# NAPA VALLEY SUBBASIN GROUNDWATER SUSTAINABILITY PLAN SUMMARY

**Overview of SGMA and the GSP**

The Sustainable Groundwater Management Act (SGMA) encourages groundwater management at the local level. Local entities are responsible for forming Groundwater Sustainability Agencies (GSAs) to develop and implement Groundwater Sustainability Plans (GSPs) to guide sustainable management of groundwater basins or subbasins identified as high or medium priority by the State.

The Napa County Groundwater Sustainability Agency (NCGSA, or GSA) was created in December 2019 to manage groundwater resources consistent with SGMA for the Napa Valley Subbasin. As the exclusive GSA for the Napa Valley Subbasin, the NCGSA is required to adopt a GSP for the Subbasin and begin GSP implementation by January 31, 2022. A 25-member Groundwater Sustainability Plan Advisory Committee (GSPAC) was formed in June 2020 to advise the NCGSA Board of Directors on the preparation of the GSP with policies and recommendations to manage and ensure the long-term protection and availability of groundwater resources within the Napa Valley Subbasin.

The **sustainability goal** for the Napa Valley Subbasin, **unanimously approved by the GSPAC**, is:

- To protect and enhance groundwater quantity and quality for all beneficial uses and users of groundwater and interconnected surface water in the Napa Valley Subbasin both now and in the future.
- The NCGSA will implement sustainable management criteria and an adaptive management approach supported by the best available information and best available science, resulting in the absence of undesirable results within 20 years from GSP adoption.

The purpose of the GSP is to provide a detailed road map for achieving and maintaining sustainability in the Napa Valley Subbasin. The GSP development process involved key elements including:

- Characterizing geologic and groundwater conditions
- Developing historical, current, and projected water budgets and estimating sustainable yield
- Defining sustainable management criteria for avoiding undesirable results (significant and unreasonable adverse impacts caused by groundwater conditions) related to six sustainability indicators:
    - chronic lowering of groundwater levels
    - reduction in groundwater storage
    - water quality degradation
    - land subsidence
    - depletion of interconnected surface water
    - seawater intrusion
- Identifying projects and management actions to achieve and maintain sustainability and avoid undesirable results.

**Groundwater Conditions**

Water bearing units in the Napa Valley Subbasin include the Alluvial Quaternary aquifer and the Tertiary volcanic/sedimentary units. Most of the groundwater pumping in the Subbasin occurs from the shallower Alluvial Quaternary units, whereas pumping in the Tertiary volcanic/sedimentary units is typically utilized by deeper production wells and production wells near the Napa Valley margin where the Alluvial deposits are thinner.

Groundwater levels reflect the amount groundwater in storage and the movement of groundwater. Monitoring data exhibit generally stable long-term trends, although conditions are largely dependent on seasonal precipitation input. Several wells located near the Napa Valley Subbasin margin in the northeastern Napa area, southwestern Yountville area, and southeastern St. Helena area show periods of groundwater decline during times of drought. Continued monitoring of groundwater levels will be important to evaluate future hydrologic and climatic influences.

Groundwater quality in the Subbasin is generally suitable for all beneficial uses, most notably for drinking water uses that typically have the most restrictive standards for water quality. Groundwater from the unconfined alluvium is generally of higher quality than groundwater obtained from the Tertiary volcanic formations, which frequently contain higher concentrations of metals and other dissolved minerals. Elevated concentrations of arsenic, iron, and manganese occur in these formations throughout the Subbasin as a result of naturally occurring conditions. Key groundwater quality constituents of interest identified in the Subbasin include total dissolved solids, nitrate, arsenic, and chloride.

Land subsidence data indicate small variations in land surface elevation have occurred in the Subbasin with no documentation of inelastic (irreversible) land subsidence related to groundwater pumping. No significant impacts to infrastructure in the Subbasin have been noted as a result of land subsidence; minor seasonal (elastic) fluctuations in the ground surface elevation occur in association with seasonal changes in groundwater conditions.

Interconnected surface waters in the Subbasin vary spatially and temporally depending on the season and water year type. Several streams within the Subbasin are identified as having some degree of hydraulic connection to groundwater, including Bale Slough, Dry Creek, Conn Creek, Garnett Creek, Mill Creek, Napa Creek, Rector Creek, Redwood Creek, Ritchie Creek, Soda Creek, Sulphur Creek, Tulucay Creek, and York Creek. Some of these streams are perennial reaches of the Napa River and others are intermittent tributaries, which only have an established connection to groundwater during specific periods of the year. The GSP identifies a benefit to expanded monitoring of surface water and groundwater interactions. The NCGSA plans to address this in fall 2021 to winter 2021/2022 with the installation of eight new monitoring wells located near additional surface waters in the Subbasin. Additional upgrades to stream gages are also proposed to address data gaps.

Seawater intrusion potential exists in the southernmost area of the Subbasin. Elevated chloride (a water quality indicator for seawater intrusion) concentrations relative to the rest of the Napa Valley have been found in the alluvium of the tidal marsh area south of the Napa Valley Subbasin and along the Napa River, attributed to both the connate seawater and brackish water in the tidal reaches of Napa River.

**Water Budget**

Primary sources of water supplies within the Subbasin consist of groundwater, surface water from local reservoirs and surface water diversions, and State Water Project deliveries. Historical groundwater pumping has averaged about 14,900 acre-feet[1] per year (AFY). Water budgets projected for a 51-year future period were analyzed considering changes in land use and climate change. Projected inflows and outflows to the groundwater system range from 35,200 AFY to -34,800 AFY. Outflows from groundwater pumping are projected to account for 40% to 50% of total groundwater outflows from the Subbasin, consistent with historical percentages. Projected annual

[1] An acre-foot is 325,851 gallons, a volume that would cover a one-acre area at a depth of one foot and a volume that would supply approximately three single-family residences for one year in St. Helena under Phase 2 water restrictions triggered in 2020. A flow of 0.5 cubic feet per second supplies one acre-foot per day.

changes in groundwater storage ranging from a net decrease of 200 AFY to a net increase of 160 AFY. The Subbasin sustainable yield, as defined by SGMA, is approximately 15,000 acre-feet per year.

**Sustainability Criteria and Monitoring**

Through many months of input and review by the GSPAC, each sustainability indicator was evaluated and assigned minimum thresholds (MTs) and measurable objectives (MOs) to avoid undesirable results. MOs and MTs are metrics assigned for sustainability indicators at Representative Monitoring Sites (RMS) across the Subbasin. MTs represent values at which undesirable results may be occurring in the Subbasin; MTs are set to enable the NCGSA to avoid significant and unreasonable adverse impacts on beneficial users, including drinking water users, agricultural users, and environmental users. MOs represent the long-term target for conditions in the Napa Valley Subbasin. RMS networks in the Subbasin consist of wells, streamflow gages, remote sensing data, and land subsidence monitoring benchmarks. Data associated with groundwater conditions and the six sustainability indicators will be maintained in a Data Management System to support ongoing assessment and reporting on groundwater conditions. Annual reports will be submitted including information on groundwater levels, groundwater pumping, water use, changes in groundwater storage, and status of any projects and management actions being implemented. A more detailed GSP evaluation (Five-Year GSP Update Report) is required at least every five years.

**GSP Implementation**

The GSP is a living, dynamic document that will guide expanded monitoring, including efforts to identify and fill data gaps, and implementation of projects and management actions as needed to achieve the Napa Valley Subbasin sustainability goal. **Upon GSP adoption, NCGSA staff will commence the process of forming a Technical Work Group with appropriate qualifications to assume the responsibility and the timely opportunity to advise the NCGSA.** The Technical Work Group (recommended and unanimously approved by the GSPAC at their meeting on November 8, 2021) will be involved with implementation of the GSP, and include, among other things, a focus on data gaps and adaptive management. Adaptive management approaches will be used during GSP implementation, including forward looking monitoring, water budget refinements, reporting and outreach, evaluation of sustainable management criteria, and assessments of the effectiveness of projects and management actions.

Stakeholder input will continue to be an essential component of informed analysis of new data, approaches, and recommendations to communicate to the NCGSA for resource management actions to ensure sustainability.

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