

Data Center Growth Potential in South Davis County

Feasible Facility Sizes and Projected Water Demand on the Bountiful Sub-Aquifer

Executive Summary

South Davis County is essentially built out, but industrially zoned in-fill parcels remain available and are increasingly attractive to data-center developers. A hyperscale campus (500+ MW, 500-800 contiguous acres) is not physically feasible here, but edge, colocation, and mid-scale AI facilities of 5-40 acres / 10-120 MW are. The governing risk is water: depending on cooling technology, a single mid-scale facility could draw anywhere from roughly 18 AF/yr (true closed-loop) to 2,000 AF/yr (evaporative) - the upper end being roughly 27% of the Bountiful sub-aquifer's 7,400 AF planning-estimate safe yield. The District's 2026 Regional Hydrogeological Assessment shows that the sub-aquifer is already operating in a 6,100 AF annual deficit and declining at a production-weighted 1.37 ft/yr; any new large industrial load must be evaluated against this deficit condition, not against paper water rights.

1. Feasible Data Center Size Classes in South Davis

South Davis in-fill parcels are typically 2-15 acres, with 20–60-acre sites achievable most likely through use of farmland or demolition of existing buildings. Because modern data-center siting is driven by power and water rather than land area, the realistic projects in this area fall into four classes as shown in the below table.

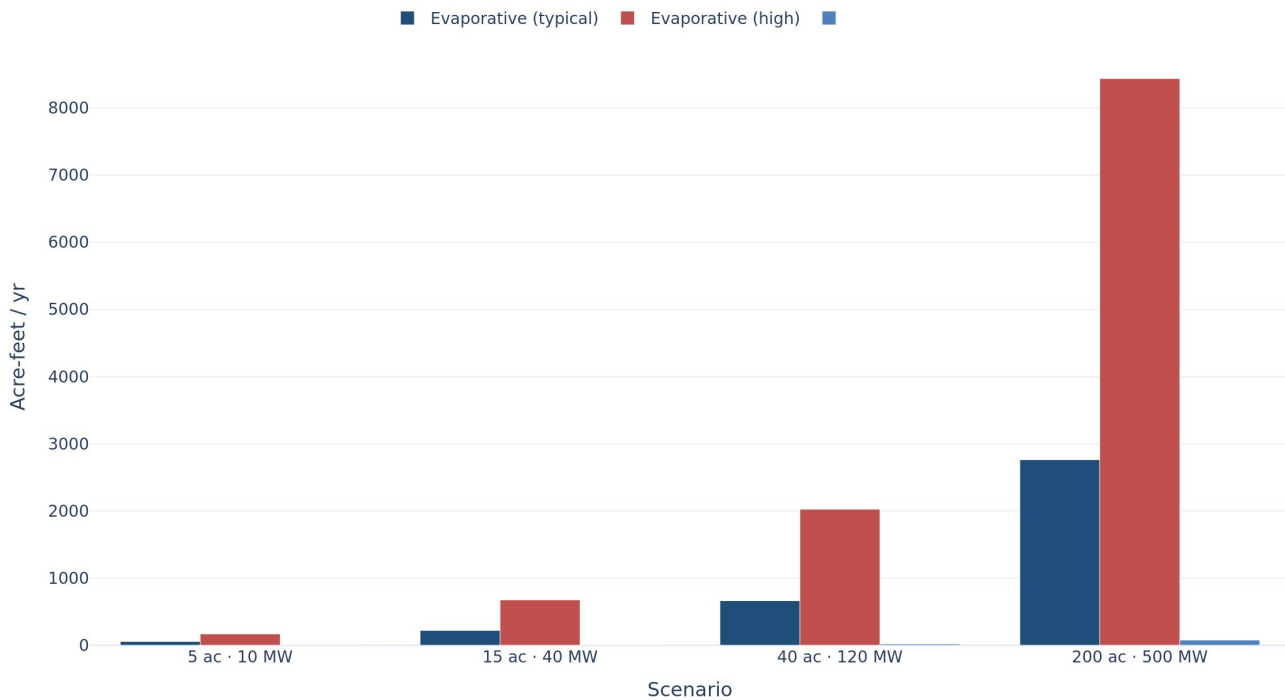
Class	Acres	Power (MW)	Typical Use	Feasibility in S. Davis
Edge / single-tenant	3-6	5-15	Cloud edge node, single enterprise	Feasible - multiple sites
Colocation campus	10-20	30-60	Multi-tenant cloud, regional cloud	Feasible – building leasing agreements
Mid-scale AI inference	30-50	80-150	AI inference, regional cloud	Feasible - estimated 1 site max due to power and water constraints
Large hyperscale	200-800	400-1,200 (potential on-site power generation)	Hyperscale AI training	Likely not feasible - land & power likely not available; water consumption too high

2. Water Consumption by Scenario

Cooling technology drives water demand. Published benchmarks suggest ~1.8 million gallons per MW per year (MG/MW/yr) for typical evaporative cooling, up to ~5.5 MG/MW/yr in hot/arid climates, versus only ~0.05 MG/MW/yr for true closed-loop / dry systems. Applied to the four scenarios:

Scenario	Evap (typical, AF/yr)	Evap (high, AF/yr)	Closed-loop (AF/yr)
5 ac · 10 MW	55	169	2
15 ac · 40 MW	221	675	6
40 ac · 120 MW	663	2,025	18
200 ac · 500 MW	2,762	8,439	77

Annual water use by data center size (South Davis scenarios)



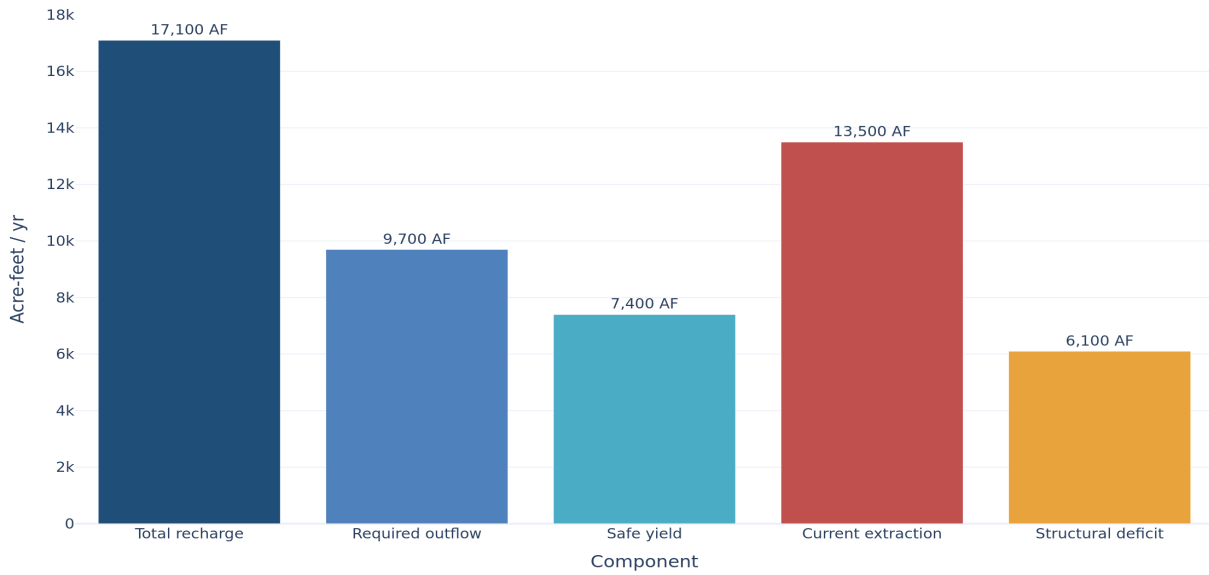
3. Groundwater Impacts on the Bountiful Sub-Aquifer

This section is grounded in the District's March 13, 2026 Regional Hydrogeological Assessment of the Bountiful Sub-Aquifer (Ferguson).

3.1 Baseline water balance

Component	Value (AF/yr)
Total annual recharge	17,100
Natural precipitation recharge (63%)	10,800
Secondary-water infiltration (19%)	3,300
Contract culinary demand offset (17-24%)	2,860-4,160
Local creek recharge (1%)	240
Required natural outflow to Great Salt Lake	9,700 (range 4,500-10,000)
Safe yield (planning estimate)	7,400
Current total regional extraction	~13,500
Structural annual deficit	6,100
Observed production-weighted decline	1.37 ft/yr
State Engineer total diversion cap (5-yr MA)	25,000

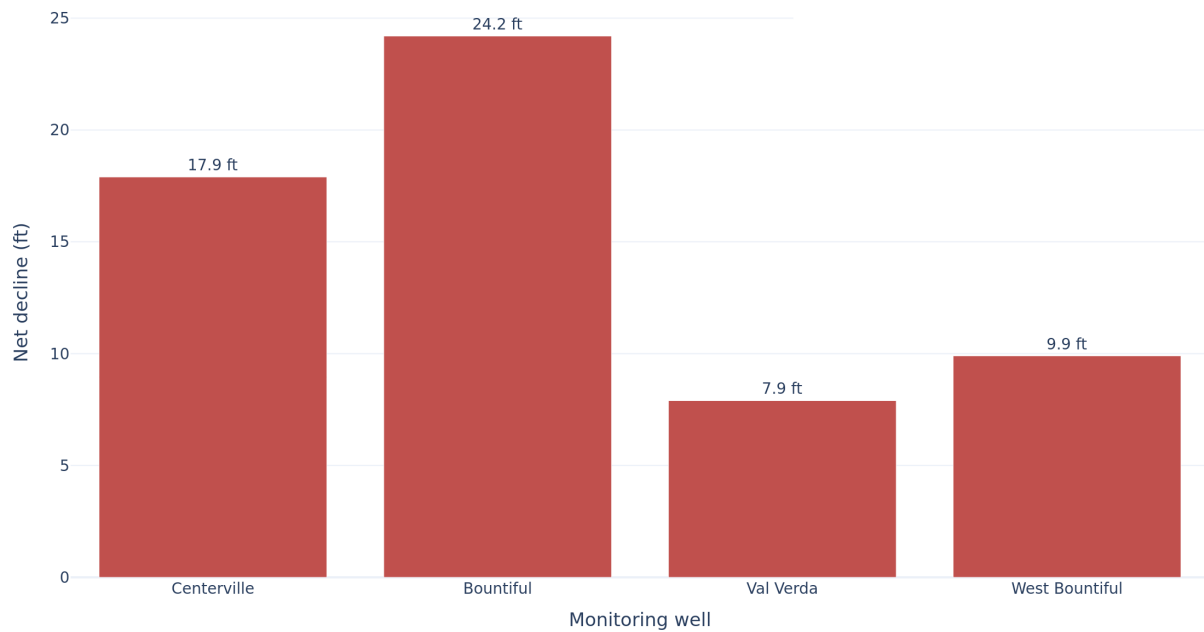
Bountiful sub-aquifer annual water balance (planning estimate)



Current regional extraction of ~13,500 AF/yr is roughly 1.8 times the 7,400 AF safe yield, leaving the aquifer in a documented mining condition.

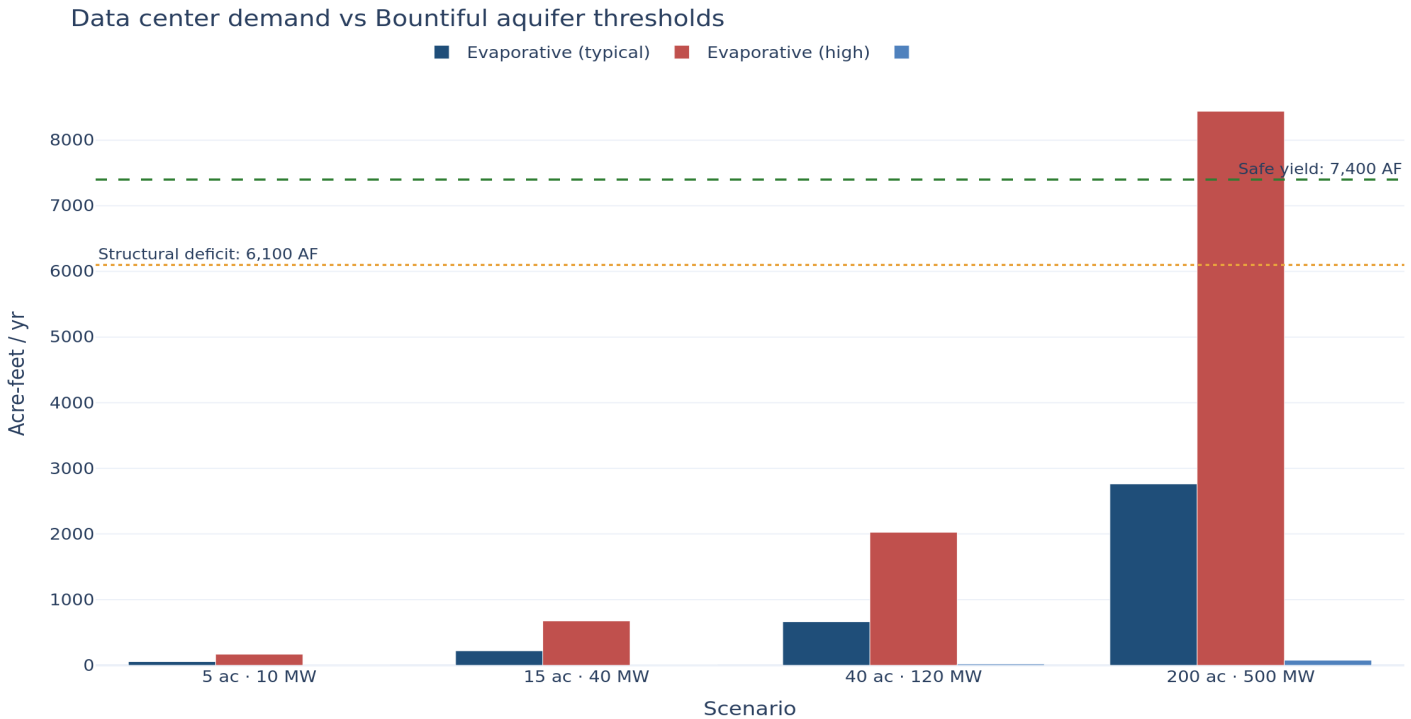
3.2 Observed water-level decline (2012-2025)

Observed aquifer decline, USGS monitoring wells (2012-2025)



4. Data Center Demand Plotted Against Aquifer Thresholds

Placing the four size scenarios against the Assessment's safe-yield and deficit numbers illustrates the risk profile of evaporative vs closed-loop cooling:



Interpretation: A single mid-scale (40 ac / 120 MW) facility using evaporative cooling could consume 663-2,025 AF/yr or 9-27% of the 7,400 AF safe yield from one customer, on an aquifer already mining 6,100 AF/yr from storage. The same facility built closed-loop would consume ~18 AF/yr, immaterial to the water balance. Cooling technology, not parcel size, is the decisive variable for South Davis.

5. Context: The Stratos / Brigham City Project

The proposed Stratos data center in Hansel Valley (Box Elder County), a 9 GW hyperscale campus backed by O'Leary Digital and MIDA, was approved by the Box Elder County Commission on May 4, 2026 after a closed-door vote. Developers told commissioners the facility would use a closed-loop cooling system drawing on 3,000 AF (~977 MG) of existing on-site water rights. Utah Clean Energy's independent May 2026 analysis, however, estimates on-site gas power generation alone would consume 6,140-50,900 AF/yr, which is 2x to 17x the developer's stated budget, before taking into account any server-cooling water. The lesson for South Davis County is that closed-loop marketing language typically applies only to the interior server loop and does not address water for on-site power generation, humidification, or adiabatic (closed-loop spraying) assist during summer heat events.

Stratos water figure	Source	Annual volume
Developer stated total	O'Leary Digital / Box Elder Commission (Apr 2026)	3,000 AF
Independent low estimate (RICE engines)	Utah Clean Energy (May 2026)	~6,140 AF

Independent high estimate (CCCT turbines)	Utah Clean Energy (May 2026)	~50,900 AF
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6. Recommended District Response

- Treat the March 2026 Assessment's 6,100 AF/yr structural deficit and 7,400 AF safe yield, not paper water rights, as the governing constraint for any large new industrial connection.
- Establish a large-water-user review threshold (e.g., any new industrial request >10 AF/yr) that triggers Board-level approval.
- Require data-center applicants to submit: (a) full cooling schematic, (b) annual make-up-water cap in gallons, (c) disclosure of any private production wells in the sub-aquifer, (d) cooling method for any on-site generation, and (e) commitment to non-evaporative heat rejection above a defined cooling load.
- Work with member cities (Bountiful, Woods Cross, North Salt Lake, West Bountiful, Centerville) on zoning overlays that exclude water-intensive industrial cooling from parcels overlying the sub-aquifer.
- Use the Stratos case as precedent: treat developer closed-loop claims as unverified until engineering documentation and a full water balance (server + generation + auxiliary) are filed and reviewed.