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**Webber, OHL, and  
Williams Brothers Construction**  
**Work 24/7 to Complete 38-Mile US 290 Project**

# Multi-Contract, \$1.27B US 290 Project

## Improves Safety While Next Generation Pavement Reduces Noise

By Julie Devine

### 13-Part Project

TxDOT and HNTB, Program Management Consultant, separated the 38-mile, \$1.27 billion US 290 project into segments so they could let contracts as funding allowed. Contract values and the start of construction for each project were:

- A: \$60.1 million, July 2015
- B: \$33.4 million, June 2015
- C1: \$48.6 million, September 2014
- C2: \$36.8 million, June 2015
- D: \$85.2 million, February 2014
- E: \$135.4 million, August 2013
- F: \$57.9 million, September 2013
- G: \$110.4 million, March 2013
- H: \$153.3 million, October 2013
- I: \$142.8 million, February 2014
- J1: \$107 million, November 2012
- J2: \$151.5 million, December 2013
- K: \$151.5 million, June 2011

With 13 separate contracts on the \$1.27 billion reconstruction of 38 miles of heavily traveled U.S. 290 near Houston, the Texas Department of Transportation (TxDOT) expected some challenges. Changes in funding? Redesign and adapt. Complaints about noise on the expanded freeway? Find a new innovation to mitigate the issue. Defaulted contractor? Just hurry the replacement. Then came unexpected flooding so severe it's been called a 500-Year Storm. But somehow, amazingly, the rain came in between critical activities and looks to have no lasting impact on the targeted completion date of late 2017.

TxDOT continues to coordinate and problem-solve as Williams Brothers Construction Company, Inc., of Houston; Webber, LLC, of Houston; and OHL USA, Inc., of Austin, work 24/7 to complete the project. Extra lanes and special safety measures will ultimately reduce congestion and improve safety throughout the US 290 corridor.

#### Preparing for Population Explosion

The U.S. 290/Hempstead Corridor serves as the major transportation route from northwest Houston, traveled by as

many as 270,000 vehicles daily where U.S. 290 intersects with I-610. With the area's population expected to explode over 70 percent by 2040, TxDOT looked at ways to eliminate traffic headaches.

The 13 U.S. 290 contracts (see "13-Part Project" sidebar for values and construction start dates) cover a 38-mile corridor from the interchange area of I-10/I-610/U.S. 290 northwest to near the Harris/Waller County line. The U.S. 290 program will add two lanes in each direction between I-610 and SH 6, one lane in each direction between SH 6 and SH 99, and one lane in each direction between SH 99 and the Harris/Waller County line.

To improve safety, new connector ramps eliminate traffic weaving as they take motorists directly between I-610, U.S. 290, and I-10. For the first time in the Houston area, TxDOT also incorporated two-lane collector-distributors, which allow entering and exiting vehicles to merge without disrupting other traffic. For instance, during afternoon rush hour on outbound 290, traffic builds around the Beltway 8 interchange with the merging of entrance/exit ramps to side streets and the Sam Houston Tollway. "The collector-distributor lanes will separate those movements and ease the congestion," said

Karen Othon, Public Information Officer for TxDOT's Houston District.

A combination of federal, state, and local dollars funded the U.S. 290 widening and reconstruction. The first project began in June 2011 at the I-610/U.S. 290 interchange and is substantially complete. TxDOT awarded the last contracts in summer 2015. In all 13 projects, contractors work alongside live traffic.

#### Quiet, Next Generation Pavement

At public meetings for the U.S. 290 project, residents expressed concerns about noise. To mitigate the issue, TxDOT incorporated sound walls, many near the residential neighborhoods that border the freeway. In addition, working with the Austin TxDOT Maintenance Division, researchers from the University of Texas at San Antonio, and the International Grinding and Grooving Association (IGGA), the team chose to incorporate a pavement noise reduction technique called Next Generation Concrete Surface, which had not previously been used in Texas.

According to the IGGA, upward protruding pavement textures create much of the tire-pavement noise. To minimize those textures, "The contractor will place longitudinal grooves on the concrete," Othon said. "The Next Generation Concrete Surface provides a long-lasting surface texture that decreases tire and pavement noise."

Specialized equipment and crews are working with prime contractors to apply the technique in every segment of the project, at an estimated cost of \$17.7 million. Penhall Company, based in Anaheim, California, applied the treatment to Project K last March. Because TxDOT doesn't allow weekday mainline closures, "The subcontractor performed the process at night and every weekend from October until February, aside from the holiday period," Othon said. "I hear comments from the public that they really notice how quiet it is."

#### Rain and Change

Myriad challenges threatened the project's schedule since TxDOT hired HNTB of Houston as program management consultant in 2006. Most recently, torrents of rain fell in April, in some areas totaling as much as 17 inches in less than





## Project Partners

- Owner – Texas Department of Transportation; Jesse Garcia, P.E., Area Engineer
- Program Management Consultant – HNTB, Houston
- Prime Contractor for Projects A, B, C1, C2, D, E, J1, J2, and K – Williams Brothers Construction Company, Inc., Houston
- Prime Contractor for Projects F, G, and H – Webber, LLC, Houston
- Prime Contractor for Project I – OHL USA, Inc., Austin

*“The Next Generation Concrete Surface provides a long-lasting surface texture that decreases tire and pavement noise.”*

Karen Othon, Public Information Officer, TxDOT's Houston District



## How Much Material Does It Take?

With U.S. 290 reconstruction work covering 38 miles, crews are using massive amounts of materials. From the start of the first project in summer 2011 through January 2016, that included:

- 9,704,957 square feet of concrete pavement and slab poured – the equivalent of 168 NFL football fields
- 240,266 linear feet of concrete and steel beams hung – the equivalent of 397 Seattle Space Needles

24 hours. The flooding forced more than 1,200 high-water rescues and inundated homes and roads. Yet somehow, “The rainfall didn’t affect our current project schedule,” Othon said. “For a few days the contractors couldn’t do any work because the rain was coming down so heavy, but as soon as they had a dry moment, they were all back out there working. We weren’t in any critical stages that would be affected by the rain.”

Only minor damage occurred. In one spot in northwest Harris County, the rain collapsed part of a temporary soil nail retaining wall. Once the rain subsided, the contractor closed two mainline lanes as a safety precaution during the repair. “They were out there working as fast as they could,” Othon said. “They started on a Tuesday and by Thursday night we were

able to open those main lanes.”

Prior to the rain, the project faced many other logistical challenges. Originally TxDOT planned to move a high-occupancy lane from U.S. 290 to a new managed-lane facility built by Harris County on Hempstead Highway, which runs parallel to U.S. 290. When the county turned the Hempstead Tollway project over to TxDOT, the two agencies partnered to design a reversible three-lane, managed-lane facility on U.S. 290.

Then plans changed again. “It was decided that facility wasn’t the best benefit to all the agencies involved,” Othon said. “There were financial challenges and design constraints. Through the Beltway interchange, the three managed lanes wouldn’t fit so we needed to design an elevated structure alongside the main lanes at that location. Coming into the I-610 interchange, we’d have to do additional modifications. It made the price for design and construction higher, so all the parties involved decided to reallocate our resources and go in a different direction.”

Instead of building the managed-lane facility, Harris County is now contributing \$200 million toward the U.S. 290 construction and TxDOT is extending the existing high-occupancy vehicle lane that sits in the middle of U.S. 290.

### Accelerating Work

To complete expansion of the U.S. 290 corridor, TxDOT acquired 373 right-of-way parcels. Although the process began in 2010, “We weren’t able to acquire all of our right-of-way before the start of construction, then once we finished

that, the utility companies had to work on relocations,” Othon said. “Our project managers and the contractors are working around ongoing utility relocations in order to keep the momentum going.”

In another effort to accelerate the work, most of the contracts provide opportunities to earn incentives, which total \$55.45 million for the entire U.S. 290 corridor. “Throughout the project, bridge, connector ramp, and intersection closures that impact the traveling public have contract milestones associated with them,” Othon said. “These incentives help us keep the contractors progressing on this accelerated project.”

Despite all the efforts to speed completion, Project H ran into problems. Construction originally began in October 2013, but TxDOT had to default the original contractor in May 2015 when the work didn’t progress according to contract terms. “We worked very closely with the surety company to accelerate the process and bring on a new contractor,” Othon said. “The surety company selected Webber, who actually had the next segment, Project G. Webber was out on Project H by October, and there’s so much work happening in that section right now – frontage roads, main lanes, intersections.”

With all the coordination, problem-solving, and extra effort, Project H and the entire U.S. 290 reconstruction remain on schedule. The long-range vision for the area still includes converting Hempstead Highway to a managed-lane facility, with a 50-foot reserve for future high-capacity transit. 🚧