For discussion purposes only (2025-08-27)

Creating Boundaries for Demand Management | Comparing Different Methods/Approaches				
Method/Approach	Benefits	Drawbacks	Assumptions/Uncertainties	Key Considerations
True-Thiessen *Auto-generated polygons based on equidistant boundaries from monitoring wells*	• Objective defensibility • Avoids human bias • Auto-updates with well changes Best Supports: Areas with dense monitoring coverage and stable conditions	• Lacks hydrogeologic basis • Potential divisions across similar operations • May split water portfolios Challenging for: Properties spanning boundaries; areas with sparse well coverage	• Assumes monitoring wells represent surrounding area • Assumes additional wells/sites in the future to improve monitoring network	• Current starting point due to Jan '26 time constraints • Lowest implementation cost • State likely to accept as "objective" • Need regular review cycle
Groundwater Conditions-Based *Polygons drawn around areas experiencing or predicted to experience groundwater issues*	• Targets actual areas of concern • More defensible for restrictions Best Supports: Areas with stable groundwater unlikely to face restrictions	• More subjective "problem" determination • Boundaries may shift frequently Challenging for: Areas already experiencing declines (immediate targets)	• Assumes local pumping causes local problems (not regional effects) • Model accuracy questions	• Could overlay on Thiessen • Requires extensive modeling • Need AEM data integration • Political sensitivity around "problem" designation
Land Use-Based *Polygons based on crop types, irrigation patterns, and agricultural use*	• Aligns with actual demand • Enables crop-specific strategies Best Supports: Well-documented efficient operations; uniform crop areas	• Significant data gaps ("unknown" parcels) • Frequent land-use changes Challenging for: Small farms with poor documentation; mixed-use operations	• Future land use unpredictable • Assumes uniform water use within crop types • Age/maturity of orchards not captured	• Regular QAQC expensive • Doesn't account for irrigation efficiency differences
Evapotranspiration-Based *Polygons based on measured water consumption through ET rates*	• Measures water consumption • Objective defensibility • Low cost to county Best Supports: Efficient groundwater irrigators with modern systems	• Can't distinguish water sources • Data accuracy and resolution limitations • Different optimal ET by crop Challenging for: Older orchards; areas without surface water access	• Assumes ET reflects GW use • Optimal ET targets uncertain • Weather/climate variability impacts	• Land IQ expensive ($100K+ annually) • Open ET currently insufficient • Must account for deficit irrigation practices • Is it reasonably accurate? • Possible confirmation tool

Critical Context for All Approaches:

- Data Reality:
    - Most "monitoring wells" are actually 60-80 year old production wells with unknown screening depths
    - Upper aquifer monitoring (<200 ft) doesn't match pumping depths (200-800 ft)
    - Multi-completion monitoring wells cost ~$1M each to install
- Regulatory Pressure:
    - State requires demonstrated specific PMAs for overdraft
    - January 2026 adoption deadline limits comprehensive approach development
    - Neighboring basins' approaches influence capabilities
- Implementation Timeline:
    - Polygons have not been defined yet and can change before 2031
    - 2031 before restrictions begin (allows refinement time)
    - 5-year GSP update cycles enable adjustments
    - Current approach viewed as starting point, not endpoint