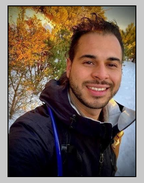
Fenton Parkway Bridge

Mikel Ciafre, Roman Gonzalez, Erika Kenion, Jacobo Velasco, Nicholle Noelle Willis, Ross Wong

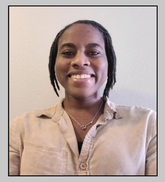
About Us

Nicholle Noelle Willis
Civil Engineer



Mikel Ciafre
PM/Civil Engineer

Roman Gonzalez
Environmental Engineer



Erika Kenion
Civil Engineer

Jacobo Velasco
Geotechnical Engineer

Ross Wong
Civil Engineer

Existing Conditions

City: San Diego
Bridge will be located east of San Diego State West Campus. North of Camino Del Rio N & Mission City Parkway. And South of Fenton Parkway & Northside Drive. Bridge will connect Camino Del Rio N & Mission City Pkwy over the San Diego River with Fenton Pkwy & Northside Dr.

Design and Approach

Structural
Type of Bridge
- Based upon the length and abutment placement
- Could not have an abutment in the river environment, so used a **through-arch bridge**

Traffic
Intersection Dimensions
-Necessary Street Widening on Eastern Side of Fenton Parkway
-Three Legged Intersection
-Two 11' Southbound Lanes on Fenton Parkway
-Two 11' Northbound Lanes on Fenton Parkway
-6' Wide Bicycle Lanes on Both Sides of Fenton Parkway
Traffic Signal Design
-Fully Actuated 3 Phase Traffic Signal with Priority on Fenton Parkway
-Traffic Signal will be Synchronized with MTS Trolley and Rail Crossing Gate
-Designed to meet Forecasted Traffic Demand with an A Level of Service

Roadway Design
- demolition, street widening, and horizontal/vertical alignment
- will follow Caltrans specifications
- road profile with asphalt depths and drainage grade

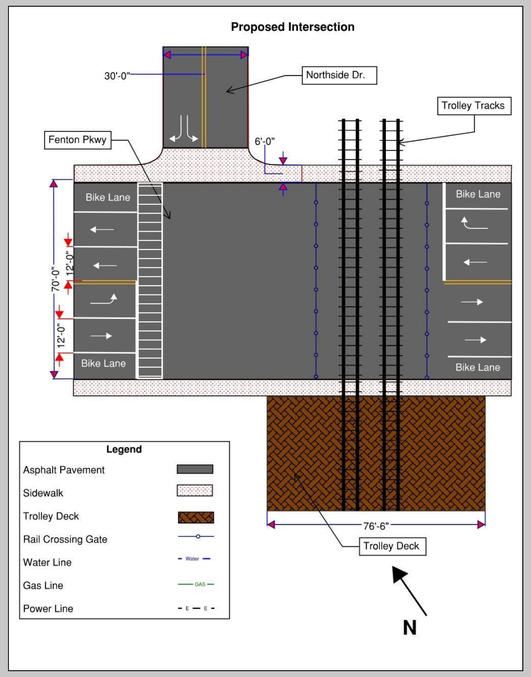
Geotechnical
Recommendations
- Deep Pile Foundation
- Socketed Caisson (Drilled Pile)
- 2 piles per pier

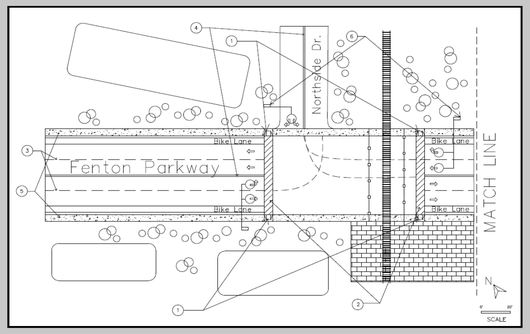
Stormwater
Recommended Treatment
- Bioretention Basin

Project Objectives

To propose a design for Fenton Street Bridge
- Structural
  - Bridge Design
  - Calculations
- Site Civil
  - Street Improvement Plans
  - Traffic Signal Plans
  - Grading Design
  - Cost Estimate
- Street Design
- Geotechnical Study
- Stormwater
  - Drainage Study
  - SWQMP
  - BMPs
  - Erosion Control – Post Construction
- Design Impact
  - Public, Health, Safety, & Welfare
  - Global Factors
  - Social Factors
  - Environmental Factors
  - Economic Factors
- ISI Envision
- USGBC LEED

Proposed Conditions





Findings

Stormwater

Existing Conditions
- Land Use: Recreational
- Vegetation: Riparian
- Watershed Identification: Lower San Diego 907.1
- Discharge Location: Pacific Ocean, Ocean Beach Area
- Tributary Area: 1.21 acres

Pollutants of Concern
- Indicator Bacteria
- Sediments
- Nutrients
- Heavy Metals
- Trash & Debris

Geotechnical

- CPT (Cone Penetration Test)
- 7 layers total (silty sand, clay, gravelly sand and bedrock)
- Water table is located at 0.2m
- Soil is susceptible to liquefaction
- No significant seismic motion was found