



County of Monterey

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

Board Report

File #: 21-445, **Version:** 1

Consider receiving an update on the Salinas Valley Groundwater Basin Investigation.

RECOMMENDATION:

It is recommended that the Monterey County Board of Supervisors:
Receive an update on the Salinas Valley Groundwater Basin Investigation.

SUMMARY:

As a result of 2010, Monterey County General Plan Policy PS-3.1 and as part of the settlement of litigation with the Salinas Valley Water Coalition et al, Monterey County (“County”) agreed to conduct a study of Zone 2C of the Salinas Valley Groundwater Basin to evaluate existing and future seawater intrusion, groundwater levels, and total water demands.

DISCUSSION:

In July 2014, the County initiated a comprehensive water resources assessment of Zone 2C of the Salinas Valley Groundwater Basin: the Salinas Valley Groundwater Basin Investigation (“Basin Investigation”). A primary objective of the Basin Investigation is to assess the general health of the Salinas Valley Groundwater Basin with regard to its ability to provide a sustainable supply of water for land use activities projected to the year 2030.

The first phase of the Basin Investigation concluded in 2015 with delivery of the *State of the Basin* report from Brown & Caldwell, which provided a near-term assessment of conditions in Zone 2C. The second phase of the Basin Investigation has been conducted primarily by the U.S. Geological Survey (“USGS”) and includes construction of an integrated groundwater-surface water model for use in evaluating water budgets, groundwater elevations, and seawater intrusion under both current and future conditions. In order to complete the Basin Investigation, the County retained Montgomery & Associates in February 2020 to complete a final report, which is required under the settlement agreement.

Model Development

In January 2016, the USGS began collaborating with the County to develop an integrated hydrologic model of the Salinas Valley Groundwater Basin, referred to as the Salinas Valley Integrated Hydrologic Model (“SVIHM”). Development of the SVIHM is occurring concurrently with development of the Salinas Valley Operational Model (“SVOM”) which is funded by the Monterey County Water Resources Agency (MCWRA) as part of the Interlake Tunnel and San Antonio Spillway Modification Project.

The SVIHM is a model that simulates historical conditions and reflects changes in historical hydrology and land use over the simulation period (Attachment 1). The SVOM is an “operational” model that couples the structure and calibrated parameters of the SVIHM with a module that simulates operation of Nacimiento and San Antonio reservoirs. The SVOM allows modeling of future scenarios or proposed projects; its use is integral to completion of the Basin Investigation, along with the SVIHM.

Model development has been a collaborative process between the USGS, County, and MCWRA. Additional input on the SVIHM development were contributed by a Technical Advisory Committee that was formed as

part of the Basin Investigation and included regional stakeholders and consultants.

The SVIHM is built using the latest version of the USGS MODFLOW One Water Hydrologic Flow Model (“MODFLOW-OWHM”), an integrated hydrologic flow model for the analysis of water movement within a supply-and-demand framework. The MODFLOW-OWHM software and documentation are available for public download from the USGS at <https://ca.water.usgs.gov/modeling-software/one-water-hydrologic-model.html>. The SVIHM has been developed using two submodels, one that defines the spatial extent, depth, and distribution of geologic materials in the Salinas Valley (the Salinas Valley Geologic Model) and a watershed model that covers the entire Salinas Valley watershed (the Salinas Valley Watershed Model).

The SVIHM simulates conjunctive use of groundwater and surface water in Zone 2C of the Salinas Valley Groundwater Basin for the period between October 1, 1967 and September 30, 2018. The SVIHM has been calibrated for the period between October 1, 1967 and December 31, 2014; future refinements of the SVIHM may include extending the calibration period.

The SVIHM includes representations of a wide-range of data, including: climate; groundwater; surface water; recharge; runoff; inflow from ungauged watersheds; reservoir releases; diversions from the Salinas and Arroyo Seco Rivers; municipal and industrial water supply pumping; and fifty-six (56) different land use types, forty-two (42) of which are crop-related land uses.

Calibration of the SVIHM was completed using groundwater level data collected by MCWRA, streamflow measurements from seventeen (17) USGS gages, groundwater extraction data submitted to MCWRA as part of the Groundwater Extraction Management System (“GEMS”).

Basin Investigation Current Activity

Montgomery & Associates will use the SVIHM to complete the reassessment of Zone 2C and the SVOM to evaluate future conditions. Montgomery & Associates has been working to evaluate data and prepare input for the modeling that will be needed to complete the final report. This work includes, but is not limited to, developing strategies for assessing future water demands, formulating urban pumping estimates for 2030, analyzing future water use coefficients, refining methods for updating land use, and implementing projected 2030 land use to include specific crop types.

The Basin Investigation Final Report will:

- Reassess and summarize the State of the Salinas Valley Groundwater Basin (Zone 2C) using the results of the most recently configured SVIHM;
- Reassess the 2030 demand projections made in the 2010 General Plan Final Environmental Impact Report (“FEIR”) in light of any changes to or errors in the assumptions for baseline and future water demand, including trends in water use;
- Develop revised land use data for 2030 based on reassessed land use assumptions in the 2010 General Plan FEIR;
- Assess and provide conclusions regarding the degree to which the total water demand for all uses is likely to be reached or exceeded based on reassessed land use assumptions and changes to baseline and future water demand;

- Evaluate and provide conclusions regarding future trends and expected changes in groundwater elevations and the extent of seawater intrusion based on historical data and the data produced during the study; and,
- Make recommendations on measures the County could take, should the study conclude that: i) total water demand for uses based on reassessed land use assumptions is likely to be exceeded; or, ii) groundwater elevations are likely to decline by the year 2030; or, iii) the seawater intrusion boundary is likely to advance inland by the year 2030.

The final report is expected to be complete approximately five months after the approved models are provided to Montgomery & Associates.

OTHER AGENCY INVOLVEMENT:

The Monterey County Water Resources Agency performs project management for the Basin Investigation. The U.S. Geological Survey is a cooperator in development of the SVIHM. The Housing and Community Development (HCD) Department administers the contracts with the consultants.

FINANCING:

A total amount of \$2,038,917 has been spent for FY 2014-15 through FY 2020-21 to conduct the SVGB Investigation. The FY 2020-21 adopted budget included an augmentation in the amount of \$75,998. On October 6, 2020, the Board of Supervisors approved, increasing appropriations by \$182,260 from Restricted Fund Balance. In FY 2020-21 \$60,674 has been invoiced to date, with an additional estimated \$21,000 anticipated to be expended. Total expenditures for FY 2020-21 will be \$81,674, leaving a projected year-end balance of \$176,584. In FY 2021-22 a total amount of \$176,584 will be needed to complete the Investigation.

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The following attachment is on file with the Clerk of the Board:
Attachment 1 - Modeling Technical Memorandum