

Water Supply Assessment and Demand Planning for a New Community in California



Project will incorporate water-efficient plumbing and irrigation practices to reduce potable water demands.



Site has historically relied upon groundwater to for water supply



EKI estimated future water demands and performed an assessment of water supply alternatives for a proposed large, community with supporting commercial and institutional uses located in an agricultural area of Central California. Historically, groundwater provided all of the water supply needs at the site and our client had no surface water rights.

EKI prepared projections of the potable water demand and evaluated water supply, transport, and treatment options available to our client. As part of the Project's sustainability program and in support of the required Water Supply Assessment (WSA), EKI performed the following:

- Forecasted potable and non-potable water demands based on studies conducted by the American Water Works Association Research Foundation, the University of California Cooperative Extension, the California Department of Water Resources, and the Pacific Institute. These demands incorporated the use of water-efficient technologies and practices planned for the Project.
- Identified potential water resources for the development, including on-site reuse of recycled water, stormwater, rainwater, and graywater, as well as the purchase of excess surface water from the local water district through the Central Valley Project system, and development of local groundwater resources. EKI estimated the volume of water available from each water source, its reliability during design drought scenarios, and the institutional and technical constraints associated with each.
- Quantified historical groundwater water use at the site to establish historical overlying water rights.
- Coordinated groundwater well rehabilitation and construction efforts, performed aquifer pumping tests to estimate long-term well yield, mapped historic water levels in the multiple aquifers beneath the site, developed a conceptual hydrogeologic model; conducted in-depth peer reviews of multiple existing MODFLOW and numerical groundwater basin models, and led water quality analyses.
- Constructed a high-yield production well capable of serving the community needs.
- Prepared preliminary designs and costs estimates for new potable and wastewater treatment facilities, featuring reverse osmosis to produce tertiary-treated recycled water.
- Aided discussions with local water district and stakeholders regarding water supply options.