



The guideway under construction in front of the iconic Los Angeles International Airport theme building. Note the expansion joint visible in the guideway at the pier. Photo: HDR Inc.

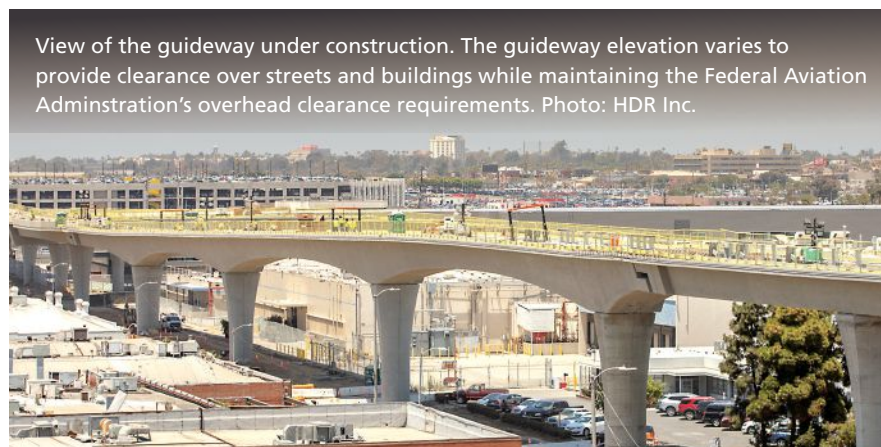
0-in.-wide single-track box girders, one on each side. Transition spans are used to connect the two girder types. Almost all concrete segments are post-tensioned; however, only conventional reinforcement is used in a few areas. Including all frames of dual-track and single-track box girders within the elevated guideways, there are 76 spans,

with additional single-track box-girder spans within the station structures.

The guideway superstructure is mostly composed of concrete post-tensioned box girders constructed on falsework, but four spans were constructed using a form traveler (with the back span segment cast on falsework). Post-

ensioning for the conventional box girders consists of draped tendons in the webs; there are typically three tendons in each web, with nineteen 0.6-in.-diameter strands per tendon. For the concrete segmental spans constructed using form travelers, tendons are located in the top and bottom slabs. The hybrid approach of concrete segments cast-in-place using form travelers and cast-in-place on falsework provides an unusual post-tensioning layout in which three pairs of cantilever tendons in the deck transition over the piers to provide draped post-tensioning in the back spans.

The substructure generally consists of architecturally flared circular columns founded on drilled shafts of up to 11 ft in diameter. Single-column bents are used for most of the guideway, but there are also two-column straddle bents where single-column bents were not feasible. The maximum height of the columns is approximately 60 ft and occurs in the Central Terminal Area, where the elevated guideway is at a constant elevation of 168.50 ft. In the east half of the project, the guideway descends to an elevation of 137.17 ft to maintain airspace clearances.



View of the guideway under construction. The guideway elevation varies to provide clearance over streets and buildings while maintaining the Federal Aviation Administration's overhead clearance requirements. Photo: HDR Inc.

Design on the first segments began in early 2018, with construction beginning in mid-2019. Concrete for the last elevated section was placed in April 2022, and all guideway segments are now constructed. In a span of more than two years (and during a pandemic),



## AESTHETICS COMMENTARY

by Frederick Gottemoeller

It is such a pleasure to see a large and complex project developed as a consistent assembly of compatible and interlocking parts, each contributing to a high-quality result, no matter where it occurs in the project. Because of the complex configuration of the people mover system, the intricate needs of existing traffic, and the seismic redundancy required, the Los Angeles International Airport (LAX) Automated People Mover presented a plethora of challenging design issues. Too often, such projects are addressed by optimizing the individual solutions for each group

of challenges and then mashing together the whole agglomeration of solutions and living with whatever the final assembly looks like.

At LAX, the parts begin with the post-tensioned concrete box girders supporting the tracks. They all look similar to each other, regardless of whether they support one track or two, what their spans are, or whether they were cast in place on falsework or using form travelers. The torsional stiffness of the box form minimizes the distracting details, brackets, and fittings often required to address complex structural situations. If a box must be

deeper to accommodate a longer span, the basic box shape stays the same—its webs are simply extended. All the piers resemble each other, too. They are round shafts that flare smoothly to blend into the box girder above, regardless of the box width or whether it is haunched. Even at the stations, the piers all look the same.

All these smooth and streamlined shapes are made of the same light-colored concrete. The mass of the concrete dampens noise and vibration, and the light color and smooth surfaces keep the spaces below bright and pleasant. The Automated People Mover visually unifies the whole LAX terminal area. Wherever you are among the terminals, the system adds functionality and attractiveness to its immediate surroundings. I don't get to Los Angeles often, but I'm tempted to make a trip just to enjoy this new facility.