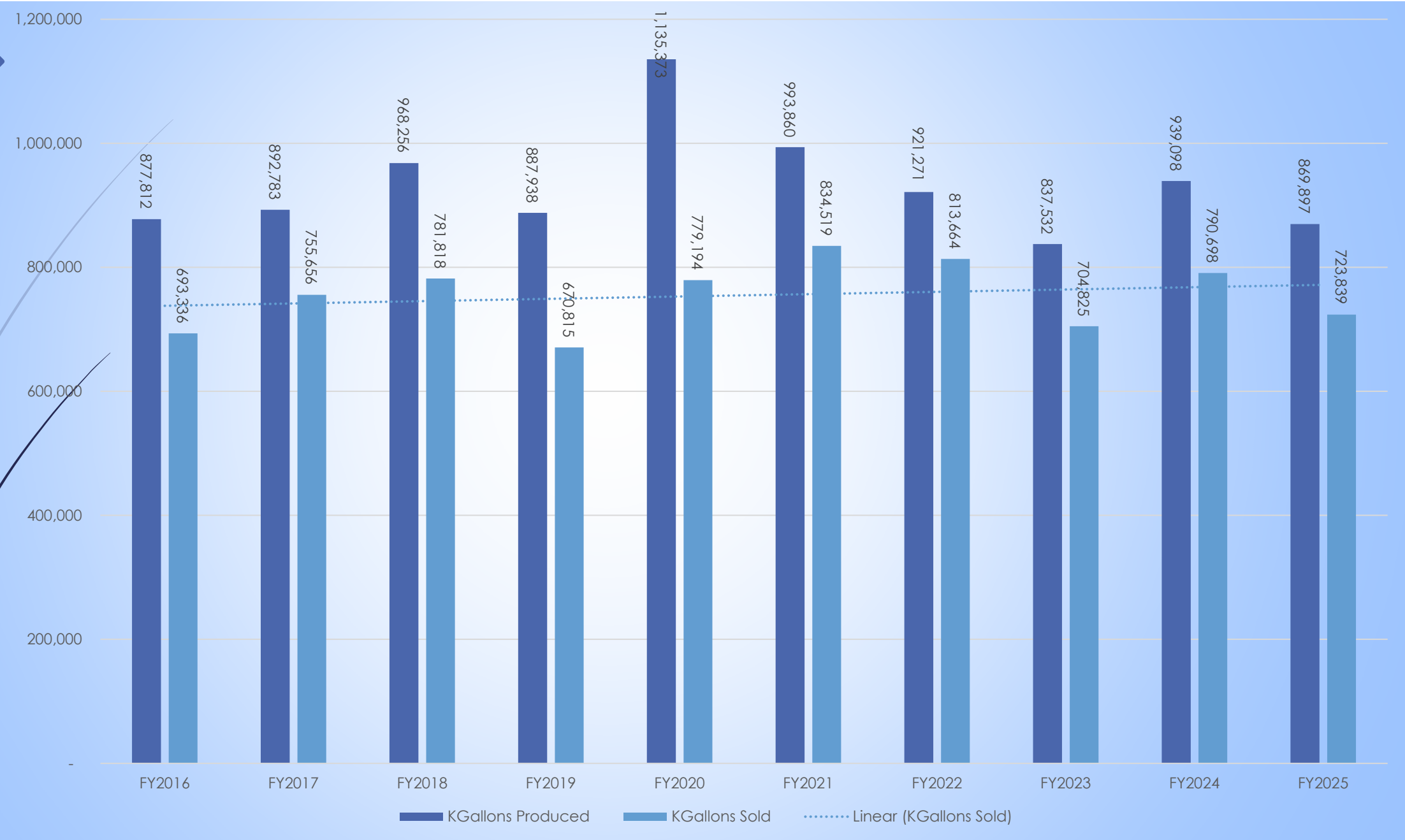
DW – NEW/ONGOING ISSUES & ACHIEVEMENTS (cont.)

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- **DW** – Fewer frozen meters and service lines – warmer winter, and we installed thick plastic covers where meters are most vulnerable to freezing, especially in White Rock.
- **DW** – Crews continued the replacement of both residential meters and commercial water meters. Crews also started performing in-house leak detection procedures to find and repair leaks, especially on corroded service lines.
- **DW** – GWS replaced valve bolt hardware in North Community where BAR project valves have been exposed to ice-melt salts. Percolation of corrosive ice-melt water causes premature failures on the valve body hardware.
- **DW** – GWS continues to work with the LAFD to test all hydrants in the system. This program is a necessity to ensure proper functionality of the fire hydrants themselves, but also for the water system integrity. Weak spots in the pipes often present themselves during the testing, as does poorly functioning PRV devices.
- **DW** – Hydrants noted as being deficient, or not adequately operable are put on a maintenance or complete replacement list. As the hydrant testing program continues, more deficient hydrants have been identified for either rehabilitation, or full replacement.
- **DW** – The PRV rehabilitation program continued through this past year. Several PRVs in White Rock were either overhauled or replaced altogether due to their poor condition. This has been a very tedious and difficult process, but necessary for the integrity and functionality of the system. More PRVs in the Townsite have also seen overhaul work: East Gate PRVs (#1 & #2), and on Barranca Mesa (still in progress). This program will continue for the next 5-7 years.

Water Production to Distribution: Water Produced and Sold

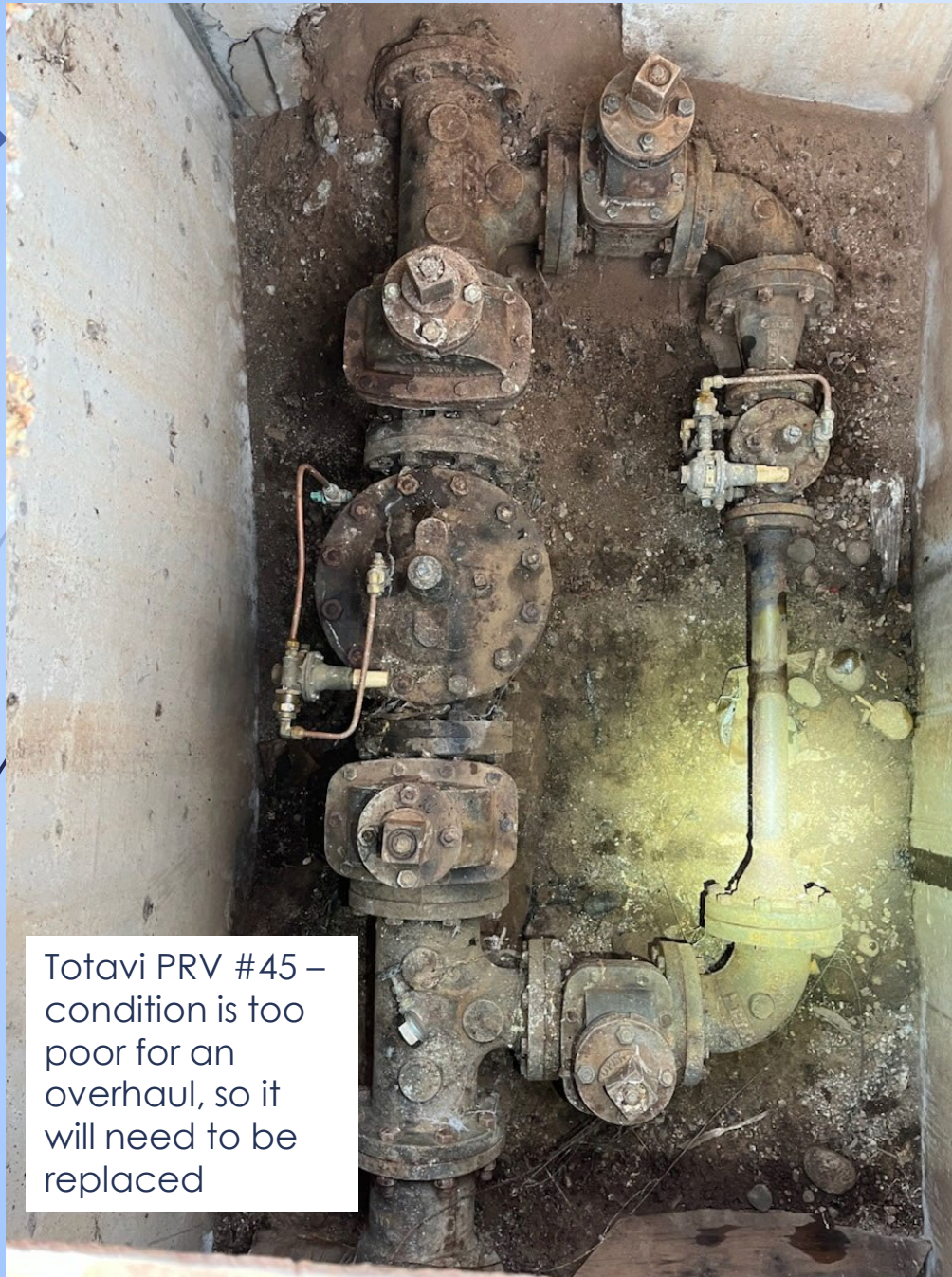
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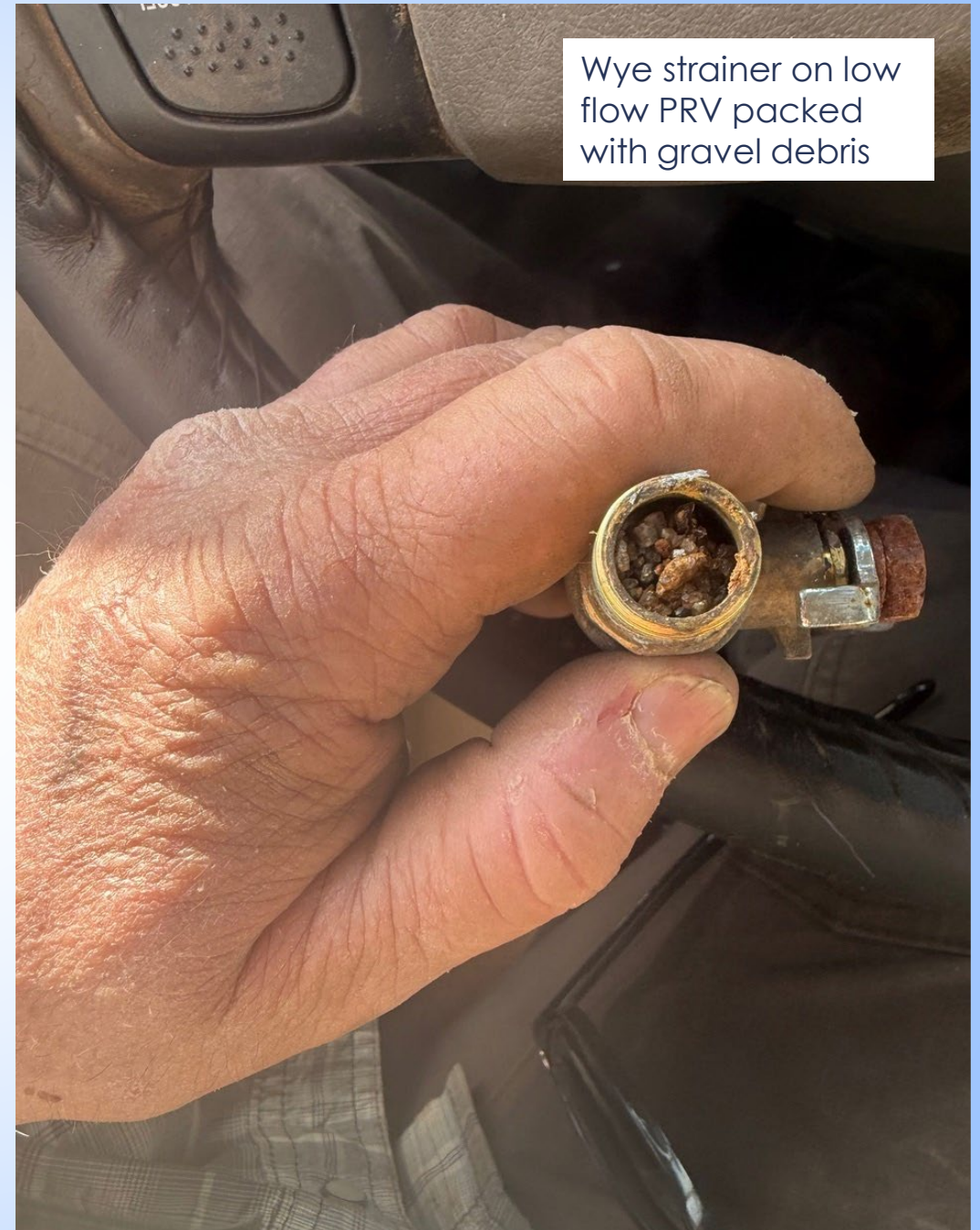
System Summary – January 2026 Water Distribution Physical Condition Assessment

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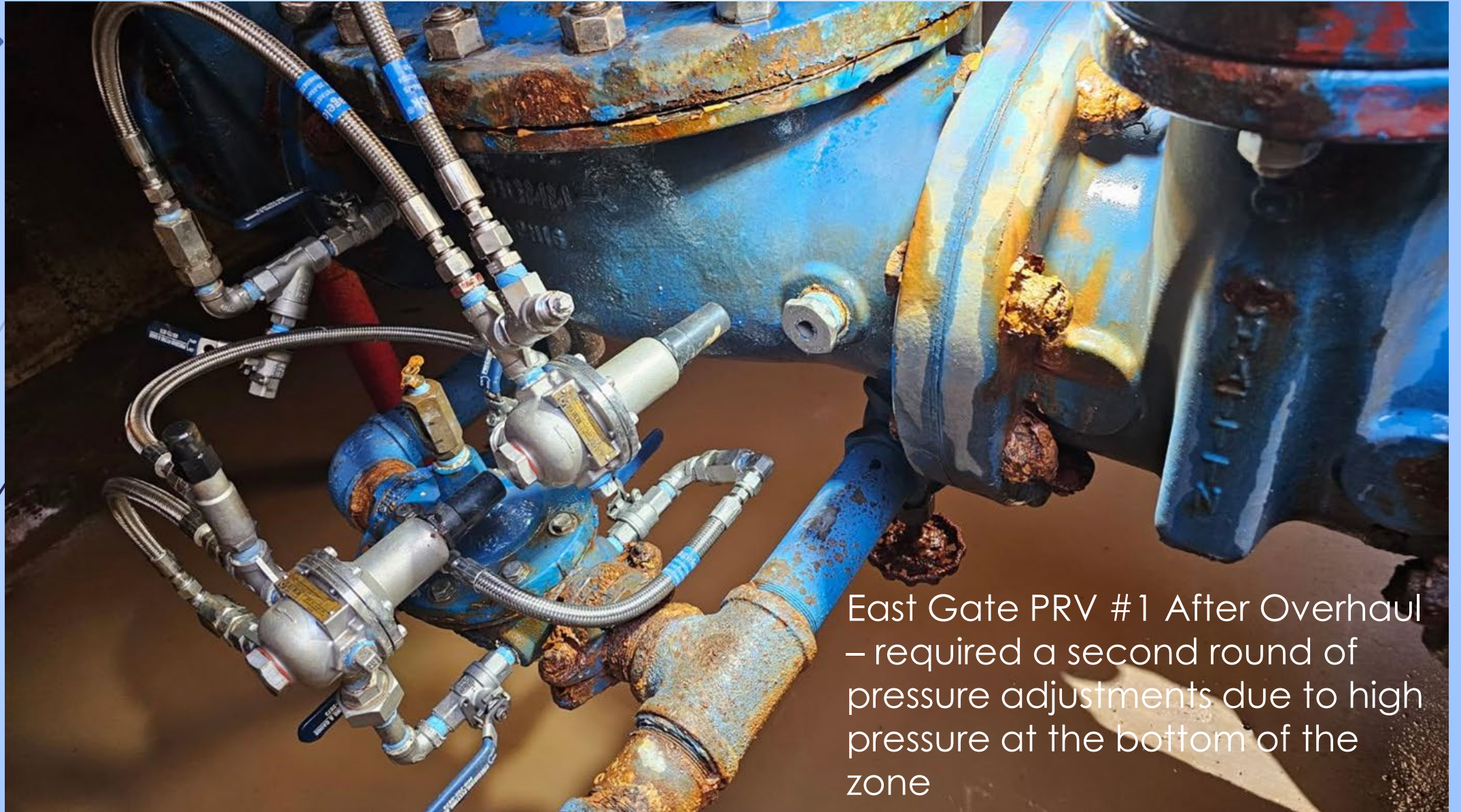
- The current physical condition of the water distribution sub-system overall is FAIR.
- Known portions in poor condition: PRV stations and valves, several old fire hydrants, and areas with aging/deteriorating pipelines that have been in the ground for 50 to 70 years. The aggressive CIP planning, design, and funding process is accelerating the system's overall improvement. The goal is to have a vastly improved condition assessment score within the next 2-5 years.
- Greatest weaknesses: 1) Continuously aging pipelines & fire hydrants; 2) PRV Station valve & pipe condition due to age and excessive rust; 3) Dissimilar metal corrosion on delivery/service lines (i.e., galvanized services). GWS crews respond to pipeline leaks, replace meters, exercise and replace valves and hydrants, and will be trained in PRV maintenance.
- Current capital outlay and planned improvement projects will improve the system's pipeline and general system condition.



Totavi PRV #45 – condition is too poor for an overhaul, so it will need to be replaced

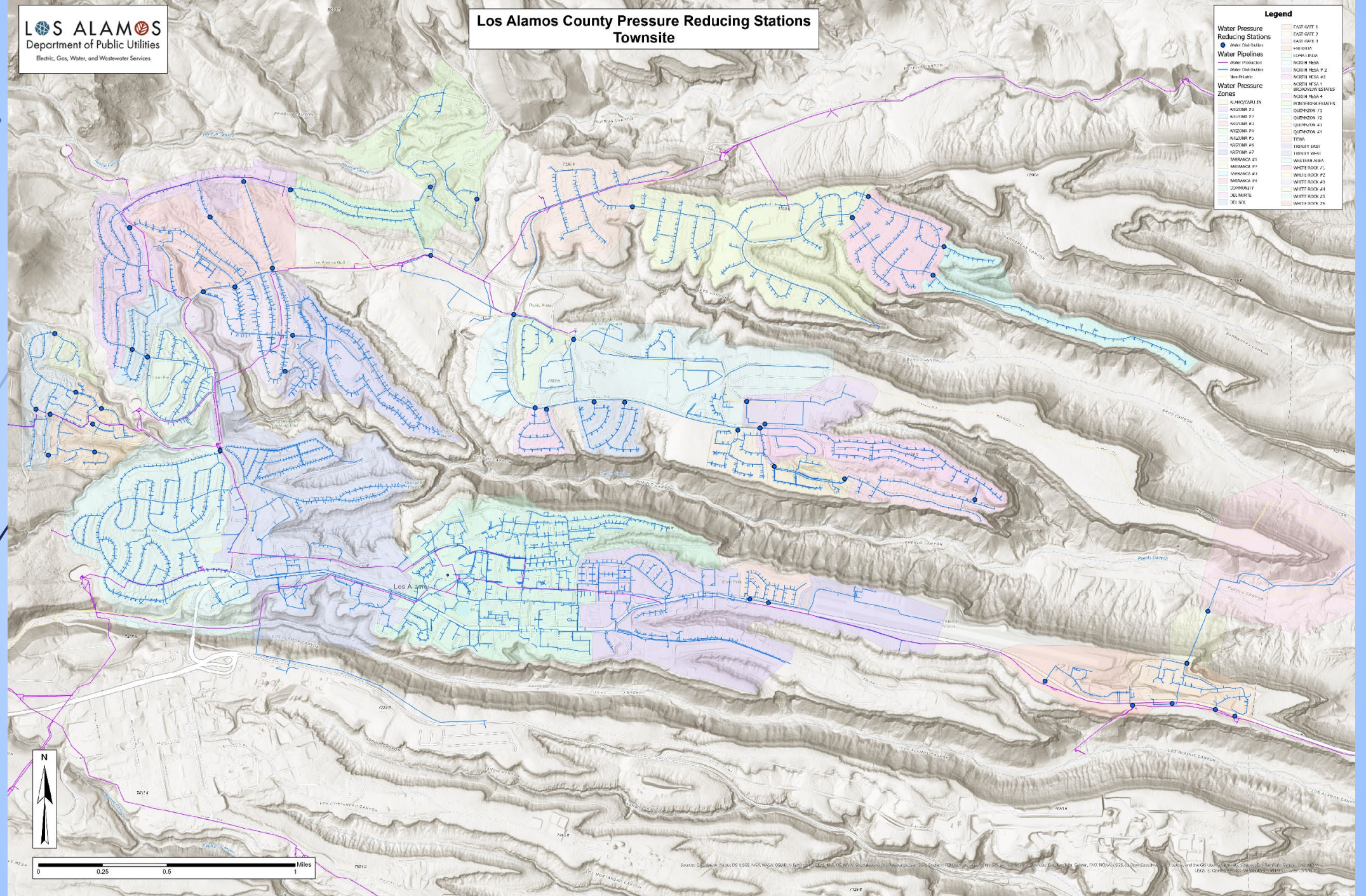


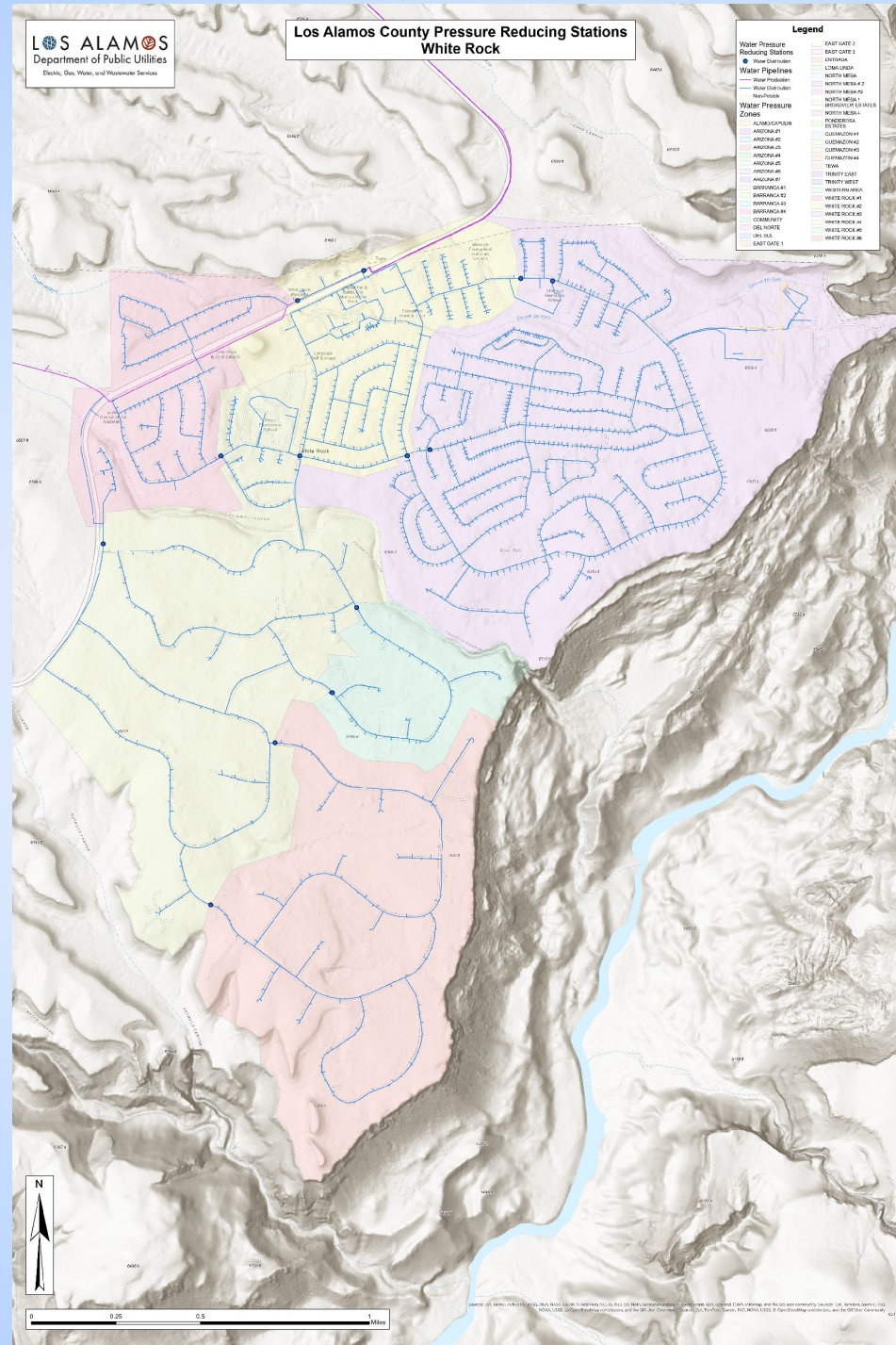
Wye strainer on low flow PRV packed with gravel debris



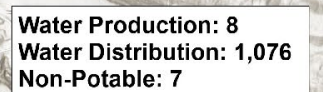
East Gate PRV #1 After Overhaul
– required a second round of
pressure adjustments due to high
pressure at the bottom of the
zone

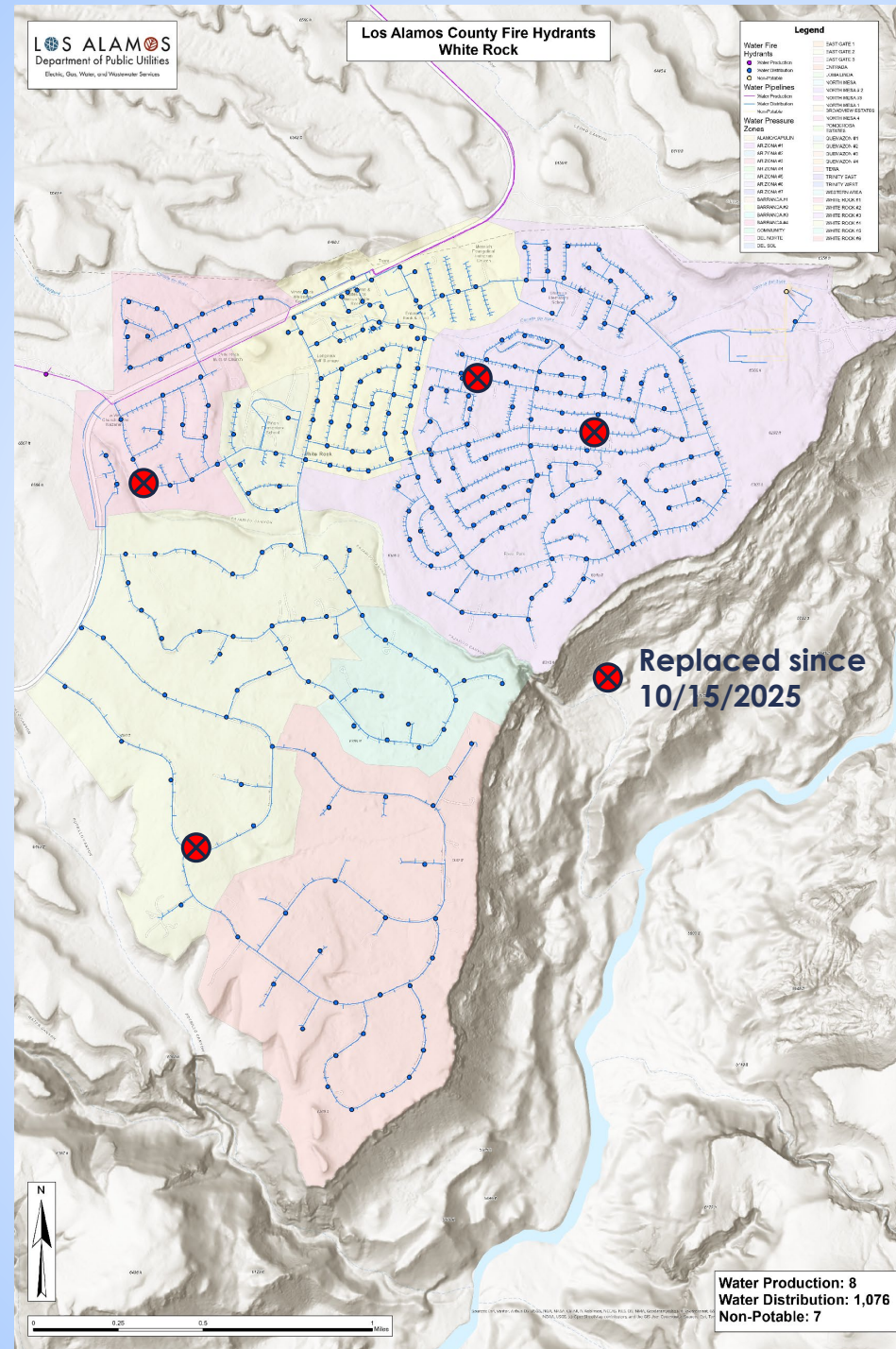
Los Alamos County Pressure Reducing Stations Townsite





 **Replaced since
10/15/2025**





Denver Steels Water Distribution Replacement

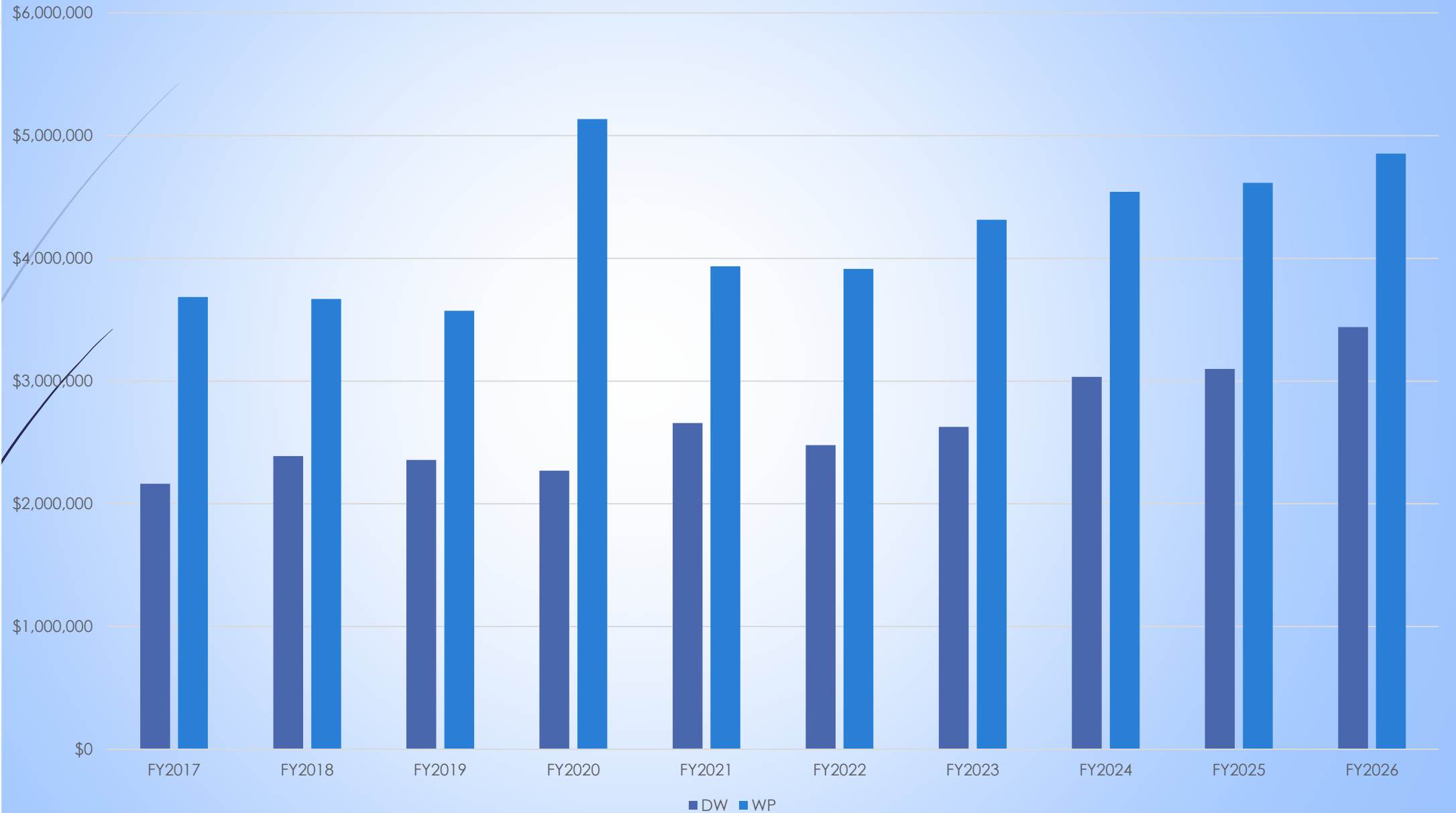
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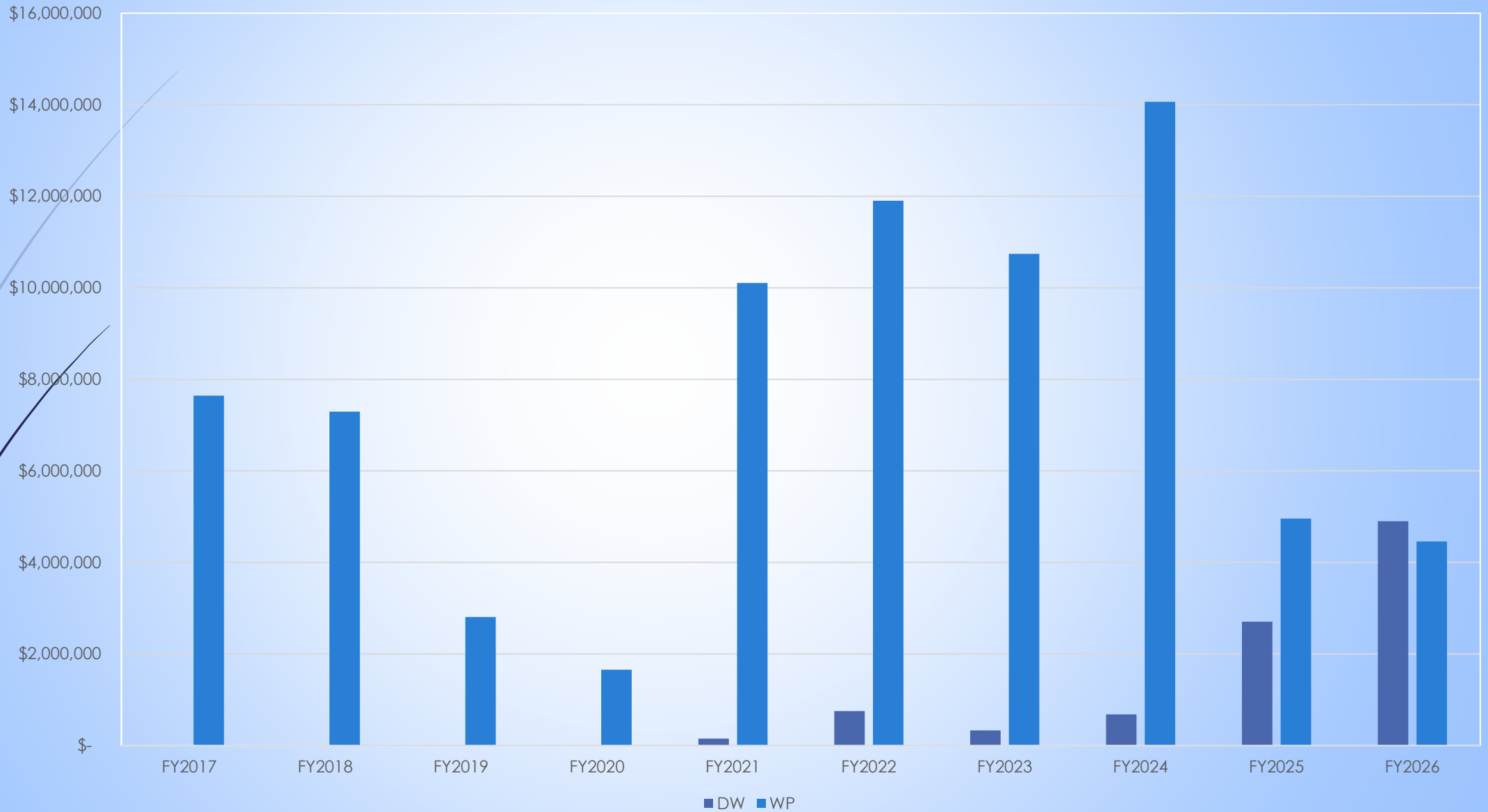
Virtually all $\frac{3}{4}$ " service lines are corroded galvanized pipe; many with leaks and old repairs



O&M Budgets (excluding debt)



Capital Budget



WP – NEW/ONGOING ISSUES & ACHIEVEMENTS

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- **WP** – Worked with Parks Dept. to develop a protected potable connection to the Overlook Park non-potable irrigation system. It was constructed and put into service this past irrigation season (Overlook Parks was watered with potable water for about 6 weeks).
- **WP** – Worked with contractors to take various wells offline for complete electrical and mechanical rehabilitation. Completed wells are PW-1 and PW-2, GW-2, GW-3, and GW-4. PW-4 and PW-5 are still in progress. This also includes major SCADA upgrades. The newly renovated wells are vastly improved in terms of reliability and operability.
- **WP** – WP staff integrated the new chlorine disinfection unit at PB-2. This was accomplished entirely in-house. The system is very functional and provides a high level of adjustability for free chlorine concentrations based on system usage at LANL. The old system was not adjustable and had issues during the hottest times of the year.
- **WP** – With large capital projects underway, WP staff have provided a lot of technical support. These projects include the upgrade projects to the wells and booster stations, the Jemez Mountains Fire Protection System, the replacement of the NM-4 transmission line, the replacement of the Townsite (downtown area) transmission line, and the SCADA system transition projects.
- **WP** – LANL transmission water lines are seeing age and condition issues, and there have been some breaks. WP staff can coordinate repairs quite well, but the break on the 18" concrete line traversing Two Mile Canyon was a difficult situation. WP staff was able to divert flows into an older 10" steel line that was not being used but still connected to the system. Repairs to the 18" line are pending, with assistance from WP staff.

WP – NEW/ONGOING ISSUES & ACHIEVEMENTS (cont.d)

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- **WP** – SCADA Transition Project continues. This is a major project that involves in-house staff and select consultants for transitioning from the old legacy radio RTU system (old technology) to modern PLCs and communication protocols (fiber, ethernet, etc.)
- **WP** – Chromium plume situation. It is likely that PW-3 will never be used in the future. DPU continues to monitor developments between the NMED and LANL/N3B.
- **WP** – Drinking water quality compliance testing remains at 100% compliant levels with no infractions or non-compliant tests or procedures.
- **WP** – in-house replacement of old propane heaters and inefficient resistive electrical heaters in well and booster station buildings has gone very well. All propane heaters in the Guaje wells and boosters have been replaced with mini-split heat pumps, therefore, we no longer need to purchase propane each winter. These new units are very efficient and are big improvements to the facilities. The effort will focus on replacing the old, inefficient resistive electric heaters in the Pajarito corridor facilities.

Water Production System – Installing Chlorine Injector Quill at PB-2 and the 18" CCP Rupture in Two-Mile Canyon

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Power Used to Produce Water

KWh Used to Produce Water

19



Non-Potable Water System

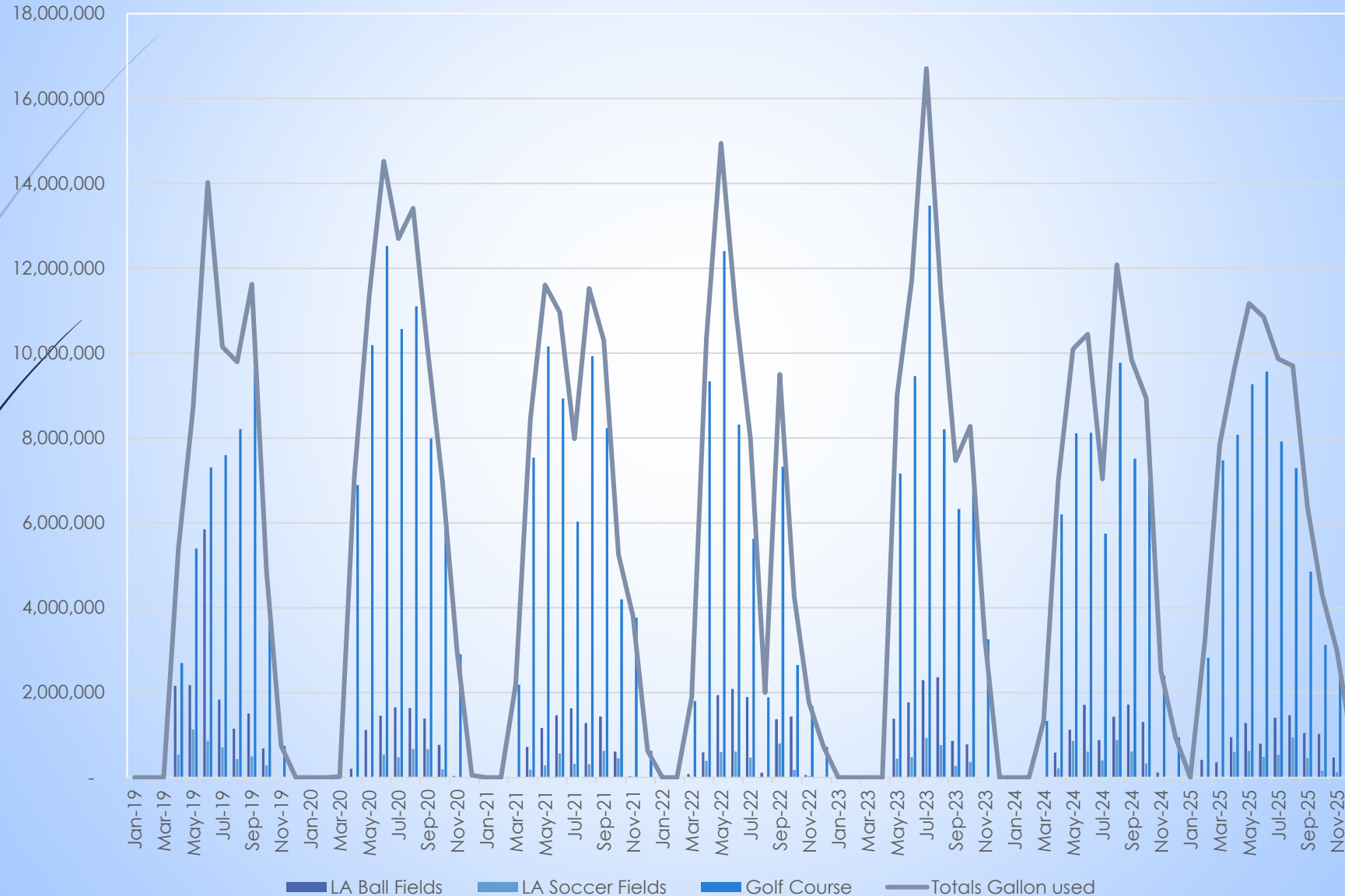


NP – NEW/ONGOING ISSUES & ACHIEVEMENTS

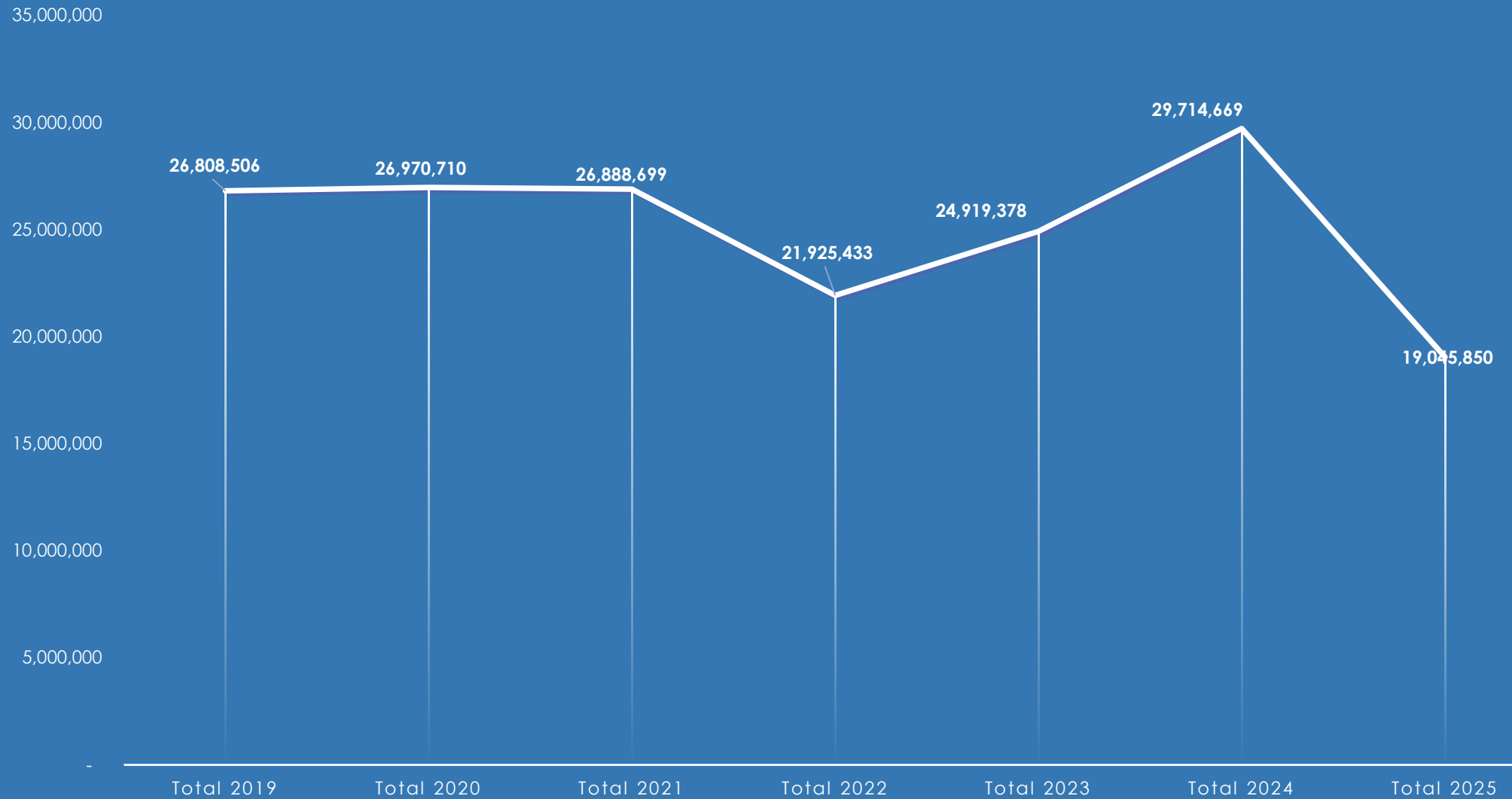
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- **NP** – The WP staff also oversees all the non-potable (NP) water supply systems. This includes the pumping station at the confluence of Bayo/Pueblo Canyons (“Bayo Booster Station”), the North Mesa Booster Station, the Camp May stormwater pump station, and the Overlook Park Booster Station. The system receives treated water from both the Los Alamos WWTP and the White Rock WRRF for reuse on County parks/ballfields. The LA Reservoir is another source of NP water during good runoff seasons
- **NP** – At the request of Parks, a new connection from the potable water system into the non-potable irrigation system was developed and put into service last spring and summer. Parks reconfigured much of the Overlook fields and wanted potable water for irrigation. Several tests were conducted on the non-potable water to ensure its quality for irrigation applications. Both DPU and the golf course conducted tests for various constituents in the water that can negatively affect grass. The water was found to be of very good quality but did carry a significant amount of alkalinity from bicarbonate. Fertilizers that added necessary acidity were not as effective when applied with the non-potable water.
- **NP** – The Bayo Booster Station upgrade is in progress. To meet early irrigation needs, the Reservoir water system has been fully repaired (and already used a little bit), as well as a potable connection on North Mesa.
- **NP** – The Camp May stormwater collection and pumping system worked well, providing snowmaking water from what little runoff occurred last spring.

NP Water Measured through Service Location Meters (gallons)



TOTAL NP WATER METERED AT OVERLOOK BOOSTER



TOTAL NP WATER METERED IN TOWNSITE (GOLF COURSE, NORTH MESA FIELDS)

