The Highway 101 bridge over the San Elijo Lagoon has been a staple for the City of Encinitas for decades, initially built in 1934 and widened in 1953. Not only is the bridge useful for the people of Encinitas, but it is also an essential transportation route for all of the visitors and travelers that use it over the years. The bridge sits over the opening of the San Elijo Lagoon and next to the shores of Cardiff-by-the-Sea which helps to lend an aspect of beauty and overall appeal to the bridge. This project plans to completely reconstruct and update the Highway 101 bridge over the San Elijo Lagoon in order to restore the bridge’s overall functionality, safety, and appeal.

The purpose of the study of the San Elijo bridge over Highway 101 is to create a feasible and cost-efficient design that can serve the public for years to come. The goal is to create a design that can be easily implemented and funded by the state which plans ahead for the future needs of the area. The design takes into account differences in water level, structural advances, and updated geotechnical needs of the site. Throughout the design process, heavy consideration was placed on looking at alternative designs which could replace the existing bridge which came to a point to create a fitting design for the site.

**GEOTECHNICAL**
- Design a deep foundation to support the bridge replacement
- Installation by drilling circular piles made out of smooth concrete
- Adherence to the pile dimensions and largest allowable load to determine an economical solution for the foundation

**STRUCTURAL**
- Raise bridge, changing the elevation at both ends
- Four spans supported by six reinforced concrete columns
- Nine evenly spaced Pre-Tensioned "I" girders

**TRANSPORTATION**
- Addition of protected bike & pedestrian paths NB and SB
- Adherence to ADA compliant sidewalks & pavement design
- Maintaining LOS C post completion of the bridge and mitigation of LOS E due to construction

**HYDROLOGY**
- Regrade extents of project to accommodate for raised elevation and appropriate site drainage conditions
- Maintain existing drainage conditions on/around site (i.e. brow ditch and improved drainage holes on bridge)
- Incorporate native on-site vegetation to increase pervious area

**ENVIRONMENTAL**
- California Environmental Quality Act
- National Environmental Policy Act

**CONSTRUCTION**
- Maintain 3 lanes of travel and sidewalk throughout construction
- Use of SWPPP and BMP to keep area clean
- Staging areas designated for material and equipment storage