



CITY OF MANHATTAN BEACH

# SEPULVEDA BRIDGE WIDENING PROJECT



2023 OUTSTANDING LOCAL STREETS AND ROADS  
PROJECT NOMINATION





## 2023 OUTSTANDING LOCAL STREETS AND ROADS PROJECT NOMINATION

- PROJECT LOCATION:** Sepulveda Boulevard between Rosecrans Avenue and 33rd Street, Los Angeles County, California
- AWARD CATEGORY:** Efficient and Sustainable Bridge Maintenance Construction and Reconstruction
- MANAGING AGENCY:** City of Manhattan Beach, Public Works Department
- SUBMITTED BY:** Erick Lee, Public Works Director  
Katherine Doherty, P.E., ENV SP, City Engineer  
Vicky Choi, ENV SP, Senior Management Analyst
- 3621 Bell Avenue  
Manhattan Beach, CA 90266



## PROJECT NARRATIVE

The widening of the Sepulveda Bridge was a major engineering project aimed at improving safety and accessibility for all road users. Sepulveda Boulevard is owned and maintained by Caltrans. The project involved widening the existing 100 feet wide and 165 feet long bridge with 5-foot sidewalks and no shoulders. Based on a Caltrans Bridge Inspection Report in 2009, the existing structure was given a status identification of “Functionally Obsolete” and a recommendation for seismic retrofitting of the existing non-ductile columns. The service life of the existing bridge structure had already exceeded 80 years and could no longer safely support daily traffic. In addition, the average daily traffic within the project area in 2012 was approximately 71,000 vehicles with a volume-to-capacity ratio of 1.263 and a service level of F. A V/C ratio over 1 indicates that the roadway demand is higher than the capacity and there is severe congestion. The bridge-widening project was crucial to address these issues and improve safety for all users.

## BEFORE

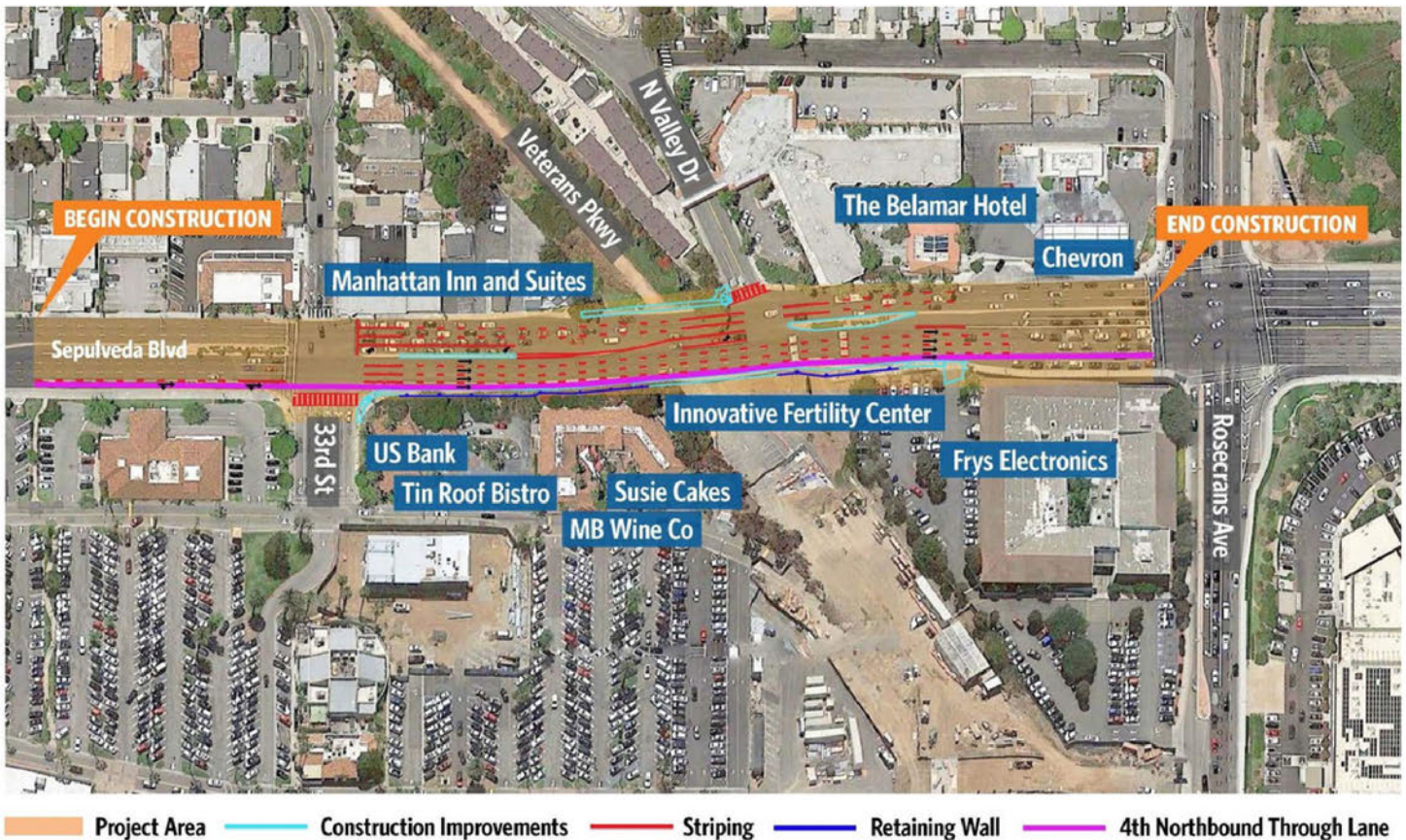


## AFTER





In 2020, the City of Manhattan Beach awarded a contract to C.A. Rasmussen to construct the Sepulveda Bridge Widening Project. The project widened the east side of the bridge by approximately 29 feet to provide one additional northbound lane on Sepulveda Boulevard within the Project area. The widened structure included a total of seven through lanes. The additional lane began just north of 33rd Street where a merging lane existed between the outside through lane and the sidewalk. The new lane continued north from 33rd Street to approximately 295 feet south of Rosecrans Avenue where the lane merged into an existing fourth lane. South of 33rd Street, the existing northbound right-turn-only lane that begins approximately 318 feet south of the intersection was restriped as a through lane. The widened bridge provided a shoulder varying from two to eight feet on the east side of the bridge, and the existing non-standard sidewalks were widened to a standard width of six feet. Additionally, seismic retrofits of the existing bridge were completed, and landscaping was added to enable slope stabilization. The non-standard bridge railings in the northbound and southbound directions were upgraded to a standard concrete barrier. The addition of the lane has eliminated the operational bottleneck in the northbound direction and improved safety for all users. This project is a prime example of innovative infrastructure upgrades that improve sustainability, reduce congestion, and enhance the quality of life for the local community.







## IMPROVEMENTS TO PRESERVATION, SAFETY, ACCESS TO, AND OVERALL QUALITY

The Sepulveda Boulevard Bridge Widening Project meets the goals and policies of the Mobility/Circulation Element of the City's General Plan. It has improved the preservation, safety, access to, and overall quality of the local street and road system in several ways:

### Preservation

The north-south arterial highway was built out to the City's ultimate width, thereby relieving the existing bottleneck at this location. The extra lane reduced the wear and tear on existing lanes and helped preserve the bridge's structure.

### Safety

The wider bridge helped reduce traffic congestion and the likelihood of accidents caused by vehicles merging or jockeying for position.

### Access

Vehicles are passing over the bridge with a reduction in wait times. It is also ADA-compliant.

### Quality

In addition to aesthetic improvements, the improved infrastructure and retrofitting have made it more efficient and convenient for users.

Overall, the Proposed Project ensured that vehicles circulate safely and efficiently, including emergency vehicles vital to public health and safety, and contribute to a better transportation experience for the community.



## INNOVATIVE AND UNIQUE FEATURES

The design of the Sepulveda Boulevard Bridge Widening Project is innovative and unique. The cobblestone-finished concrete arch provides aesthetically pleasing architectural features that provide a gateway to the local greenbelt area. The arched entryway provides a sense of openness to the area while maintaining similar design features currently seen within the existing barriers and incorporated into the multiple new barriers and sidewalks. Decorative tiles and ribbed texturing were incorporated into the headwalls, thus enhancing the overall elevation view of the bridge profile. The aesthetically pleasing fascia wall also serves to resist seismic forces. The aesthetic enhancements include pedestrian sidewalks, concrete barrier rail, and access control fencing, considering material type, color, texture, and their relationship with the established architectural theme and the functional requirements of the facility. A soffit lighting system was constructed to light the tunnel portion of the bridge for pedestrian use. The bridge design recognizes and expresses sensitivity to the visual and functional impacts of the existing recreational trail passing beneath the structure.

Additionally, a specially designed soldier pile was used instead of the standard type I wall, saving us time and cost, without creating separate shoring to construct the wall. This saved us time and cost from performing a large excavation, minimized impact on traffic and property right of way, and accommodated installation of utilities along the shoulder.





## MODEL FOR OTHERS TO FOLLOW

Because of its innovation, this project is a model for others to follow and can be used in future bridge rehabilitation of the same nature.

- Drought-tolerant landscaping, requiring minimal maintenance and protecting established plant material.
- Major traffic and access impact on businesses and motorists mitigated.
- Specially designed soldier pile wall.
- City emblem placed on both sides of the pedestrian trail above the arch.
- Improved signal (33rd street) and lighting.
- Retrofitting and widening of the existing 165 foot long bridge.
- 6-foot wide sidewalks, three through lanes in the Southbound direction, 4 through lanes in the Northbound direction.
- Railing upgrades.
- ADA-compliant sidewalk and curb ramp improvement.
- Pedestrian access under Sepulveda Boulevard along Veterans Parkway.
- Temporary relocation of bus stop.
- Close coordination maintained in all stage construction, access, closures, utility facilities, schedule of work, and detours. Business access is always maintained.





## POSTIVE OUTCOMES ARE SUSTAINABLE

Our project accommodates an increase in traffic and contributes to continued sustainability by:

### **Reducing congestion**

The wider bridge improved traffic flow. It reduces congestion, decreases travel time, and reduces vehicle emissions.

### **Improving safety**

The wider bridge provides additional space for vehicles, bicycles, and pedestrians, making it safer for all users.

### **Promoting alternative modes of transportation**

The wider bridge created space for dedicated bike lanes or pedestrian walkways, promoting alternative modes of transportation that are more environmentally friendly.

### **Improving infrastructure**

Upgrades the infrastructure of a bridge to extend its useful life, reduce the frequency of maintenance and repair, and reduce the environmental impact of construction and waste.





## COST EFFECTIVENESS

Because of its innovation, this project is a model for others to follow and can be used in future bridge rehabilitation of the same nature.

The project used cellular concrete fill as a lightweight backfill material, reducing the applied load to be within the allowable soil-bearing pressure for a spread footing, thus reducing the overall cost of the bridge foundation. Changing the structural behavior of the bridge from a framed structure to a buried structure results in additional cost savings due to the long-term maintenance of the existing structure.

Construction Budget: \$12.5M

Estimated Final Construction Cost: \$9.7M

## POSTIVE ENVIRONMENTAL EFFECTS

The bridge widening project has created positive effects on the environment in several ways:

- Reduced traffic congestion, leading to decreased air pollution.
- Use of innovative construction techniques.
- Improved water quality by reducing runoff and preserving natural habitats.
- Enhanced scenic beauty through well-designed aesthetics.
- Increased accessibility for pedestrians and cyclists, promoting alternative transportation.
- Protection and preservation of wildlife and natural habitats through careful planning and implementation.

By considering the environmental impact, the bridge widening project improved not only the infrastructure but also contributed to a healthier and more sustainable community.





## DEMONSTRATE EFFECTIVE COLLABORATION AND PARTNERSHIP

The bridge-widening project demonstrates effective collaboration and partnerships through the following initiatives:

- Active involvement of community members and stakeholders in the planning and decision-making process.
- The following outreach was done:
  - LiDAR Scan for adjacent properties and buildings before the start of work.
  - Provided portable seismographs and software to monitor vibration.
  - Construct a pedestrian tunnel under the Sepulveda Boulevard Bridge.
  - Notify occupants and tenants within 300' of construction areas at least two weeks in advance.
  - Building occupants and tenants were informed of all upcoming work activities within 300 feet of construction every week.
  - Manhattan Village Mall coordinated walkthroughs, before construction, and before and after landscape work.
  - Monitor ground-borne vibrations at a specified Fertility Clinic.
- Coordination between government agencies (Caltrans, Metro), contractors, construction management services, and local businesses to minimize disruption and ensure a successful outcome.
- Design sidewalks and pedestrian accessibility in compliance with Caltrans' Design Bulletin 82-05 and Americans with Disabilities Act (ADA) Standards.
- The Construction Manager, coordinated, documented and ensured compliance with various permits and environmental requirements, including confined space requirements, department of toxic substances control, MDS, SWPPP, and BMPs, including:
  - Unearthing of cultural material halted the work until a qualified archeologist assess the location.
  - Sound and vibration monitoring and coordination with Innovative Monitoring Services.
  - Construction of pedestrian tunnel before project construction.
  - Use of the muffler on each internal combustion engine.
  - Limit noise above 85 Db only between 7:30 AM and 6 PM.
  - Notification of building occupants within 300 feet of work.
  - Construction of pedestrian detour.
  - Monitoring of groundwater for existing well (east side of roadway).







# SEPULVEDA BRIDGE WIDENING PROJECT



## RESULTS ARE PUBLICALLY VERIFIABLE AND MEASURABLE

The bridge-widening project has corrected the existing bottleneck at the bridge, relieved congestion in the project area; and enhanced roadway safety. Thirty-one accidents occurred within the project area between January 2008 and December 2010, with an accident rate of 1.7 in the northbound direction and 1.4 in the southbound direction, compared to the California average accident rate of 1.85 (accident rate expressed as the number of accidents per million vehicles for similar facilities). The accident rates within the project area are lower than the statewide average; however, the data suggest that congestion in the project area has resulted in increased susceptibility to rear-end and sideswipe accidents. Adding a northbound lane has relieved congestion, reducing the potential for accidents in the project area and enhancing roadway safety. As of bridge completion, there has been one accident in the northbound direction in the last two months, according to the Manhattan Beach Police Department.

## THE EXTENT TECHNOLOGY IS INVOLVED IN INNOVATIVE WAYS IN THE PROJECT

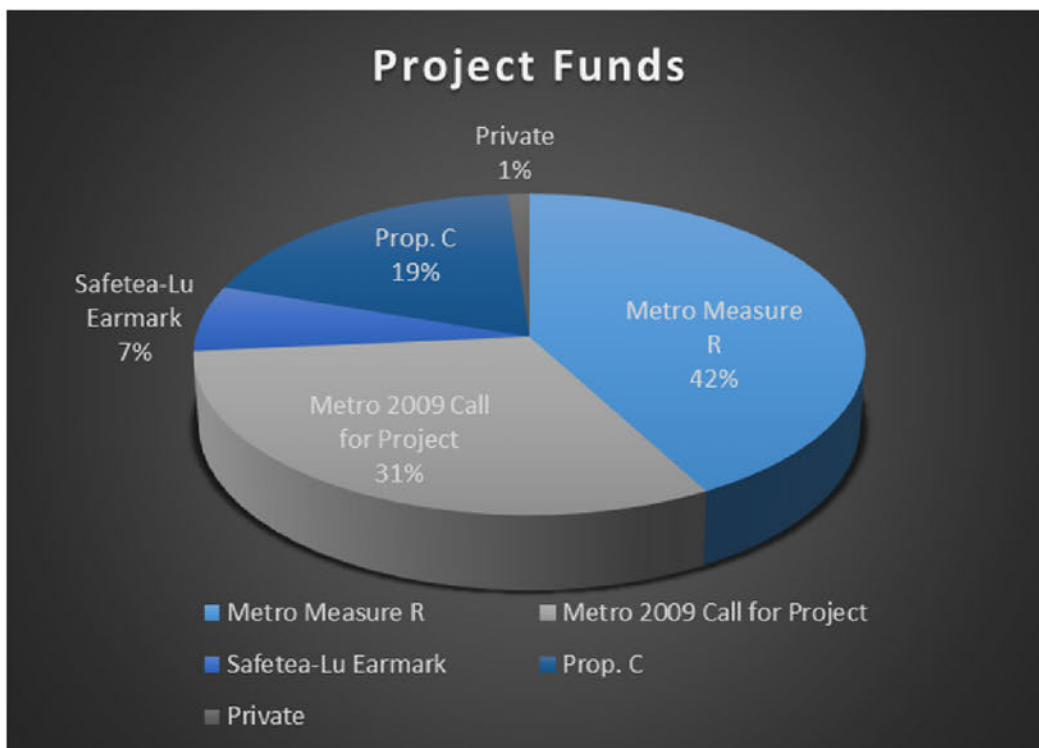
For construction surveying, David Evans and Associates (DEA) used the 3D Laser technology (LiDAR) to run the 3D coordinates of the existing ground where the cut and fill work was performed. The underground probe could determine the exact locations of buried utilities without potholing. This service cut costs and added to the accuracy of the location of the existing utilities to manage risk.

## PROJECT ADVANCES THE LEAGUE AND CSAC'S PRIORITIES AND GOALS FOR THE LOCAL STREET AND ROAD SYSTEM PRESERVATION

The purpose of this project was to enhance roadway safety, correct existing bottlenecks at the bridge, and relieve congestion in the project area by widening the bridge safely and cost-effectively. This project advances the League and CSAC's priorities through efficient and sustainable bridge maintenance and construction and retrofitting them to improve safety for all users in support of the state's climate and active transportation goals. This has increased accessibility for pedestrians and cyclists, promoting alternative transportation. The bridge is ADA-compliant, providing easy access, improved safety, equal opportunities, and legal compliance. An ADA-compliant bridge helps to create an inclusive and accessible environment for all people, regardless of their abilities.



## FUNDING SOURCE



### FUNDS:

METRO MEASURE R \$ 9,100,000  
 METRO 2009 CALL FOR PROJECT \$ 6,813,325  
 SAFETEA-LU EARMARK \$ 1,439,840  
 PROP. C \$ 4,027,024  
 PRIVATE \$ 250,000  
 TOTAL: \$21,630,189

### FUNDS BUDGETED BY CATEGORY:

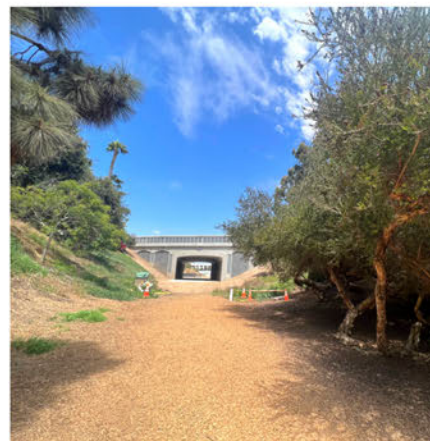
PS&E \$3,826,678  
 RIGHT OF WAY SUPPORT \$1,071,602  
 RIGHT OF WAY ACQUISITION \$1,500,000  
 CONSTRUCTION SUPPORT \$2,420,000  
 CONSTRUCTION \$12,450,906  
 TOTAL: \$ 21,269,187 (Approximate Figures)



## EXISTING CONDITIONS



## GROUNDWORK COMPLETION IN DECEMBER 2022







# SEPULVEDA BRIDGE WIDENING PROJECT



## PROJECT DESIGN

