



MEMORANDUM

Date: June 24, 2025

To: Water Utility Board

From: Pete Holmgren – Chief Engineer
Joe Grande – Water Resources Manager
Krishna Kumar – General Manager

Subject: Report on Operational Resiliency Projects

SUMMARY:

This memo is part of an informational item that summarizes the status of recently completed and ongoing resiliency projects identified by Madison Water Utility (MWU).

BACKGROUND:

From 2020-2021, former Water Supply Manager Joe DeMorett identified several “pinch points” in the MWU distribution system which, under certain operational circumstances, can create difficulties in providing adequate water supply to parts of MWU’s service area. Pinch points are most typically located along system boundaries – whether that be the limits of a given pressure zone (or region) and/or the extents of the entire overall water system itself. Generally, there are three approaches that can be taken to address pinch points:

1. Create a new source point within the affected area, e.g. drill a new well.
2. Enact additional conservation practices to reduce demand, e.g. issue conservation notices to affected areas or enact additional conservation-minded policies in perpetuity.
3. Create additional transfer points between distribution zones, e.g. identify and execute capital projects to address pinch points.

The Engineering and Water Supply (now Water Resources) sections collaborated on option #3 above, identifying a number of projects that were relatively inexpensive but would return a high value of benefit to the MWU system upon implementation. Generally, the projects could also be completed within a fairly short period of time, and (if appropriate) be integrated later into a larger future capital project without being rendered a shorter-term “sunk cost”.



The following is a summary of each “Resilience Project” (RP as identified on the attached map):

RP1: Pressure Zone 4 to Pressure Zone 6E Transfer

- How: Modify piping and pumps at Unit Well 9
- Cost: \$40,000
- Schedule: Completed 2020
- Flow Potential: 2100 Gallons Per Minute

RP2: Unit Well 12 Conversion to Dual Pressure Zone (7 and 8) Facility

- How: Modify piping, pumps, and automated valves at Unit Well 12
- Cost: \$362,000
- Schedule: Completed 2022
- Flow Potential: 2100 Gallons Per Minute

RP3: Pressure Zone 7 to Pressure Zone 6W Transfer

- How: Install a pressure-reducing valve/vault along the pressure zone boundaries
- Cost: \$111,000
- Schedule: Completed 2022
- Flow Potential: 2100 Gallons Per Minute

RP4: Pressure Zone 6E to Pressure Zone 3 Transfer

- How: Install a booster pump, process piping, and an automated valve at Reservoir 229
- Cost: \$316,000
- Schedule: Completed 2024
- Flow Potential: 2100 Gallons Per Minute
- Storage Potential*: 2 Million Gallons

RP5: Pressure Zone 10 to Pressure Zone 10 Transfer

- How: Install a transmission pipeline and a pressure-reducing valve and vault on Midtown Road
- Cost: \$650,000 (Estimated)
- Schedule: Summer 2025 (Estimated)
- Flow Potential: 2100 Gallons Per Minute



RP6: Pressure Zone 6W to Pressure Zone 6E Transfer

- **How:** Install an automated control valve/vault at the Yahara River (pressure zone boundary)
- **Cost:** \$150,000 (Estimated)
- **Schedule:** Spring 2026 (Estimated)
- **Flow Potential:** 2100 Gallons Per Minute

OPERATIONAL IMPACTS:

The overall result of each project is the creation or enhancement of water supply transfer points, allowing MWU to utilize surplus water within one pressure zone or region by directing it to other areas where it is more readily needed in order to maintain normal system operations.

FISCAL IMPACTS:

The total estimated cost of these six projects is approximately \$1.6 million and will also benefit future related capital projects, for example the pumps, valves, and piping will be used again during the reconstruction at Unit Well 12 and any potential future work at Reservoir 229.

ATTACHMENTS:

1. Memo (This Document)
2. Map of Operational Resiliency Projects