Sixth Street Viaduct Replacement Project
City of Los Angeles, Bureau of Engineering

Sixth Street Viaduct Project Highlights
• This entrance at Boyle Heights will continue serving as a critical transportation link to the Arts District and downtown Los Angeles.

• The new viaduct will create new and safe ways for pedestrians and cyclists to cross the viaduct and reach the planned park below.

• This section of the viaduct traverses over the US 101 freeway and will connect to the ground level where the Boyle Heights Gateway will be located as well as playgrounds, sports facilities, a pedestrian promenade, a transit plaza, and a lookout point.
Helix Structure

- The helix structure, located near the center of the viaduct, was designed with efficiency and connectivity in mind.
- This structure will be 790’ long, 12’ wide, and 45’ tall.
- This ADA-compliant helical ramp will have a connection to both the westbound and eastbound bicycle lanes and sidewalks at the deck level.
- Using the ramp structure, pedestrians and cyclists will be able to connect from the ground level at Mission Road into the communities of Boyle Heights and the Arts District.
- The helix will also help connect the viaduct to the future 12-acre PARC under the viaduct, which will be located at ground level and include recreation and open spaces, connections to the LA River and more.
The new viaduct is designed to meet rigorous earthquake standards and is built to withstand even the strongest earthquakes.

These seismic isolation bearings are located at the base of each column and protect the viaduct from impact caused by earthquake vibrations using triple friction pendulum bearings.

These bearings ensure that no force is transferred to the viaduct in case of an earthquake by reducing the amount of vibration.
• The design of the new bridge, known as “The Ribbon of Light,” includes 10 pairs of arches, with a 9-degree artistic outward cant.

• There are three different arch heights on the new viaduct, ranging between 30 to 60 feet in height and about 300 feet in length.

• Each arch required 260 cubic yards of concrete equivalent to 65+ truckloads and took 12-14 hours to pour the concrete.

• The team injected liquid nitrogen into the concrete to cool the mix down to ambient temperature and reduce the potential for concrete cracking.

• The arches will be lit with color changing LED lights which will light up from the bottom and upwards for different events and celebrations.
• A cable network installed within the arches supports the bridge deck.

• Arches are supported by up to 24 cables each that connect the Arch Ribs and the edge girders that support the viaduct.

• A total of 15,000’ of steel cables were used with each cable measuring 2 ¾” in diameter.

• Once they are placed, we use a hydraulic jack connected to pressure gauges to tension the cables. We then monitor the variation in tension force of each cable using strain gauges, ensuring that they can support the viaduct.
• There will be five sets of stairs that will connect pedestrians from the bridge deck to the ground level.

• One set of stairs will be located on the west side of Santa Fe Avenue while the other four will be situated on the east side between Mission Road and Anderson Road.
The Sixth Street Park, Arts, and River Connectivity Improvements Project (PARC) will be 12-acres of open and recreational space under the viaduct, at ground level.

This space will consist of access to the LA River, an arts plaza, public art, and numerous community amenities such as restrooms, concession stands, dog park areas and more areas.

The PARC Len Hill Arts Plaza is made possible by the generous support of the Leonard Hill family.
Largest Arches

- These two arches are the largest in the group and are 60’ tall.
- They are located over railroad tracks which are operated by 5 different railroad agencies.
There will be 10’ wide protected bike lines which will be separated from vehicle lanes by bollards and curbs that run the length of the viaduct.

Cyclists will have the ability to travel east from the Mateo Street viaduct entrance into Boyle Heights, as well as travel west from the Boyle Heights viaduct entrance and ride into Downtown LA.
• The protected walkways on each side of the bridge will vary from 8’ to 14’ in width and will be illuminated with LED lighting.

• These walkways will be separated from bicycle and traffic lanes by concrete barriers that run the length of the viaduct.
• The viaduct is 100’ wide and spans 18 railroad tracks which are operated by 5 different railroad agencies.

• A horizontal drilling operation was performed underneath the LA River and railroad tracks. This allows for power lines to go underneath the tracks and river to preserve as much open space as possible.
Pedestrian Ramp Over Santa Fe Avenue

- This ramp will be a 3.5 level helical structure connected by paths to both north and south sides.
- Another ramp at the west entrance will be 510’ in length and will connect the north side of the bridge deck to the ground near Mateo Avenue.
- Other access points include five sets of stairs which will give pedestrians viaduct and street-level access.
The west ramp entrance will be the gateway into the Arts District.

This ramp will be 510’ in length connecting the north side of the bridge deck to the ground near Mateo Avenue.

The protected bike lanes on the viaduct will be able to provide better connections to the existing bicycle network in the area.

Underneath this section of the viaduct will be the Len Hill Arts Plaza and will consist of a performance stage with terraced seating.