FREEWAYTODAY

TEXAS DEPARTMENT OF TRANSPORTATION

FEBRUARY 2007

INSIDE THIS ISSUE

Freeway in review

The year 2006 has come and gone, but the results of our labors will be in place for many years to come.

Last year brought significant progress on the Marsha Sharp Freeway project.

The beginning of the year saw the completion of Phase 1—the widening of the West Loop from Slide Road to 34th Street and the completion of the 50th Street interchange.

By May, contractors had moved the playa lake at Quaker Avenue and 19th Street and had made considerable progress on the second phase of the freeway from Salem Avenue to Avenue L.

In June, contractors started placing steel and concrete beams to form the largest and tallest bridge structure in the history of the Lubbock District. The impressive structure took on the big city look somewhere around October as more beams were situated and more of the flyover and main lanes were put in place. In fact, all the beams inside the loop—steel girders and concrete—are in place. Contractors will start on the beams for the main lanes outside the loop at the end of this month. Substructure work for Phase 3A of the freeway is about 90 percent complete. Contractors have less than 6 bent caps to pour, and the rest of the work includes pouring deck and putting in railing.

TxDOT is also using a few innovative design techniques that are just now being implemented at a few locations around the state. Pass through steel caps—the beams actually thread through the cap rather than sitting on top—are just one of the new features included in the plans.

continued on page 2

PHOTO BY TIMOTHY LAPIERRE

Contractors pour concrete to form a portion of the bridge deck on the 3,900-foot flyover at West Loop 289 and Brownfield Highway. Construction of the flyover is part of Phase 3A of the Marsha Sharp Freeway project. This phase will complete this fall.
Photo by Bill Ratcliff

FREEWAY TODAY
is a publication of
the Texas Department
of Transportation
Lubbock District

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continued from page 1

"This is fairly new," explained Will Barnett, Lubbock construction engineer. "There's only a handful of these being used around the state."

The eastbound flyover at West Loop 289 and Brownfield Highway has two pass through steel caps.

Deck work on the southbound flyover is about 45 percent complete, and 20 percent complete on the east- and westbound main lanes over the Loop.

"We have finished placing a large amount of permanent metal decking on bridge structures inside the Loop," Barnett said.

Dirt and paving operations on Phase 2 are well ahead of schedule. TxDOT and the contractor worked together to rephase the work sequence at University Avenue so that traffic could still flow north and south while the bridge is being built.

"Original plans called for shutting down the intersection," he added. "But we found a way to allow traffic flow while construction was in progress. It's a much more traffic-friendly plan."

Also, traffic control changes at 19th Street and Brownfield Highway intersection have allowed the contractor to maintain more open lanes for a longer period of time, said Barnett.

"Before this plan we pretty much had to shut down lanes," he added. "With the new plan we've reduced the amount of time that the intersection will see lane reductions."

Contractors are also working on bridge structures at the Texas Tech Parkway. That bridge is scheduled to open this spring.

Lean-on bracing is being piloted on the 9th Street bridge, said Barnett.

"These bridges are part of a statewide research program," he explained. "Traditional bracing is set at fixed intervals. Lean-on bracing is placed at strategic load-bearing locations to reduce the number of braces used. It also reduces the weight of the bridge."

Another innovation for the Marsha Sharp Freeway project is de-icing systems for the flyovers and ramp bridges.

continued on page 3

When steel and concrete merge

Photo by Bill Ratcliff

continued from page 2

"The system will be built into the pavement and allow us to apply de-icing material directly to the flyover before we get ice or snow," Barnett added.

Contractors have also finished most of the sound wall on the north side of the frontage road from Toledo west and are working on the portion from Toledo back toward Quaker. Motorists will see a Sedona brick pattern on the highway side. An exposed aggregate will be visible on the residents side. The wall will vary in height from nine to 12 feet.

2006 was a good year for construction, added Barnett.

"The weather was dry and warm and contractors made significant progress on the freeway," he said.

Barnett noted that TxDOT is not the only organization working to assure this project is successful.

Said Barnett, "We want to give credit to all our partners—particularly the City of Lubbock—who have worked hard to help bring this project along."

Construction phasing

Phase 1

Widening of West Loop 289 from four to six lanes from 34th Street to Slide Road. Rebuilding frontage road system under the main lanes. Building the 50th Street overpass and extending 50th Street to Frankford. Project was completed in early 2006.

Phase II

Building the complete freeway from Salem Avenue to Avenue L. Building 19th St., Quaker Avenue, Fourth Street and Avenue Q interchanges. Construction started in the spring of 2005 and will complete in late 2008 or early 2009. Cost is $131 million.

Phase III-a

US 82 main lanes and fly overs at Loop 289. Construction started in the spring of 2005. Completion date is late fall 2007. Cost is $32.5 million.

Phase III-b

US 82 from Chicago Avenue to Salem Avenue. Project letting date is March of 2006. This $34.3 million project will wrap up in early fall 2009.

Phase IV

Building the I27 interchange. This $60 million project will let sometime in late 2009 or early 2010. Project completion is scheduled for 2012.

Phase V

Extending the freeway from one mile past the West Loop to past Wolfforth. This $50 million project will begin sometime in 2012.

Just the facts!

BRIDGE DECKS

Placed 79,534 square feet of the 348,471 square feet of bridge deck needed on Phase 3A.

Still have 399,811 square feet of bridge deck to place on Phase 2.

STEEL GIRDERS

Placed 4,433,585 pounds (15,997.95 linear feet or 3 miles) of girders on Phase 3A

Still have 7,226,415 pounds of steel girders to place on Phase 2

CONCRETE BEAMS

Placed 24,193.51 linear feet of the 35,544.26 linear feet for Phase 3A

Still have 36,790.25 linear feet to place on Phase 2

Inspecting is tough job

So you think being a construction inspector is easy? What a cushy job. Just stand out there all day or sit in your pick up and read the paper or sleep?

Most people don't have a clue what an inspector does. But it certainly isn't a cake walk.

TxDOT inspectors spend 10 to 12 hours a day on the job. The day begins for Jeff Gortney at 7 a.m. with the distribution of assignments from the daily work plan. The bridge inspection can be the most intense so Gortney checks the daily logs to see what's going on there first.

Generally, inspectors are checking structural steel and rebar—making sure it's placed correctly and checking the steel count (number of bars), the spacing of the bars and other measurements such as the length of the rebar.

Checking rebar can get physical at times, said Gortney.

"After the forms are set, we have to climb down into the rebar cage—all the way from the top to the bottom—making sure there's a proper distance between the steel and the side of the form," he noted.

The steel bars aren't supposed to be touching the sides, added Gortney.

"You don't want rebar exposed to the weather after you set them in concrete," he added. "Otherwise the bars could rust."

And speaking of concrete. Inspectors are constantly checking the specifications. There's the slump test, the air test and the temperature test—not to mention checking all the batch tickets to make sure the concrete meets specifications. And all that is before the pour. After the pour, inspectors check consolidation during placement which means that they watch to see if contractors are using a special vibration tool. The vibration causes the concrete to shift and fill in any voids. Shifting of the concrete prevents the honeycomb affect.

Safety on the job is a priority both with TxDOT and the contractor, and that means safety for both the workers and the traveling public. Inspectors are constantly checking barricades, making sure they are placed correctly or that they are easy to understand so motorists can navigate the construction area smoothly.

Proper beam placement is important also, explained Gortney.

"The beams are all different lengths and they are numbered," he noted. "Each beam fits at a certain location. We make sure the beams go into the right place."

Inspectors also must check to see if the beam seat is level. The beam seat or pedestal sits on top of the column cap. There's also a rubber pad (a bearing pad)—about two or three inches thick that has to be positioned just right.

"We make sure the full surface of that pad is making contact with the beam," Gortney added.

Inspectors take pride in their work, said Bill Ratcliff, project manager for Phase 3A.

"We're constantly walking and driving the job and looking for workmanship and neatness," he added.

Inspecting is a hands-on job, he added.

"We have to make things work, and sometimes that means you modify the plans in the field," he said.

And if the actual inspections are not enough, there's still the paperwork.

"Record-keeping takes place every day—365 days a year," Ratcliff added.

continued on page 6

A crane swings rebar into place on Phase 3A. Bottom photo, inspectors check rebar to make sure it's seated properly before concrete is poured.

Beam walking not for the faint of heart

It's certainly not for everyone. But it does appeal to a few adventuresome folks who want to feel the rapid heartbeat and adrenaline rush that's associated with heights.

But according to those who practice it, beamwalking is exhilerating, but not scary.

Bill Ratcliff, TxDOT project manager, is one beam walker who enjoys the experience.

"It's exhilerating," he added. "When I first started with TxDOT we walked the beams without harnesses. Now we have safety harnesses so it's not as risky."

But heights don't bother Ratcliff. And apparently, heights are not a concern for the other beam walkers.

"You have to pay attention," he noted. "Sometimes your depth perception can play tricks on you."

Depth perception is not the only obstacle however. As it turns out, there are a few tangible obstructions that require close attention. Such as the studs or horseshoe-like pin structures that line the surface of each beam.

"Some beam walkers tuck their jeans inside their boots so they won't catch their legs on these studs," Ratcliff added.

Jeff Gortney is another TxDOT employee who gets a real rush out of walking beams.

"It's not for those who are afraid of heights," he noted. "You don't want to be 60 feet in the air and nervous. That's a dangerous situation."

Gortney, a field inspector on the Marsha Sharp Freeway project, noted that beam walking takes some getting used to. But the secret is to concentrate on the beam while walking.

"Don't look down ," he added. "Just concentrate on your steps. You can look down later when you are settled in somewhere actually working."

Gortney noted that perceptions are deceiving when you are on the beam.

"When that beam is on the ground, it looks every bit of two feet wide," he said. "But when it's in the air and you are walking on it, it suddenly looks about 6 inches wide. The height really changes your perception."

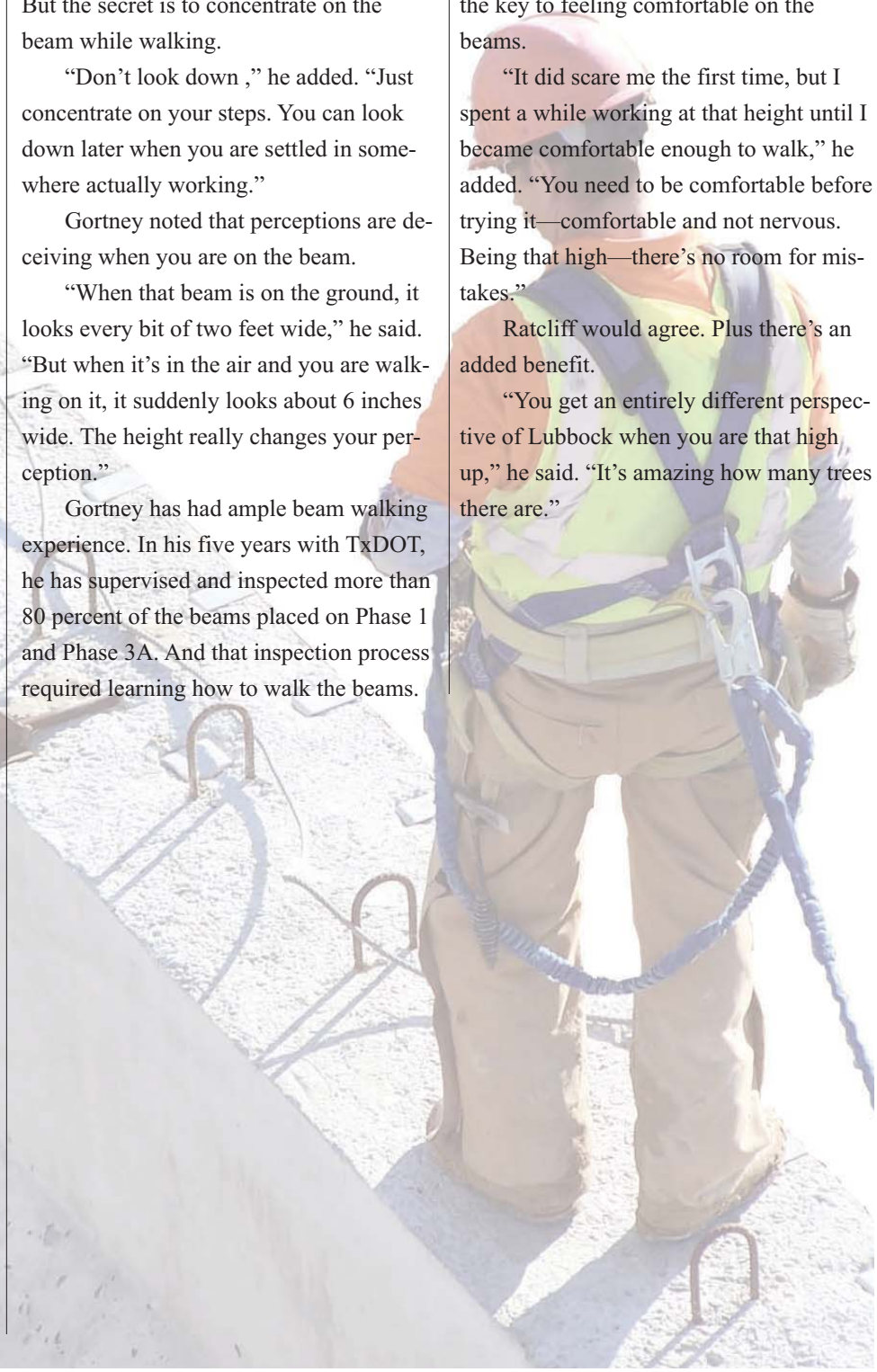
Gortney has had ample beam walking experience. In his five years with TxDOT, he has supervised and inspected more than 80 percent of the beams placed on Phase 1 and Phase 3A. And that inspection process required learning how to walk the beams.

But getting used to the height first was the key to feeling comfortable on the beams.

"It did scare me the first time, but I spent a while working at that height until I became comfortable enough to walk," he added. "You need to be comfortable before trying it—comfortable and not nervous. Being that high—there's no room for mistakes."

Ratcliff would agree. Plus there's an added benefit.

"You get an entirely different perspective of Lubbock when you are that high up," he said. "It's amazing how many trees there are."



Phase 5 on schedule for 2012

Harnessed up and ready to go, Lubbock Engineering Assistant George Villarreal takes his first beam walk.

As if four phases weren't enough, TxDOT's Marsha Sharp Freeway project now has five phases.

It just makes sense said Jerry Cash, the district's advance project development engineer.

"We are connecting the freeways," said Cash. "The philosophy is to carry the freeway where it's needed—where the growth is occurring and the traffic is the heaviest."

Phase 5 will run from Water Rampage—about a mile west of Loop 289—to just west of Wolfforth. The completion of this phase will add about 1.25 miles to the original project.

"That gives us about 11 miles of freeway from Interstate 27 to past Wolfforth," he added.

TxDOT has hired McKinney-based Kennedy, Ltd. to create the preliminary design, schematics and manage environmental and utility issues.

The $50 million project includes five bridges, two at Milwaukee, one at Upland, one at South Loop 193 in Wolfforth and a redesign of the Spur 327 and US 62/82 interchange.

Once construction starts, Phase 5 will take about two years to finish, said Cash.

"That pushes the completion of our freeway into late 2014 or early 2015," he added. "But that's about 10 years sooner than we had originally thought it would be finished."

The City of Lubbock has committed to providing a significant amount of money for projects in Lubbock County, with $25 million of that going to Phase 3B of the freeway.

"A large chunk of that money will go to other projects like the Northwest Passage," Cash said. "But with those other projects funded, that frees up more money for freeway construction. Because of that, we've been able to accelerate construction on the freeway and finish up about 10 to 15 years sooner."

continued from page 4

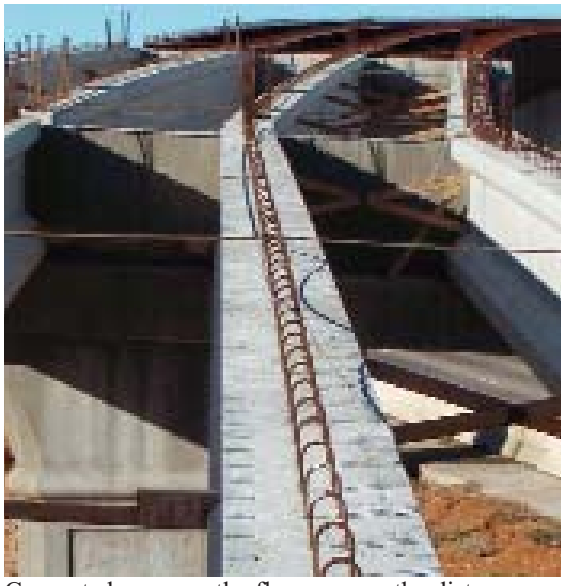
"We do daily diary entries on the state of barricades and traffic control devices."

In addition, inspectors must record an overview of work on that day including a summary of what's happening on the job.

"Sometimes we have so many operations going on at one time, the detail on the review becomes incredible," he said.

There's so much work that it can easily become overwhelming. A saving grace for Ratcliff, however, is having faith in the people that work for you.

"You spend a lot of time on the phone talking to your team, and you build close relationships with the guys you work with," he noted. "After all, you are working with them from 10 to 12 hours a day."



Concrete beams on the flyover span the distance between US 62/82 and the West Loop.