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Gold Line Bridge Highlights Native American Culture

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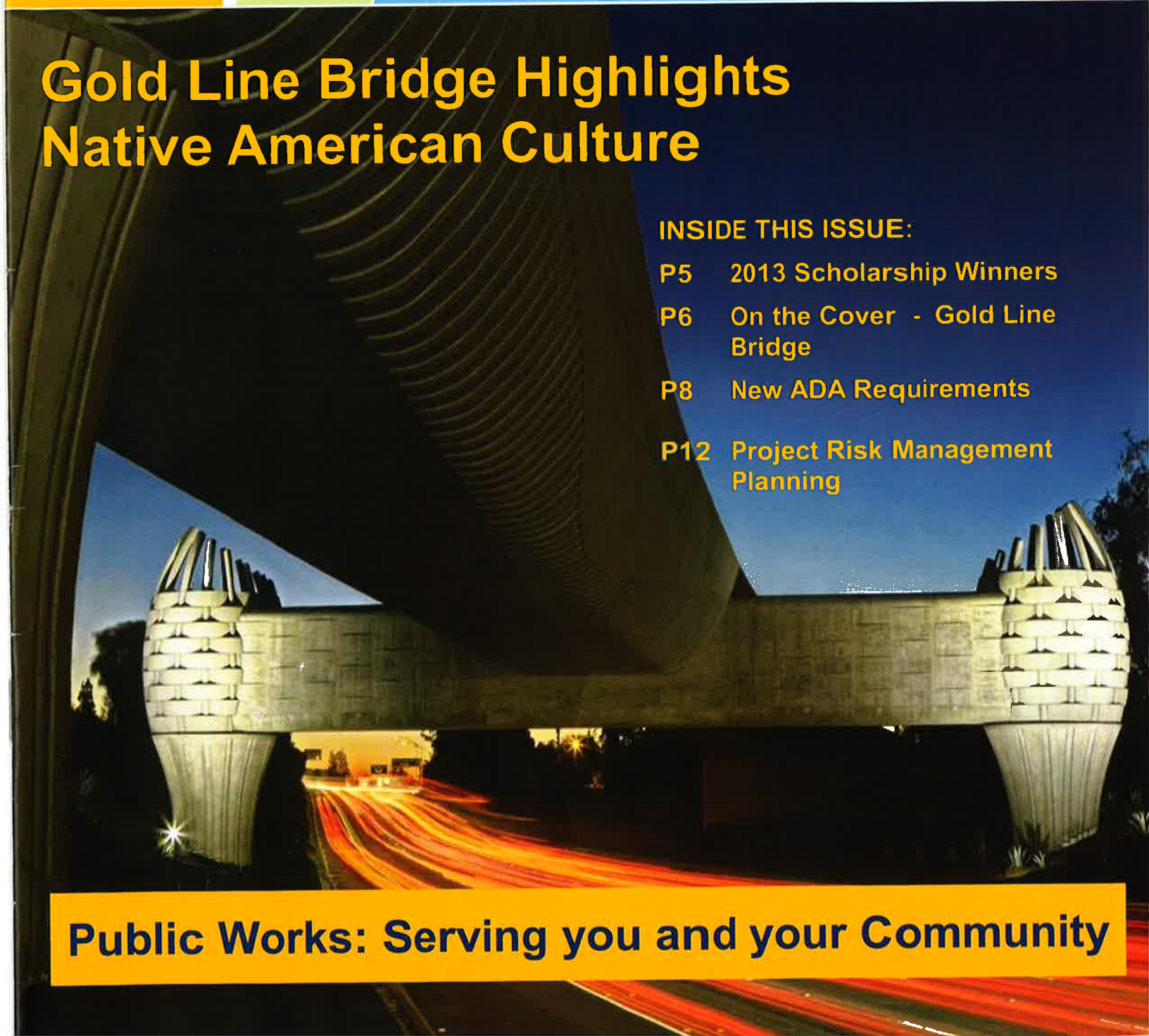

Public Works: Serving you and your Community

GOLD LINE BRIDGE—A NEW ICON FOR THE SAN GABRIEL VALLEY

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If you haven't been on the eastbound I-210 through Arcadia lately, you may want to go see the newly constructed Gold Line Bridge. This bridge combines art and engineering, transit over highway, architecture and community input more than any other bridge in California. Funded by Measure R, this $18.6 million dual-track bridge is the first completed element of the 11.5-mile Metro Gold Line Foothill Extension light rail project from Pasadena to Azusa, and provides connection between the existing Sierra Madre Villa Station in Pasadena and the future Arcadia Station. The Foothill Extension project is overseen by the Metro Gold Line Foothill Extension Construction Authority (MGLFECA).

Unlike most public works projects, the bridge design was forged from a process that included the artist (selected by the community), the engineers, the builder, and multiple public agencies who shared the vision of the sculptural design.

Habib F. Balian, the Chief Executive Officer for the MCLFECA, set the vision for the bridge to be sculptural, wanting the bridge to be something fantastic, never done before. He wanted the artist to address the landscape – the mountains - as well as the community and its history and culture. His goal was to meld art with the transit experience. An award-winning public artist, ***Andrew Leicester***, was selected as the Design Concept Advisor. When Mr. Leicester first watched a video of Habib Balian within the weblink for the Request for Proposals, he could not believe a public project was envisioning the use of an artist from the start, rather than an afterthought. He immediately started working on ideas for the bridge. Ultimately he envisioned the Gold Line Bridge as a vivid expression of the community, past and present.

There was a lot of experimentation in development of the design. Flexibility was key. It had to be equally functional and beautiful. More than a dozen different design concepts were considered before selecting the final one. The large baskets adorning the bridge metaphorically represent the indigenous peoples of the region and the growth of agriculture as a primary catalyst for the San Gabriel Valley's development. The baskets also pay tribute to the iconic sculptural traditions of nearby Route 66 with its oversize commercial architecture, such as the windmill atop the Denny's restaurant on Huntington Drive (originally an iconic Van de Kamp's restaurant) and the Aztec Hotel on Foothill Boulevard north of the freeway. Additionally, they represent the centuries-old migratory history of the area when ancient peoples traveled from the interior desert states and great basin areas along the San Gabriel Foothills on their way to the ocean. Some of the most notable and recognizable artifacts of these peoples' cultures are their elaborately designed baskets, which served a utilitarian purpose and were valuable trading commodities. Each new generation of basket weavers improved upon existing designs and created completely new designs. For instance, think of the metal and plastic baskets we fill with food at the supermarket. Imagine the wooden baskets we tote to picnics, or the "virtual" baskets we use when shopping for goods online. Although they've changed and evolved with society, baskets continue to be useful tools and symbols of bounty and plenty. In that way, baskets weave together our past, present and future in ways that few other objects can.

The basic bridge is comprised of a superstructure (where the train will run) that is supported by a cross beam that straddles the I-210. The cross beam is supported by two columns on either side of the freeway. This simple arrangement creates a giant "post and lintel" doorway for eastbound motorists. Adding to its immensity is the superstructure's serpentine design, representing the Western Diamondback.

AECOM, hired by the builder Skanska USA, was the lead architectural and engineering firm for the project. ***Rivka Night*** was the lead architect. AECOM was responsible to ensure the bridge met the structural and maintenance requirements of the project stakeholders (Construction Authority, Metro, and Caltrans) and that the artist's concept was implemented. To accomplish this, AECOM formed a team with ***Patrick Nicholson*** as the project design manager. Much coordination followed through the design and construction process with Skanska USA's project executive, ***Lawrence Damore***. Initial sketches for the architectural elements required change. For instance, originally the unfinished basket "reeds" were tall and skinny, however they couldn't be built this way due to structural considerations. The baskets needed to be larger because of seismic requirements. The baskets became wider as did the support columns. There is a magic line that goes from the tallest reed to the shortest reed, and everything around it proportionally goes along that line. Caltrans was also reluctant to allow the design grooves under the superstructure, usually accustomed to smooth structures. Finally after a lot of working through the agency concerns, it was allowed. During construction, the team had to implement architectural elements through their craftsmanship. All of the details seen on the exterior of the superstructure and crossbeams required crew members to install formliners one piece at a time by hand. The collaborative process resulted in a finished bridge which contributes to a cultural legacy for the region and its residents.

Information and photos courtesy of Metro Gold Line Foothill Extension Construction Authority

FACTS AT A GLANCE:

Length: 584 feet
Width: 115 feet between centerlines of the signature support columns
Height: Rail vehicle wheels will be 33 feet above the freeway surface
BridgeType: 3-span, Cast-in-Place post-tensioned box girder supported by single column bent and one outrigger bent
Foundation: three large diameter cast-in-drilled-hole (CIDH) each approximately 110 feet deep and 11 feet in diameter
Clearance: 19.5 feet above freeway
Exposure: 255,000 vehicles pass beneath the Gold Line Bridge daily
Materials: 6,500 CY of concrete with 1.3 million pounds of steel reinforcement (92% from local and regional sources)
Woven Baskets: 60 individually pre-cast segments featuring 16 "reeds" at the top which range from 2 to 10 feet in height; precast segments for the basket have unique aggregate blend with black stone, clear, grey, and mirrored glass to provide subtle reflectiveness
Cost: $18.6 million, original estimate by Construction Authority $25 million
Funding: Los Angeles County Measure R
Design Completion: November 2011
Construction Completion: December 2012
Safety Record: 95,000 incident-free work-hours logged