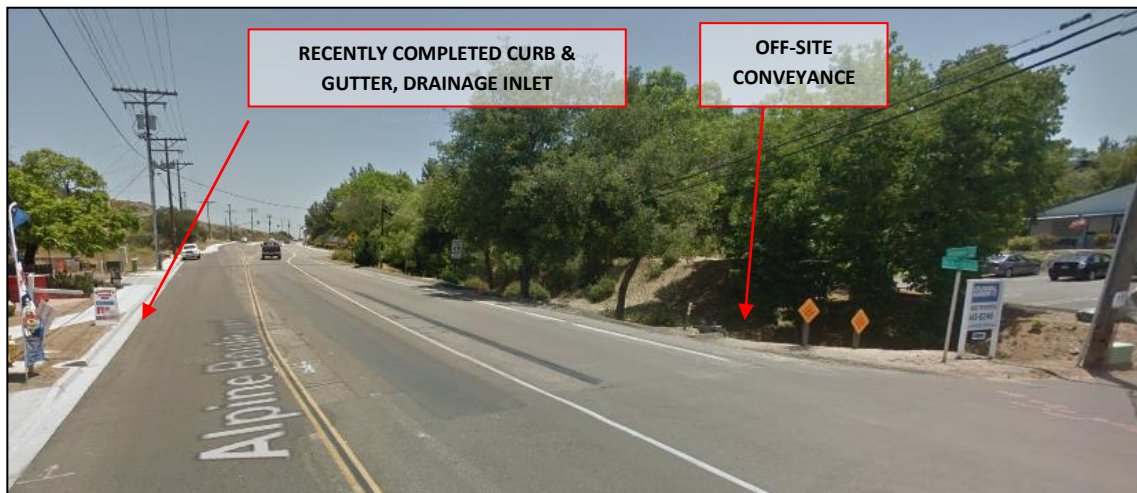


MUNICIPAL WORKS

Alpine Boulevard Streetscape & Storm Drain Project

Project Overview



Alpine Boulevard, located in the community of Alpine- San Diego County, features three drainage basins serviced by an existing conveyance system closely following Alpine Boulevard. The roadway runoff, generally, sheet flows into the offsite conveyance system. The proposed streetscape project consists of adding curb, gutter, and sidewalk where none exists on Alpine Boulevard between Tavern Road and East Victoria Drive. The streetscape elements, particularly the curb and gutter, changes the flow regime requiring new channels, inlets, and storm drain segments. The proposed drainage features, redirect runoff into the underground storm drain system and away from the offsite conveyance system.

The proposed project's in-street improvements are constrained by the recent completion of the underground Sunrise Powerlink (SPL) by San Diego Gas and Electric (SDG&E) that drastically increases the construction complexity, costs, and duration, while significantly impacting the residents and businesses along Alpine Boulevard.

2013 construction costs are estimated at \$12,012,000 with construction duration of 24 months.

Project Review

A project review was completed in late 2013 that identified 3 project strategies to compete with the original project concept:

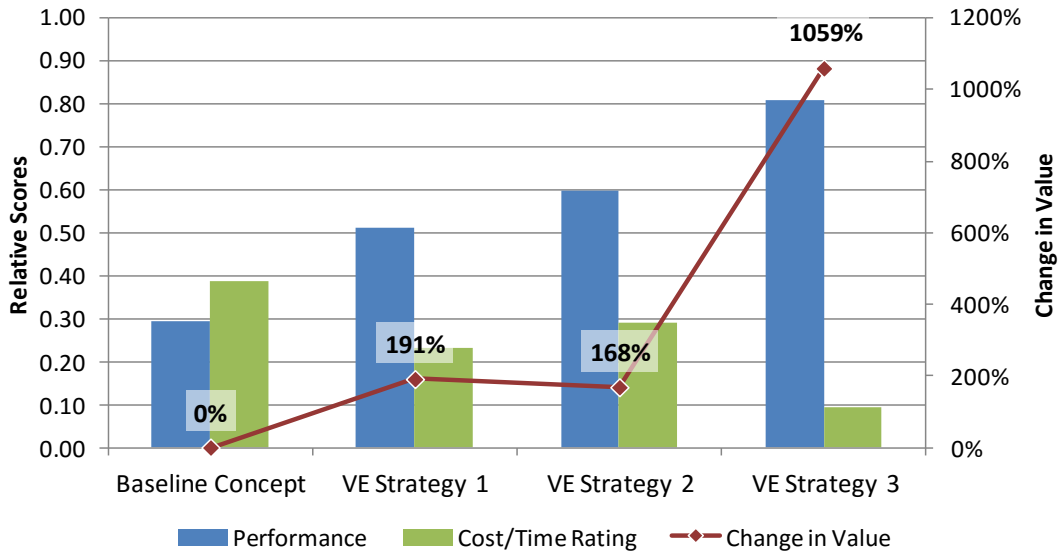
- *Strategy 1:* Optimize the project by reducing flows via detention and redirecting flows to the offsite system and to street (surface) conveyance.
- *Strategy 2:* Construct offsite drainage improvements to reduce the underground storm scope, optimize the storm drain in the remaining systems, and reduce streetscape impacts to channels.
- *Strategy 3:* Minimal Build Concept: Avoid changes to the project flow regime conveyance and reduce streetscape impacts to channels.

All the strategies significantly improve the project performance – particularly in the terms of construction impacts – while reducing construction duration and construction costs, resulting in large increases in project value being presented to the stakeholders for consideration as project alternatives that may be evaluated in the environmental document. Strategy 3, the highest value increasing strategy, increases the project performance while reducing both costs and construction duration by approximately two-thirds.

MUNICIPAL WORKS

A summary of the VE strategies cost, schedule, performance and value improvement is listed below.

Strategy Description	Initial Cost Savings	Change in Schedule	Change in Performance	Value Change
VE Strategy 1	\$1,120,000	-15 months	+74 %	+191 %
VE Strategy 2	\$650,000	-13.25 months	+102 %	+168 %
VE Strategy 3	\$9,040,000	-18.5 months	+175 %	+1,059 %



Comparison of Value - Baseline Concept and Accepted VE Strategies

Comments from Key Participants

Stephen Smith- TYLIN Program manager: *“this project review provided ‘out of the box thinking’ that created a mechanism to assemble and analyze technical solutions that might be difficult to conceive and implement in the normal day-to-day project development process.”*