

LAKE ROCKPORT ESTATES

Water Source Decision Summary

Option A: New Well(s) vs. Option B: Mountain Regional Water Wholesale Connection

Prepared May 2026 | Based on engineering documents 2024–2026 and publicly available data

1. Background & Current Situation

Lake Rockport Estates Property Owners Association (LREPOA) owns and operates a private culinary water system in Summit County, Utah, serving 130 active households on 177 issued meters across a 323-lot community. The system has operated seasonally (June–December) since its establishment in 1972 and currently relies on a single active source — Well #2 — producing 90 gpm at pump capacity, but with a Utah DDW safe yield of only 67 gpm (2/3 of rated output), sufficient for just 108 connections.

Well #1 was abandoned due to mechanical failures. Well #3, drilled in 2023 at a cost exceeding \$1 million in USDA loan funds, reached 1,492 feet and hit the bottom of the Kelvin sandstone formation, producing only 21 gpm (14 gpm safe yield) — roughly 14% of its 100 gpm target. Every available well development technique was attempted (surging, mud purge, extended pumping). It has been capped and will not be connected.

A moratorium on new water meter sales has been in effect since 2019. For full buildout of all 323 lots, LREPOA must achieve a safe yield of 270 gpm. The current deficit is more than 200 gpm. Utah DDW has also mandated a transition to year-round water service, requiring burial of distribution piping below the frost line — a separate but related infrastructure challenge.

Key facts: Current safe yield 67 gpm. Required at buildout: 270 gpm. Deficit: ~203 gpm. Water meter moratorium in effect since 2019. System is technically under capacity for its existing 130 connections.

2. Why Additional Wells Are Difficult Here

Summit County sits on consolidated material — primarily sandstone and limestone — with no broad aquifer basins. Groundwater exists almost exclusively in fractured bedrock networks, making well yields highly variable and location-dependent. The State of Utah’s Division of Water Rights tracks thousands of well completion reports across the state; Summit County’s records consistently show low-yield results in the Kelvin and adjacent formations.

In April 2026, Willowstick Technologies completed a new Groundwater Well Siting Study using Micro-seismic Resonance (MSR) and Radiometric Gamma mapping across 48.5 acres near the existing infrastructure. Eight potential drill targets were identified across four areas, with estimated productive zones between 100 and 850 feet depth. These techniques, used in 600+ projects globally, provide significantly better targeting than conventional siting methods.

However, the Willowstick report is explicit: “in comparison to hundreds of other projects where these techniques have been applied, the risk in this case is higher than most.” The report further states that “this study cannot prove or disprove the presence of groundwater at any given location — only drilling can do that.” The geology at Rockport creates a ‘hit or miss’ plumbing-type aquifer system with no guarantee any target well will perform meaningfully better than Well #3.

Geologic context from USGS data and Utah well completion reports: Wells in consolidated bedrock formations like Summit County typically yield 5–50 gpm. Wells in fractured zones can reach 50–150 gpm. However, adjacent boreholes can produce very differently, and the only well in the immediate area producing at the upper end of that range is Well #2 itself, located along a known fracture.

3. Option A — Additional Well Drilling

What It Involves

Based on engineering review by Jones & DeMille (JDE) and Loughlin Water Associates, the following sub-options exist for the well path:

- Drilling deeper than 1,500 ft: Ruled out. Clay below the Kelvin formation creates contamination and structural risk.
- Reconstructing Well #1 or #2: Viable but costs similar to a new well, and expected yield is unlikely to exceed current Well #2 output. Recommended only after subsurface scanning to locate fractures.
- New wells near Well #2 (Willowstick targets): Most credible well-path option. Eight candidate sites identified; nearest analogs to Well #2's fracture zone. Each well would require drilling, casing, pump installation, and pipeline to the mid-mountain booster station.
- Reservoir diversion (Rockport Reservoir): Rejected by Weber Basin Water Conservancy District, which has a standing policy against new instream diversions.

Cost Estimate — Well Path

Well drilling in Utah ranges from \$15–\$50 per foot for residential applications, with deep municipal wells in hard consolidated rock formations at the upper end or beyond. The Willowstick report targets 100–850 ft depth, but Well #3 reached 1,492 ft at significant cost. Costs below are based on Utah industry rates and the JDE/Loughlin engineering assessments in the source documents.

Cost Item	Low Estimate	High Estimate
Geophysical scanning (Willowstick or similar)	\$10,000	\$20,000
Well drilling + casing to ~1,000 ft (hard rock, Utah rates)	\$30–\$50/ft	~\$500K–\$800K/well
Well pump installation + electrical	\$80,000	\$150,000
Pipeline to mid-mountain booster station	\$500,000	\$1,500,000
Easement procurement (per well path)	\$50,000	\$300,000
Water rights permit (State Engineer application)	~\$150 fee	~4–8 week process
DDW public system compliance upgrades	\$100,000	\$300,000
Engineering & administration (~15%)	~\$185,000	~\$460,000
Contingency (30%, AACE Class 4)	~\$425,000	~\$1,060,000
Estimated wells needed for 270 gpm buildout	3–5 wells	3–5 wells
TOTAL — 3-well scenario (rough estimate)	~\$4.5M	~\$11M+

Well #3 precedent: Drilled 2023, 1,492 ft, cost >\$1M (USDA-funded), yield: 14 gpm safe yield vs. 100 gpm target. All development techniques were exhausted before capping. The Willowstick study gives LRE better siting tools, but the Kelvin formation's characteristics make high yields uncertain regardless of targeting method.

4. Option B — Mountain Regional Water Wholesale Connection

What MRW Is

Mountain Regional Water Special Service District (MRW) is a regional public water utility headquartered in Park City, Utah (5739 Paintbrush Road), serving the Promontory community and several other Summit County developments. It operates full year-round, is publicly governed, and is subject to Utah Procurement Code. MRW holds diversified water supplies including surface water treated at the Signal Hill Water Treatment Plant and groundwater from multiple sources.

The nearest MRW infrastructure is the West Hills Tank zone serving Promontory — directly west of LRE. A 2025 MRW annexation activity (Resolution MRW 2025-14) indicates the district is actively expanding its service area, consistent with accepting LRE as a wholesale customer.

How the Connection Works

The proposed wholesale connection (Phase 1) would involve constructing approximately 10,316 feet (~2 miles) of 8-inch pipeline from MRW’s West Hills Tank zone to LRE’s existing 365,000-gallon storage tank at the top of the mountain. A pressure reducing valve (PRV) vault would lower the 106 psi differential (from 7,366 ft MRW elevation to 7,120 ft LRE tank elevation). LRE would continue to operate its own distribution system independently.

Cost Estimate — MRW Connection

From the August 2025 Annexation Evaluation (Bowen Collins & Associates, Table 2-4, AACE Class 4 estimate):

Cost Item	Quantity / Unit	Cost Estimate
Meter & Pressure Reducing Valve Structure (CMU vault)	1 lump sum	\$400,000
SCADA Control & Power (flow control automation)	1 lump sum	\$100,000
8-inch Pipeline — ~10,316 ft (Alignment B along existing roads)	\$250/ft × 10,316 ft	\$2,579,000
Permanent Easements (280 ft)	\$360/ft	\$100,800
Construction Easements (3,300 ft)	\$58/ft	\$191,400
Engineering & Administration (15% of construction)	—	\$505,680
Contingency (30% — AACE Class 4 estimate)	—	\$1,145,471
MRW Impact Fees (107 gpm × \$18,109/gpm)*	107 gpm	\$1,928,649
Signal Hill Booster Pump Expansion	1 lump sum	\$450,000
PHASE 1 TOTAL (Connection to MRW)	—	\$7,401,000

*Impact fees are based on MRW’s published impact fee facility plan. LRE’s estimated existing peak day demand of 107 gpm triggers approximately \$1.93M in impact fees — the single largest line item after the pipeline itself. Impact fee payment structure (lump sum vs. phased) is subject to negotiation under a wholesale agreement. Impact fee is a one time fee at the time of connection.

Pipeline unit cost context: The \$250/ft unit cost used in the BC&A estimate is consistent with industry data for 8-inch PVC in mountainous Utah terrain with easement and access road complexity. Utah municipal project bids in 2025–2026 (e.g., Midvale City pipeline replacements) show 8-inch PVC running \$200–\$350/ft depending on conditions. The 30% contingency is standard for Class 4 estimates at this stage.

5. Pros & Cons

Option A: Well Drilling — Pros

- Preserves full ownership and operational independence indefinitely; no external utility relationship or dependency.
- No ongoing water purchase cost; once built, operating cost is limited to power, maintenance, and chemicals.
- Lower upfront cost in the best-case scenario (1–2 high-yield wells at ~\$2M–3M total).
- New Willowstick siting study (April 2026) improves targeting over the approach used for Well #3; the 8 identified targets are the most credible well prospects in the community’s history.

Option A: Well Drilling — Cons

- High geological risk explicitly stated by Willowstick (“higher than most projects”). Summit County’s consolidated geology is structurally unfavorable for high-yield production wells.
- Would require 3–5 wells to reach the 270 gpm buildout target, each with its own geological risk and independent cost. Total cost could exceed the MRW connection.
- Does not resolve the DDW year-round service mandate; the shallow distribution pipe problem exists independently of the water source.
- Water meter moratorium may remain indefinitely if drilling results are poor; continued delay harms lot owners who cannot build.
- Drought vulnerability: Well #2 drops to 20–30 gpm reliable yield in dry years; Kelvin formation wells share this vulnerability.
- Iron water quality treatment would likely be required for any new Kelvin formation wells, based on Well #2 experience.

Option B: MRW Wholesale — Pros

- Guaranteed supply from a regional utility with diversified sources; no geological uncertainty once construction is complete.
- Water meter moratorium lifts upon Phase 1 connection, enabling lot sales and development that have been blocked for 6+ years.
- Municipal-grade treated water; eliminates existing iron quality concerns from the groundwater system.
- Redundancy: LRE retains Well #2 as a secondary source alongside MRW delivery, providing drought resilience.
- Strong institutional momentum: USDA funding approved and disbursed; Phase 1 feasibility complete; MRW relationship established; design phase ready to begin.
- Preferred alignment (B) follows existing roads and largely avoids new permanent easement acquisition, reducing legal complexity.

Option B: MRW Wholesale — Cons

- Significant upfront capital: \$7.4M for Phase 1 connection. Per-lot cost to members will be substantial even spread over special assessments and loan repayment.

- Ongoing water purchase cost.
- LRE's existing distribution infrastructure was built for seasonal use and is shallow; Phase 2 upgrades (~7.5 miles of pipe replacement) are a prerequisite for DDW compliance and are very expensive regardless of which water source is chosen.
- MRW capacity is adequate today but will require Signal Hill Booster expansion (~60% increase) to accommodate LRE at buildout, per the BC&A feasibility study. This expansion is feasible but adds cost to MRW's system that LRE will participate in funding.

6. Side-by-Side Comparison

Factor	Option A: New Well(s)	Option B: MRW Wholesale Connection
Capital Cost (Phase 1)	\$4M–\$12M+ depending on number of wells needed (3–5 to reach buildout); each well \$750K–\$1.5M plus pipeline	\$7.4M engineering estimate (30% contingency included); includes pipeline, PRV vault, SCADA, easements, and MRW impact fees
Feasibility Study Cost	\$10K–\$20K for Willowstick-style geophysical scan; additional engineering per well	\$117,760 (BC&A Phase 1 + 2 scope); already USDA-approved and underway
Ongoing Water Cost	Operating costs only (power, maintenance, chemicals); no per-gallon purchase cost	Wholesale rate: \$150/mo base + \$17.50/1,000 gallons (2025 MRW published rate) plus applicable pumping surcharge
Supply Certainty	HIGH RISK — geology is unfavorable (consolidated sandstone/limestone); Willowstick rates site 'higher risk than most'; Well #3 precedent delivered 14 gpm on a 100 gpm target	HIGH CERTAINTY — engineered pipeline to a regional utility with established infrastructure; no geological uncertainty once constructed
Capacity at Buildout (323 lots)	Would require ~3–5 wells producing 60–90 gpm each to reach 270 gpm safe yield; unlikely given formation constraints	System sized for 192 gpm peak day demand (existing connections) to full buildout; MRW West Hills Tank zone confirmed feasible with Signal Hill Booster expansion
Year-Round Water Path	Yes — combined with required distribution pipe upgrade (Phase 2), path to year-round service is achievable	Yes — combined with required distribution pipe upgrade (Phase 2), path to year-round service is achievable
Water Quality	Iron quality issues already documented with Well #2; new Kelvin formation wells likely similar; treatment required	MRW delivers treated, municipal-grade water — eliminates iron concerns and existing treatment gaps
Water Meter Moratorium	Moratorium cannot lift until safe yield exceeds 108 gpm; drilling outcome uncertain — moratorium could remain indefinitely	Moratorium lifts upon completion of Phase 1 connection — immediate ability to sell meters and resume development
Redundancy / Drought Resilience	Single-source dependency remains; Well #2 yield drops to ~20–30 gpm in drought years; new Kelvin wells face same drought vulnerability	Adds second source (MRW); Well #2 can be retained for blending/backup; MRW draws on diversified regional supply including Lost Canyon surface water treatment
Timeline to Water	Scanning 2–4 mo; drilling 4–8 mo; infrastructure 12–18 mo; total ~2–3 years minimum — but outcome uncertain, may require additional wells	Phase 1 feasibility complete (Aug 2025); design and permitting ~12 mo; construction ~12–18 mo; total ~2–3 years — but with engineered certainty of outcome

Factor	Option A: New Well(s)	Option B: MRW Wholesale Connection
Regulatory / Permitting	New wells require Utah DDW approval, water rights permit from State Engineer (~4–8 weeks), easement procurement, DDW public water system standards compliance	County approval required for service area; MRW wholesale agreement in place; Promontory easements largely available via existing utility corridor
Local Control	Full — LREPOA retains complete ownership and operational control	Full operational control of LRE distribution system retained under wholesale agreement; MRW controls only the delivery point at the PRV vault
Funding Availability	USDA Water & Waste Disposal loans available (fixed rates, up to 40-yr term); Utah DWSRF loans possible; UWIP process opens FY2027	USDA loan already in place for feasibility; same programs available for construction (USDA W&WD, DWSRF low-interest loans, Utah Water Infrastructure Fund via HB 280/2024)
Engineer Recommendation	JDE and Loughlin have explored and largely dismissed well path as insufficient; Willowstick scan near Well #2 retained as parallel hedge only	Primary path actively pursued by BC&A, JDE, and LREPOA Board; Phase 1 study complete and moving to design

7. Funding Options Available to LREPOA

Both options would require significant external financing. Key programs available to LREPOA as a public-purpose non-profit water system in a rural Utah community include:

- **Fixed interest rates, up to 40-year terms; grant component available for financially distressed communities. LREPOA already has an approved USDA loan relationship used to fund the Well #3 project and the current feasibility study. Construction funding applications are accepted year-round.** USDA Water & Waste Disposal Loan & Grant Program:
- **Low-interest loans (typically below market rate, 20–40 year terms). Grant or principal forgiveness available if the estimated water bill exceeds 1.75% of local Median Adjusted Gross Income (MAGI). Note: DDW imposed a temporary moratorium on new DWSRF applications November 2025–June 2026 (does not affect planning/feasibility projects already approved).** Utah Drinking Water State Revolving Fund (DWSRF):
- **Utah Legislature created this new fund in 2024, with HB 285 modifications in 2025, administered by the Water Development Coordinating Council via the new Unified Water Infrastructure Plan (UWIP) process. First full funding cycle opens FY2027 (July 1, 2026). Projects should be submitted to the Utah Project Portal.** Utah Water Infrastructure Fund (HB 280, 2024):
- **Low-interest state loans for drinking water treatment, storage, distribution, and metering systems; available year-round through the Division of Water Resources.** Utah Drinking Water Board Revolving Loan Fund:
- **LREPOA’s existing structure allows special assessments on lot owners; the Water Committee has indicated these will likely be necessary as a supplemental funding mechanism for any major capital project.** Special Assessments:

LREPOA's existing USDA loan, the active feasibility study approval, and the established MRW relationship give the wholesale connection path a funding head start. Any new well drilling program would need to begin a separate funding application cycle.

8. Current Status & Next Steps

As of May 2026, the following is active:

- Phase 1 Feasibility Study (MRW path) is complete (Bowen Collins & Associates, August 2025). Alignment B selected as preferred route. Phase 1 total estimated at \$7.4M.
- Willowstick Well Siting Study is complete (April 7, 2026). Eight candidate drill targets identified. Board intends to pursue subsurface scanning near Well #2 in parallel with MRW process.
- Membership vote required once Phase 2 cost estimates are available. The Board of Trustees will present options when full data is in hand.
- Current USDA loan covers feasibility study costs. Major construction will require new funding applications (USDA W&WD, DWSRF, Utah UWIP, special assessments).

9. Document Sources

- Jones & DeMille Engineering (JDE) — Well Development and Alternative Sources Considered (July 3, 2024)
- JDE — Project Background Narrative (November 6, 2024)
- LREPOA Board — Water System History and Education Memo to Members (March 26, 2025)
- Bowen Collins & Associates — Engineering Evaluation Scope of Services, Phases 1 & 2 (February 2025)
- Bowen Collins & Associates — Lake Rockport Estates Annexation Evaluation (August 2025)
- Willowstick Technologies — Groundwater Well Siting Study, Lake Rockport Estates (April 7, 2026)
- Utah DDW / State Restructuring Presentation — LRE Open House (2026)
- Summit County, Utah Water Systems Analysis (Max Freund, 2021)
- Mountain Regional Water SSD — 2025 Approved Water Rates (mtnregionalwaterutah.gov, effective January 1, 2025)
- Utah Division of Drinking Water — Drinking Water Construction Assistance Programs (deq.utah.gov)
- Utah Division of Water Resources — Unified Water Infrastructure Plan / HB 280 (water.utah.gov)
- USDA Rural Development — Water & Waste Disposal Loan & Grant Program (rd.usda.gov)
- Utah State Engineer / Division of Water Rights — Well permitting requirements (utah.gov)

Prepared May 2026 for informational purposes based on source documents and publicly available data. All capital cost figures are Class 4 (order-of-magnitude) estimates subject to revision upon detailed design. Ongoing water costs are projected from MRW's published 2025 rate schedule and LRE demand data from the BC&A feasibility study. Consult LREPOA engineering team and Board for current project status.