



# Water Quality Management for Redevelopment

CommunityViz analysis to support strict water quality regulations in San Diego

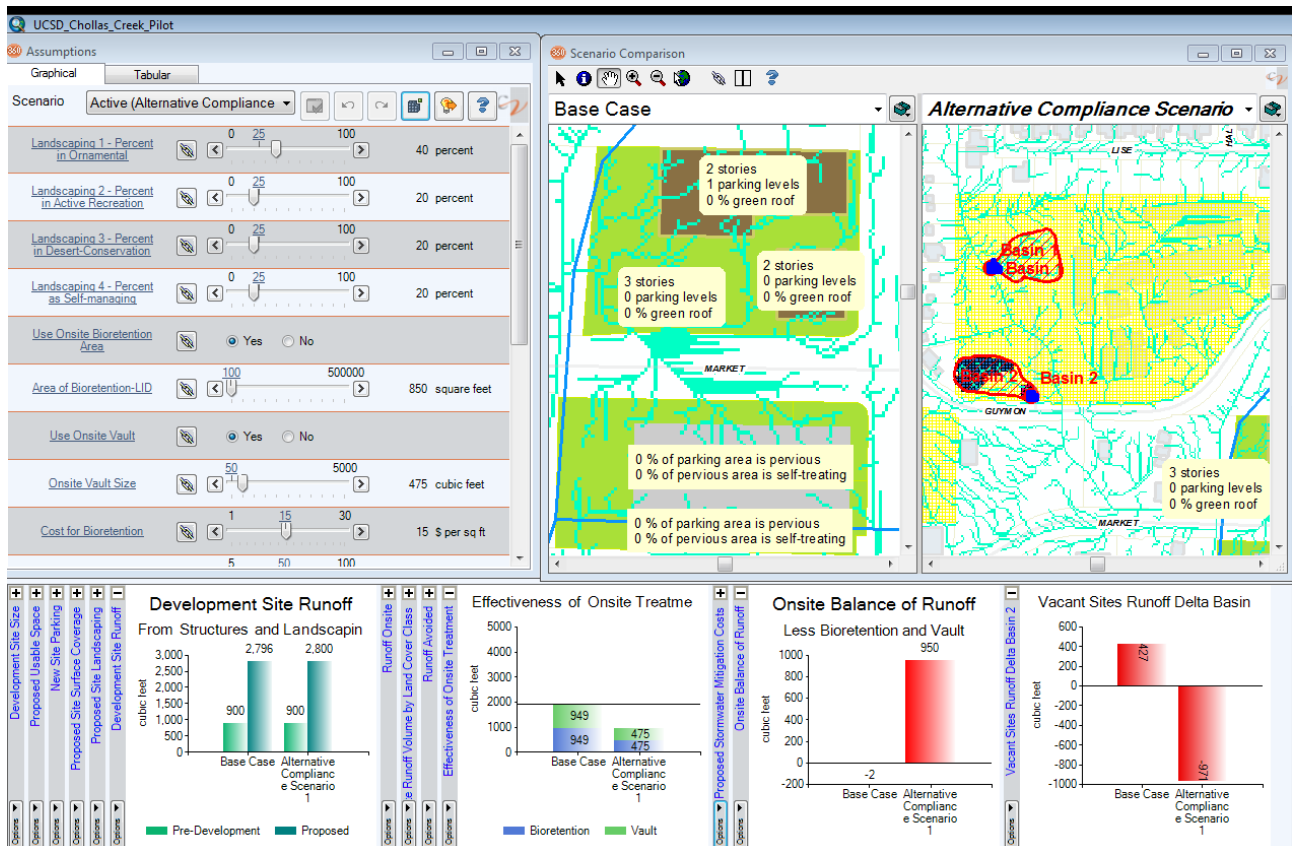
**Location:** San Diego, CA

**Partners:** University of California–San Diego; Birchline Planning LLC; Hey and Associates, Inc.

## Context:

In the Chollas Watershed in Southeast San Diego, UCSD faculty and researchers are addressing existing polluted conditions on vacant and under-developed properties designated for future redevelopment by the City of San Diego. In addition to performing a number of site-specific evaluations, UCSD researchers are working to develop a community-wide water quality improvement strategy, utilizing scientific information and recommended strategies contained in the “Chollas Watershed Comprehensive Load Reduction Plan” completed in 2012.

Recently adopted local regulatory standards require new development and redevelopment projects to mitigate any new, onsite runoff within the watershed that exceeds the volume and pollutant loads of pre-development conditions. The project goal was developing a decision support tool to provide intuitive ways to study alternative planning and mitigation strategies, and to provide information on both onsite and offsite mitigation options.



### *Project Description:*

Placeways developed an application in CommunityViz to pilot the concept in the Chollas Creek Watershed. The pilot focused on a highly used transit station as a possible site for transit-oriented development (TOD) that would increase residential and commercial opportunities in proximity to the station. The pilot application analyzed onsite impacts, increased potential runoff due to high density development of the TOD site, and offsite mitigation opportunities in neighborhood vacant properties.



The CommunityViz modeling process begins with a user sketching a proposed site design. Planning measures of the design, such as square footage, dwelling units, parking potential and cost, are all calculated and reported. Then, using structure information and site vegetation choices including options like permeable parking and green roof treatments, the CommunityViz model

estimates the volume and pollutant loads generated by the proposed design. Next, it allows users to test alternative mitigation strategies. These can include onsite re-vegetation, bioretention or vaulting, or a choice of landscaping and bioretention techniques within nearby vacant properties, running volume and pollutant calculations that draw from an externally generated ArcHydro analysis that models site-specific water flow paths. CommunityViz real-time updates and sketching tools create a dynamic environment for testing alternatives and exploring options to find the best results.

### *Outcomes:*

The model will be used to explore site opportunities and ways to implement regulatory requirements on a broader scale. Future phases of work on this project aim to scale up for use in other project areas and ultimately at larger geographic scales to understand combined effects of planning concepts.