

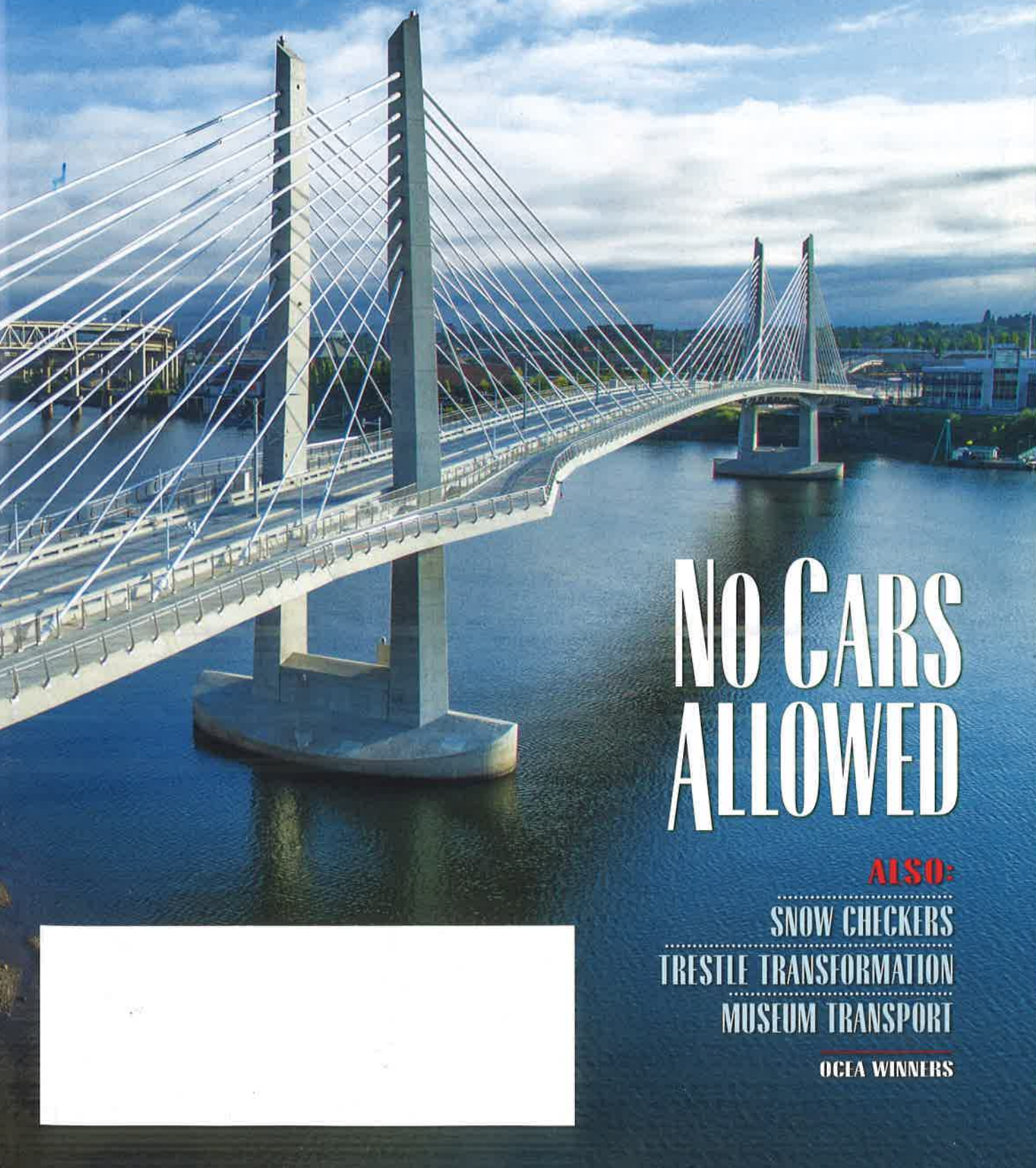
# Civil Engineering

APRIL • 2016

THE MAGAZINE OF THE AMERICAN

SOCIETY OF CIVIL ENGINEERS

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**TRANSPORTATION**

**Officials Break Ground  
On Bus Rapid Transit  
Route from San  
Diego to Tijuana**

**C**ONSTRUCTION HAS BEGUN on a bus rapid transit route from downtown San Diego to the United States–Mexico border that will provide an additional transportation option for residents of the growing Southern California region. Officials formally broke ground in February on the South Bay Rapid project, a 26 mi bus route that will run from downtown San Diego through neighboring Chula Vista to the Otay Mesa Port of Entry (POE).

The \$113-million project will provide express bus travel between San Diego and Tijuana, Mexico. The cities are just 20 mi apart and have nearly equal populations of more than 1.3 million. The roads between the two cities form a busy international freight corridor, and many residents on both sides of the border commute to the city on the other side.

Buses on the route will run every 15 minutes during peak periods, traveling on dedicated lanes constructed adjacent to existing roads and freeways. Transportation officials say the bus system will offer consistent travel times and ease congestion as residents travel to employment and activity centers throughout the region.

“The idea here was to provide competitive travel times with what it would take to drive,” says Gary Gallegos, the

**Running from downtown San Diego to the United States–Mexico border, the South Bay Rapid project will provide express bus service to commuters on both sides of the border.**

executive director of the San Diego Association of Governments, the region’s transportation and planning agency. “This gives people more choices in terms of how they get from where they live to where they work.”

South Bay Rapid is being constructed as an extension of the region’s bus rapid transit (BRT) system, which is formally known as Rapid BRT and began operating in 2014. It features several routes that run north from downtown San Diego. The South Bay Rapid project was designed by the San Diego office of Kimley-Horn and Associates, Inc., which is based in Raleigh, North Carolina; the international firm T.Y. Lin International Group; and the City of Chula Vista. The first segment is being built by the San Diego office of Pulice Construction, Inc., which is based in Phoenix.

The new express bus route will serve southwestern San Diego County and run on stretches of Route 94 in downtown San Diego, on Interstate 805 between San Diego and Chula Vista, on local roads in Chula Vista, and on Route 125 from Chula Vista to the POE at Otay Mesa. The route will include 12 stations, including 5 in downtown San Diego, 6 in Chula Vista, and 1 at the POE.

The route will use an existing tolled portion of Route 125 known as the South Bay Expressway but will otherwise rely on newly constructed roads. The east–west portion through Chula Vista will be built within highway me-

dians, and new lanes for high-occupancy vehicles (HOVs) will be constructed along I-805 and Route 94 for use by BRT buses and car pools.

The Chula Vista and some I-805 stretches are currently under construction, but the Route 94 portion will be built at a later date as funding becomes available. Bus service is expected to begin in 2018.

“We want to make it easier for people who are willing to use other modes of transportation,” says Ramon Martinez, the project manager for the California Department of Transportation, which is managing the completion of the I-805 and Route 94 portions. “Building more freeways has become expensive, so our approach is to take advantage of existing infrastructure.”

Crews are constructing one HOV lane in each direction on I-805, along with noise abatement structures that were not included when the freeway was constructed in the San Diego area in the 1970s. A direct access ramp will be built so that buses can reach the freeway from East Palomar Street in Chula Vista.

The BRT buses won’t use the HOV lanes until 2018, but the lanes are expected to be completed this year and to be immediately opened to car pool traffic. A direct connection to Route 94 and three stations along I-805 may also be built when additional funding is secured.

Martinez says that crews are using their extensive freeway construction

# Civil Engineering NEWS

experience to minimize inconvenience to motorists. As is the case with most of California's major projects, roadwork that requires lane closures is being conducted at night; concrete barriers and lane width reductions—from 12 ft down to 11 or 10.5 ft—are used to keep traffic flowing and ensure safety.

The Chula Vista portion of the project, which runs mostly in the median of East Palomar Street, is being constructed

in phases and will feature bus-only lanes. The buses will also have priority at traffic signals, and a guideway bridge will be constructed over Route 125. Gallegos says that the project has benefited greatly from "smart growth" planning in the area, which called for wide medians on many roads during the early stages of a boom that nearly doubled Chula Vista's population from 135,000 residents in 1990 to more than 240,000 today.

"It was planned in a way that transportation would fit into it," Gallegos says. "They did a lot of smart growth planning with some right-of-way ded-

ications for transit to be able to serve those areas."

Officials are confident that the South Bay Rapid project will meet the pressing need for public transportation and help residents commute and travel within the region. The POE at Otay Mesa handles more than 10 million vehicles and pedestrians each year. Gallegos says that while initial ridership is expected to be around 5,000 passengers a day, that could increase to as many as 15,000 a day when the route is completed and as the region's population continues to increase. —DAVID HILL



**A** STAR-SHAPED combination library and exhibition hall designed by Michael Arellanes II, the founder of the architecture firm M A 2, which has offices in Houston and Hong Kong, is the latest contribution to efforts to regenerate the north side of Houston. Known for conceptual flights of fancy rather than realistic designs for the built environment, M A 2 submitted the design unsolicited to a nonprofit organization dedicated to the economic and cultural growth of Houston, according to Arellanes, who responded in writing to questions posed by *Civil Engineering*. The structure's 9,000 m<sup>2</sup> is

divided among several corridors that radiate from the center at various angles, some seeming to lift off the ground in a nod to the city's aeronautical history. The structure would integrate a "world-class book collection" with exhibition spaces and small botanical gardens, according to a press statement released by M A 2. Its facade alternates between glass and tessellated metallic panels, and some of the angled roof sections are designated for vegetation. Light-emitting diodes and projection screens would offer visual presentations throughout the structure. The site, currently a desolate parcel bounded

by train tracks and University of Houston parking lots, would be surrounded by botanical plazas. As explained in M A 2's press statement, "The library-exhibition hall with parks and botanical landscaping can transform the area into a destination point within Houston for cultural exchange, civic activities, and research." Located near highways and a light-rail transit center, the site would certainly be accessible. And though he hasn't received any official feedback on his concept, Arellanes told *Civil Engineering* that his firm "is shifting its aim to design for the built environment, rather than remain purely research based."