



# Save California Streets – Award Application

## City of San Luis Obispo, Tank Farm Road and Orcutt Road Roundabout

The City of San Luis Obispo is pleased to nominate the Tank Farm Road and Orcutt Road Roundabout for a Save California Streets Award, Efficient and Sustainable Road Maintenance, Construction and Reconstruction Projects category. As a complex effort at the gateway of San Luis Obispo, this project benefitted from an exemplary alliance between the City, designer, construction manager, and contractor—presenting one unified team to meet and mitigate challenges throughout the project lifecycle.

### Project Team

Lead Agency: City of San Luis Obispo

Designer: GHD

Contractor: Souza Construction

Construction Management: Cannon Corporation

### Project Description

This high-priority transportation project constructed a roundabout at the heavily travelled intersection of Tank Farm Road and Orcutt Road, reconfiguring the intersection from side-street stop-control to a four-legged roundabout. In line with the City’s “roundabouts first” policy, the project relieves lengthy delays and vehicle queues during peak commute periods, improves safety, and reduces long-term maintenance costs. Roundabouts area also estimated to reduce greenhouse gas (GHG) emissions as vehicles are not idling compared to a stop controlled intersection. The project also furthers two major city goals for sustainable transportation and housing, and improves pedestrian and bicycle connectivity to an adjacent City park.

### Project Schedule and Funding

Construction for the project began in September 2021 and was completed in August 2022, following a three-month extension of the construction time. In general, the extension was due to PG&E scheduling for facility relocation (detailed below), severe weather events, and delays due to the COVID-19 pandemic. By incorporating numerous preemptive measures into the design and construction of the project, the team effectively limited the impact of these unexpected delays.

Final construction costs were \$4.1M, and the project was completed within budget. Funding sources included State Highway Account grant funding from San Luis Obispo Council of Governments (SLOCOG), development impact fees, general funds and the City’s local revenue measure (sales tax).

### Project Constraints and Successes

The project overcame several challenges before and during construction, with GHD’s design team, Cannon’s construction management team, Souza Construction as the contractor, and the City collaborating to implement innovative solutions throughout the project.

### ***Existing Utilities***

The project required the preservation of various utilities, including a PG&E high voltage utility vault and AT&T cabinet, and relocation/undergrounding of existing PG&E power poles. To incorporate these features, GHD designed the placement of the central island around the PG&E vault, preserving it. Iterative design of the high-speed westbound approach geometrics likewise preserved the existing AT&T cabinet and concrete pad outside of the proposed edge of pavement, while maintaining the desired speed reduction and entry speed of 25mph.

These utilities were also considered during the stage construction. A key to success was the Cannon's team's leveraging of existing relationships with both PG&E and AT&T to foster quick, mutually beneficial solutions. Cannon had both utilities come to the site multiple times to look at found conduits. On one occasion, the inspection team worked with AT&T to move their flexible conduits, avoiding costly relocation of a new storm drain and manhole.

Relocation of existing PG&E utility poles could not be avoided. While PG&E was originally scheduled to complete this relocation prior to the roundabout project construction, they were delayed several months due to wildfire response happening in other areas of the State at the time. The inspection team worked with Souza Construction to accommodate this unforeseen challenge. Souza Construction was not charged contract days during this delay, and were allowed to start work in other areas not affected by the poles. The team also implemented revisions to the stage construction plans to avoid the power poles.

### ***Project Footprint Constraints***

The project area and its approaches had various features requiring adaptation of the roundabout's footprint and design. A right-of-way dedication was necessary for the project, but was only feasible on the northeast corner of the intersection due to County land in the northwest corner, and a City park in the south. This, along with the need to preserve existing utility structures, required that the central island shift towards the northwest corner of the intersection.

The project site also has two stream channels running through it, as well as two existing culverts, all requiring modification. Jurisdictional permits were required for alterations to the creeks, and minimizing environmental impacts was a priority. To achieve this, GHD designed an innovative modification to the existing arch culvert under Tank Farm Road, consisting of an 18" reinforced concrete drainage pipe to accommodate overflow from the adjacent drainage basin. This involved disk cutting the existing concrete wall of the arch culvert to provide a hole sufficient to accommodate the drainage pipe, without jeopardizing the existing drainage structure. GHD also altered the roadside channel embankment slope from 2.5:1 to 2:1, minimizing ground disturbance/excavation impacts to the creek from the necessary stream channel realignment.

### ***Unsuitable Subgrade***

As construction was underway, a portion of was soft, wet native subgrade was discovered as unsuitable for road subgrade. Cannon, GHD, and the project Geotechnical Engineer met onsite to address this challenge, settling on a plan to remove 6-12" of the unsuitable material, place a subgrade enhancement geosynthetic fabric on the native soil, and backfill with class 2 aggregate base to the planned subgrade elevation. Since it wasn't known if unsuitable subgrade would be found elsewhere, Cannon had the contractor order a extra rolls of the subgrade enhancement geosynthetic fabric for use as needed—a decision which mitigated delays when the fabric was ultimately required at another location.

While this solution presented additional upfront cost, the City was assured of a strong structural section that would not fail during the design life, and allow the contractor to continue working without a delay.

### ***Construction Phasing***

The intersection of Tank Farm and Orcutt Roads is heavily travelled, particularly by commuters to and from San Luis Obispo to southern cities including Arroyo Grande and Pismo Beach. To minimize disruptions, the City and GHD looked at innovative means to accelerate the overall schedule and reduce impacts to the traveling public. The team evaluated the feasibility of a shoofly on the northeast corner of the Orcutt Road and Tank Farm Road intersection to accommodate the highest volume movement of travel. Finding the solution feasible, stage construction plans were revised to provide a temporary two-way bypass route for both directions of travel on Orcutt Road while closing the west leg of the intersection, eliminating access via Tank Farm Road.

While phased construction can benefit the travelling public, it can be challenging during design to realize any overlap or gap between phases. Once Cannon was brought on as the construction manager, they reviewed the project plans specifically to find any portions of work that may not be covered in any of the identified phases, and quickly identified a plan for how to best construct any of those areas. Cannon's team also implemented an innovative solution for the contractor to hold down paving by 0.15' during each stage, coming back to cap the whole roadway with a 0.15' overlay at the end. This mitigated impacts to ground/removed striping and seams, resulting in a much better looking and longer lasting final product.

### ***Stormwater Capture***

The project area increases the peak run-off from the site compared to the previous existing condition. To mitigate this increase, a new biofiltration/detention basin at the northwest corner of the intersection provides treatment and detention of runoff from Orcutt Road north and east of the intersection and from most of the roundabout. The basin is designed to restrict the amount of flow that can leave the basin in order to reduce the peak discharge to not exceed pre-project conditions. Runoff from Tank Farm Road west of the intersection is treated with proprietary biofiltration facilities prior to being discharged into the adjacent creek.

## Community Outreach/Relations

To assist with the critical communication effort, the City worked with JPW Communications to implement a community outreach plan, sharing information across multiple outlets including regional news media, direct mailers, e-notifications, social media, and direct distribution of information to stakeholders both in and outside the City limits.

Communication between City staff and the adjacent neighborhoods was similarly critical and continued throughout construction. This was particularly important for implementation of temporary traffic calming pinch points along the neighborhood streets, which deterred vehicles from speeding and using the local streets as a cut through around the project. This was a concern the neighborhood shared with City staff, and the temporary devices were able to be quickly deployed, balancing safety and community relations.

### ***Resident Access***

Several private driveways interfaced with various phases of the project construction. This required coordination and accommodation between the project team, the residents, and service vehicles such as the United States Postal Service and waste collection bodies to ensure uninterrupted service/access. In one instance, a rural driveway had to be completely closed. The project team coordinated with the resident to have the contractor grade and base a temporary access outside of the work limits, and to relocate the mailbox.

## Public Art

The City of San Luis Obispo values public art and opportunities to celebrate beauty, and recognized the central island of the roundabout as a prime location to act as a gateway into the city. The selected public art sculpture—Anila Agha’s “The Greys in Between” — was incorporated into construction of the overall project. This required significant coordination between the Construction Management team and the artwork structural and electrical designers to ensure that the artwork was compatible with the roundabout design, and that design engineers knew of the existing features and constraints at the location (existing utilities, PG&E vault, thickness of topsoil for footing depth, size, and location of electrical conduit for artwork lighting).

“The Greys in Between” is located at the center of the roundabout. In exploring the intersections of race, class, culture and religion, the sculpture celebrates minority and immigrant peoples’ contributions to our society and signifies San Luis Obispo as a community committed to being a welcoming place for all. “The Greys in Between” honors diversity and inclusion, while also inviting viewers to reflect on these different states of being.



Construction of private driveway culvert



Construction of culvert crossing Orcutt Road



Roadway construction of roundabout





Aerial view of the completed roundabout



“The Greys In Between” public art piece in roundabout central island  
Photo Credit: Heraldo Creative Studio