

Rebuilding the Chisholm Trail: Modern Approach Revives -Historic Route

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Booming transportation demands call for an upgrade to the predecessor of the Texas highway system.

The year is 1865, and perhaps the darkest chapter of American history is brought to a close with the end of the Civil War. Texas was bankrupt and in despair. The state's only potential assets were its countless millions of longhorn cattle, for which no local market was available.

Surrounding states such as Missouri and Kansas had closed their borders to Texas cattle in the 1850s because of deadly Texas Fever

“There dawned a time in Texas that a man's poverty was estimated by the number of cattle he possessed,” remarked Joseph G. McCoy, a prominent cattleman of the time, referring to the critical nature of the time.

Cattle in Texas were worth \$1 to \$2 per head on the local market; however beef was in big demand in the Northern states, where these same Texas cattle could bring up to \$40.00 a head. McCoy, an entrepreneur from Illinois, sought ways of supplying the Northern states with Texas cattle. In the spring of 1867, he persuaded Kansas Pacific Railroad officials to lay a siding at the hamlet of Abilene, Kansas, on the edge of the quarantine area. He began building pens and loading facilities and sent word to Texas cattleman that a market was available.

Between 1867 and 1887, more than six-million, wild longhorn cattle known as “Texas Gold” were driven from South Texas to the cattle markets in the North on what became famous as the Chisholm Trail. Although this trail was used only for two decades, it provided a steady source of income that helped the impoverished state recover from the Civil War and feed the nation. During this most colorful period of Texas history, youthful trail hands on mustangs help lay the foundation of the Texas cattle industry and made the cowboy an enduring folklore hero.

Yet the greatest contribution that the old Chisholm Trail gave Texas and the surrounding states is one that few persons, even those youthful trail hands, would have ever envisioned. Their collaborative efforts in driving cattle northward helped establish the roadway infrastructure of this country and the state of Texas. Today, of the state's highways parallel the same beaten paths established by those cattle drives.

The best description of this trail can be found in the words of Charles Moreau Harger in 1892, when he stated, “From 200 to 400 yards wide, beaten into the bare earth, it reached over hill and through valley for over 600 miles, a chocolate band amid the green prairies.”

This was the genesis of the Texas Highway system.

New Demands on an Aging System

Today, this same cattle trail is being called upon by the residents of the Dallas/Fort Worth area to help maintain and improve their quality of life.

According to the April 2003 North Central Texas Council of Governments's (NCTCOG) 2030 Demographic Forecast, the total population for North Central Texas in the year 2000 was 5.1 million. This number was projected to grow approximately 56 percent to 9.1 million by the year 2030. The four NCTCOG core counties—Collin, Dallas, Denton and Tarrant—captured 90 percent of all growth in the region in 2000. Tarrant County, which had a population of 1.6 million residents, is projected to lead the way by capturing 21 percent of all growth during this same period.

The growth rate represented in this forecast is at a magnitude never before experienced in the North Central Texas region. Consequently, more efficient transportation systems are needed to accommodate existing and future traffic demand between the Fort Worth and the developing areas in southwest Tarrant County.

Though major reconstruction of the freeway system is occurring, many of the local and rural streets are forced to serve as thoroughfares, creating congested and unsafe conditions. Without major improvements, including the disruptive reconstruction of the current roadway network, the existing system will continue to be inadequate to handle this tremendous burden on the region's transportation infrastructure. It is estimated that some \$4.2 billion are lost annually due to traffic congestion in the Dallas/Fort Worth area. By 2030, the cost is estimated to increase to \$6.6 billion.

Back on Track

In 1962, the need for a direct and continuous thoroughfare to the central Fort Worth business district was first identified in the Fort Worth Metropolitan Area Thoroughfare Plan. Despite the apparent need, funding shortages since the mid-1970s have prevented the project from moving forward. However, a tri-party agreement signed in 2000 between the City of Fort

Worth, North Texas Toll way Authority (NTTA) and Texas Department of Transportation (TX DOT) brought life to the 8.2-mile Southwest Parkway project, which will connect Fort Worth to the 13-mile Chisholm Trail project in Johnson County.

The Southwest Parkway is a proposed six-lane toll way with an estimated construction cost of \$925 million to be built and maintained by the North Texas Toll way Authority and Texas Department of Transportation. By providing a direct and continuous southwest-to-central major traffic arterial, the residents of Tarrant County will reap the benefits of:

- Improved regional mobility, air quality and safety
- Improved response time of public safety and emergency vehicles
- Reduced burden on the local transportation system
- Incorporation of context sensitive design with mobility goals
- Infrastructure that complements Fort Worth's Trinity River Vision Plan

Treading lightly on the old trail is a high priority, as evidenced by the involvement of the Citizens' Advisory Group. Having facilitated ongoing community input, its efforts led to the Southwest Parkway Nature and Character Plan, which would be included in the Final Environmental Impact Statement and Corridor Master Plan. These documents specified the need for a transportation facility with a visually narrow cross section, increased plantings and bridge and wall treatments that were sensitive to the natural and constructed environment.

In January 2006, NTTA chose HDR Engineering to design the new, five-level interchange of Southwest Parkway with State Highway 183 and Interstate 20. This interchange has an estimated construction cost of \$305 million and represents the largest of five segments comprising this project. HDR's segment required the design of two miles of six new lanes on the Southwest Parkway with localized frontage roads, more than one mile of reconstruction for SH 183 with new frontage roads, and direct connectors to I-20. The project included reconstruction of one cross-street underpass, nine direct connectors and 15 slip ramps. Over half of the construction cost is related to bridges. The interchange project was designed to meet both NTTA criteria and the Fort Worth District of TX DOT.

Ambitious Scope Requires -Collaborative Effort

To meet NTTA's aggressive 18-month deadline for the Southwest Parkway Interchange, from the notice to proceed to final design, HDR would have to mobilize and integrate a seamless national design team of 134 engineers, CAD designers and administrative staff from 12 offices as well as 40-plus team members from four sub-consultants.

Project Wise, by Bentley Systems, was selected as the collaborative tool and document management system (DMS) for all 20,000 project files.

This included not only CAD files but all engineering calculations, spreadsheets, word documents and email correspondence.

Building on previous successes and lessons learned from other large-scale work, the project management team implemented the necessary infrastructure to allow efficient work sharing. Improvements were made to HDR's infrastructure by adding greater network capacity and wide area network acceleration appliances at key design offices, thereby providing faster file access to the entire design team.

Also, a greater emphasis was placed on providing enhanced technical support to Project Wise users, including the sub-consultants. This was reflected in the addition of dedicated system engineers and CAD application specialists. Additionally, HDR provided training to teaming partners since most of their users were not accustomed to working in a real-time collaborative environment.

It is not uncommon to supplement a local design office with additional resources to perform the 30, 60 or 100 percent design on large, complex projects. But the successful collaborative efforts employed on this project allowed HDR to leverage multiple-office resources without having to reassign employees to project offices. The philosophy was, "We move the work, not the people."

Same Trail, New Hope

More than a hundred years have past since the days of the Chisholm Trail, but the dust hasn't settled on the beaten trail. But just as it did back then, this historic trail is helping the state of Texas and the populations of the Dallas/Fort Worth area improve its economic outlook and, more importantly, its quality of life. SLDT