

## RANCHERO ROAD AQUEDUCT CROSSING PROJECT

### CITY OF HESPERIA

### PROJECT DESCRIPTION

The project proposes to replace the existing two-lane, two-span structure over the California Aqueduct with a new six-lane, single-span structure (refer to Figure 2 at the end of this chapter). The replacement bridge would be constructed for future accommodation of six lanes in support of the City's "ultimate" build out of Rancho Road as a six-lane *Special Major Arterial* roadway, but it would be striped as a four-lane roadway and include a median and shared pedestrian sidewalk/bike pathways to correspond with the anticipated roadway capacity of Rancho Road pursuant to the Rancho Road Widening Project, which is four lanes.<sup>1</sup> The project would also construct bridge approach roadway improvements, including drainage and utilities, to accommodate the raised profile for the proposed bridge.

The proposed bridge structure would be constructed in one stage. The existing crossing would need to be temporarily shut down to accommodate bridge removal and one-stage new bridge construction. Construction-related traffic detours will be planned and executed through consultation with the City Engineer to ensure alternate routes are posted and motorists are advised to use specified detour routes.

The proposed improvements include a slight realignment of 11<sup>th</sup> Avenue, which is a 2-lane corridor with a reverse "S" curve with a 300-foot radius. 11<sup>th</sup> Avenue is proposed to be realigned slightly to the east and elevated to intersect Rancho Road at the bridge. Additionally, a new cul-de-sac street will be constructed on City-owned APN 412-182-26, which would reestablish driveway access to the single-family residence at APN 0412-182-37 and the Just-4-Kids Preschool (APN 0412-182-25) at the northeast quadrant of Rancho Road and 11<sup>th</sup> Avenue. One residential property (APN 0397-201-12) at the southwest corner of Rancho Road and Via Antiqua would be acquired and converted to permanent City ROW as part of the proposed project.

The proposed Rancho Road alignment starts curving southerly immediately east of the Kern Avenue intersection. It then curves northerly and crosses the California Aqueduct at an approximately 45-degree skew and ties back into the existing centerline at the Via Antiqua intersection. The proposed alignment provides optimized geometrics and maximizes the constructability of a single-span precast girder bridge to comply with Department of Water Resources (DWR) Encroachment Permit Guidelines. The design speed is 55 miles per hour (mph).

The proposed Rancho Road profile starts ascending from the west side at 2.3 percent grade over the aqueduct and descends at 5 percent with an 830-foot crest vertical curve and touchdown west of the Via Antiqua intersection. The proposed profile grades are 5 percent or less to comply with Americans with Disabilities Act (ADA) sidewalk requirements. The raised profile is necessary in order to meet the latest requirements imposed by the State of California and DWR, which include:

- New bridge crossings shall be single-span design.
- The minimum vertical clearance between the bottom of the girders and the top of the canal lining shall be 3 feet.

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<sup>1</sup> *Rancho Road Widening Project Final Environmental Impact Report, SCH# 2012061058. Page S-6. City of Hesperia and County of San Bernardino. June 2013.*

- The minimum horizontal clearance from the face of the abutment to the top of the canal lining shall be 5 feet.

A 240-foot-long Type 1 retaining wall is proposed along the northern property line of properties between APNs 405-841-07 (15362 Kern Avenue) and 405-841-08 (15350 Kern Avenue). The wall is constructed of concrete supported by footing extending a minimum of 2 feet below finished grade. In addition, a 6-foot property wall on Type 736S (modified) concrete barrier is provided on top of the proposed retaining wall to create privacy for the residences. The exposed wall face varies in height between 10.8 feet and 14.6 feet from the top of finished grade. The project would also construct four utility driveways, two on the south side of Rancho Road, one on the north side of Rancho Road, and one off of the realigned 11<sup>th</sup> Avenue roadway, to facilitate DWR access to both sides of the California Aqueduct.

The existing 14-inch water line in the bridge will be removed prior to demolition. An 8-inch temporary water line will be required during construction to serve the City's needs. The proposed temporary water line would cross the aqueduct at an angle of 90 degrees, just north of the existing bridge. To allow for the continuation of utilities during bridge demolition and construction, the project includes the installation of a temporary 102-foot by 5.5-foot galvanized truss structure that will support the temporary water line. A temporary easement from DWR will accommodate the water line crossing.