



**Analysis of Historical Recharge the Colonies,
City of Upland/San Antonio Water Company**

Background

The City of Upland’s Public Works Department is responsible for the maintenance and improvements of the city’s infrastructure, including the city water system. The City of Upland was incorporated in San Bernardino County in 1906 and is nestled at the base of the San Gabriel Mountains.

Currently, and as far back as the early 1900’s, the San Antonio Water Company (SAWC) has been diverting surface water discharge from San Antonio Creek for recharge in the Cucamonga Creek spreading grounds located along Cucamonga Creek on the western edge of the Cucamonga groundwater basin. Stormwater discharge from portions of the City of Upland (Upland) and San Antonio Heights has historically been diverted via the 19th Street storm drain into the same area for recharge. Recently, in 2001, drainage improvements have occurred in the 19th Street storm drain watershed diverting most of the water that used to enter the Cucamonga Creek spreading grounds through 19th Street storm

drain to the new 20th Street storm drain. With these improvements, the drainage area tributary to the Cucamonga Creek spreading grounds on the west side has remained the same at about 2000 acres, however the magnitude of the combined storm drains has increased.

Colonies at San Antonio

The Colonies at San Antonio is located in an undeveloped area in northeastern Upland near the Upland/Rancho Cucamonga city boundary. Cucamonga Creek borders the east side of the project and separates the project site from the city of Rancho Cucamonga. Upland has proposed a change in the existing Colonies at San Antonio Specific Plan (hereafter the Project). The Project is described in the *Draft Program Environmental Impact Report (DPEIR), The Colonies at San Antonio, June 2002*. The Project overlies a 448-acre area that includes two recharge basins (No. 6 and No. 7) that currently and historically have been used by the SAWC to recharge San Antonio Creek water. This same recharge

area has been receiving and recharging storm flows from the 19th Street storm drain.

Cucamonga Valley Water District (CVWD), City of Upland Public Works Department, and SAWC have expressed concerns that the Project, as described in the DPEIR and supporting technical documents, will result in a reduction of recharge of San Antonio Creek and the stormwater in the Cucamonga groundwater basin. A reduction in this recharge will result in a reduction in groundwater yield for CVWD, Upland and SAWC.

A reduction in groundwater yield will in turn make these agencies more dependent on less reliable



Stormwater runoff at storm drain



Analysis of Historical Recharge the Colonies, cont'd

State Project Water and increase their water supply cost. Should this be true, then the Project will have environmental impacts throughout the State and not just on these local water purveyors. In the proposed Colonies Project, the Basin No. 6 area will be converted to a flood detention basin to manage inflows from the 19th, 20th, I-210, and newly created urban runoff from the Project. Basin No. 6 has irregular basin geometry and is devoid of significant vegetation.

In the proposed Project, three different basin areas will be created in the footprint of Basin No. 6 – A1, A2 and A3. A1 and A2, which will occupy the largest area of the proposed detention basin facility, will be utilized for low storm flow and nuisance flow management. A1 and A2 will have vegetated slopes and bottoms, and will not be maintained for recharge. A3 will be used for stormwater detention and recharge and have a non-vegetated bottom (thereby maintainable from a recharge perspective) and vegetated slopes. For significant storm events, A1, A2, and A3 (“A” Basins) could be inundated.

Existing Basin No. 7 will be completely filled in and developed on.

CVWD, SAWC and Upland jointly retained Wildermuth Environmental, Inc (WEI) to review the Project related documents and gave a thorough explanation of all of the relevant information and performed the following tasks to estimate how the Project could be modified to ensure historical recharge:

- *Reviewed and validated San Antonio Creek diversion data,*
- *Researched historical air photos; computed flooded areas in Basin No. 6 and estimate effective percolation rates,*
- *Established percolation rate for a “robust” design,*
- *Developed alternative elevation-area-volume-outflow (EAVO) curves for the proposed A-basin to increase conservation storage and simulated historical recharge performance with trial EAVO’s, and*
- *Repeated until EAVO curves were developed that preserved historical recharge at the design percolation rate.*

Mitigation Measures

WEI recommended that the following mitigation measures be incorporated in the final PEIR should the Project be adopted. The “A” Basins be instrumented to determine percolation rates, inflow, and outflow. These data would be used to determine the loss (or gain) of recharge caused by the Project. An accounting would be done on an annual basis.

A system should be established to replace lost recharge through the purchase of State Project water, or other water of equal or better quality, and delivered to CVWD and SAWC through an equitable formula based on the 1958 Cucamonga Basin Judgment. The location of delivered water could be through a treatment plant and therefore require the purchase of new treatment capacity or to the Cucamonga spreading grounds and require the construction of a new turnout on the Foothill Feeder. Because State Project water has a higher TDS than either storm or San Antonio Creek water, an additional financial assessment should be applied to the Project proponent to recover the cost associated with TDS-related Basin Plan compliance issues.