

Central Texas Regional Mobility Authority: Creating a Regional Transportation Network

by Dee Anne Vickery, Central Texas Regional Mobile Authority



One of three pedestrian bridges crossing the 183 Toll, an 8-mile toll road along U.S. Route 183 in east Austin, Texas. A notable feature of the bridge is the inverted triangle bents, a design that is unique to the region. The bents support a concrete beam superstructure with a decorative steel railing and facade. These bents required significant reinforcing steel in the bottom “knuckle” of the bents and unique formwork. All Photos and Figures: Central Texas Regional Mobility Authority.

The Central Texas Regional Mobility Authority is an independent government agency focused on making the connections that improve mobility and help central Texans get to where they need to go. The agency’s mission to use innovative transportation solutions to drive those connections and enhance quality of life for the region is apparent across all Mobility Authority facilities. But it’s perhaps best illustrated, both figuratively and literally, by the many bridge structures built and operated by

the agency.

Since its inception in 2002, the Mobility Authority has brought to life many projects in the Austin area, including the 183A Toll, 290 Toll, 71 Toll Lane, 45SW Toll, and MoPac Express Lane. More recently, the agency opened the 183 Toll and broke ground on two vital connections north of downtown Austin with the 183 North mobility project and 183A Phase III.

A few distinctive features of Mobility Authority projects are that they include improvements to the existing adjacent general purpose (nontoll) lanes, they encourage multimodal transportation by building shared-use paths along most of their roadways, and they use congestion management tools such as variably priced express lanes like the MoPac Express Lane.

The completion of the 290/130 Flyover Project in February 2021 added three new flyover bridges at the intersection of 290 Toll and State Highway 130. These structures provide vital direct connections between two major facilities east of downtown Austin, effectively reducing congestion on the frontage road intersection and increasing connectivity



Bear Creek Bridge, which was built as a part of the environmentally sensitive 45SW Toll project, mitigated impacts to Bear Creek. The project’s shared-use path features educational signage and a corresponding augmented-reality mobile app to educate the community and foster environmental stewardship.



Crews simultaneously constructed piers for three new flyovers at the intersection of 290 Toll and State Highway 130.



Regional map showing Central Texas Regional Mobility Authority roadway system.

for Williamson County and northeast Travis County.

The new flyover bridges have many concrete components, including 2135 ft of 96-in.-deep prestressed concrete girders, 762 ft of 108-in.-deep prestressed concrete girders, and 12,993 ft of Tx54 prestressed concrete girders. The direct connectors also feature bridges with supershafts (drilled shafts with diameters of more than 90 in.). Temperature sensors in the supershafts were used to monitor and assess the proper curing of the concrete during construction.

The contractor constructed all three flyovers at once, which required diligent traffic-control coordination. Templates for the monolithic drilled shafts were used to assist with their alignment during drilling and concrete placement. Additionally, the Mobility Authority's contractor prioritized finishing during placement of the continuously reinforced concrete pavements to ensure ride-quality requirements were met, as some of the early placements required grinding to

achieve international roughness index ride-quality requirements. The scope of this project included:

- 11,000 ft of drilled shafts
- 18,000 yd³ of concrete structures
- 60,000 ft of concrete beams
- 66,500 ft² of mechanically stabilized earth retaining walls
- 97,000 yd³ of embankment
- 594,000 ft² of bridge deck

The 183 Toll—an 8-mile toll road along U.S. Route 183 in east Austin that serves as an alternative to the highly congested Interstate 35—features 58 delta portal bents. These signature bridge bents are shaped as inverted triangles, a design that is unique to the region. They required significant reinforcing steel in the bottom “knuckle” of the bents and unique formwork.

Bear Creek Bridge was built as a part of the 45SW project, which crosses through the environmentally sensitive Edwards Aquifer recharge zone. The bridge itself mitigates environmental impacts to Bear Creek. Also, to educate the community and foster environmental stewardship,

the Mobility Authority developed an augmented-reality app and installed corresponding educational signs along the project's shared-use path. The app educates users about specific features of the Texas hill country such as native plants and animals, how the Edwards Aquifer functions, and more.

The work of the Mobility Authority continues, and bridges feature in the agency's active construction projects. The 183 North mobility project includes 13 bridges, 11 of which are widenings, including a drop-in girder span. The 183A Phase III project will involve 17 bridges made up of 191 columns, 517 beams, and 97 spans.

The Mobility Authority's current (and future) roadway system is designed to deliver faster, safer, and more reliable drive times throughout central Texas, and its bridges are integral to this mission. **A**

Dee Anne Vickery is the chief of staff for the Central Texas Regional Mobility Authority in Austin.

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