Neches River Bridge Study

Purpose and Need Statement

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Jefferson and Orange Counties
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Texas Department of Transportation - Rail Division
**Background and Introduction**

The City of Beaumont lies on the Texas coastal plain just inland of the Gulf of Mexico. The Beaumont region is an integral component to the U.S. port system and national rail efficiency. Three Class I railroads, the Kansas City Southern Railway (KCS), Union Pacific Railroad (UPRR) and the BNSF Railway (BNSF), along with Amtrak, operate in the Beaumont region. The Class I railroads move freight nationally and regionally via a critical rail system that intersects in and around the City of Beaumont. Amtrak operates the Sunset Limited line on the same UPRR infrastructure through the City of Beaumont.

The primary east-west rail corridor through the City of Beaumont includes the only river crossing in the region, the Neches River rail bridge, a single track vertical lift span bridge owned and operated by the KCS. The bridge averages 7-8 lifts per week which result in train delays while ships navigate the river below. BNSF, UPRR, and Amtrak have trackage rights on the KCS mainline approaches and the bridge. Both UPRR and the KCS change crews in Beaumont. Though the region does not have a unified terminal that operates rail transportation, the local rail based traffic is just as vital to the efficiency and effectiveness of the freight system as is the national through traffic. Finally, several yards (Port of Beaumont Interchange Yard, KCS’s Chaison Yard and Vidor Siding, UPRR’s South, East and Beaumont Yards, and BNSF’s Beaumont Yard) are located in the Beaumont region, within the project study area. Figure 1 illustrates the location of each of these railroad system components.

**Purpose and Need Statement**

The Purpose and Need Statement is intended to clarify the challenges presented to constructing an additional rail crossing of the Neches River at Beaumont, the expected outcome of public and private expenditures, and to justify that expenditure (i.e. address what is to be accomplished and why it is necessary). The statement will be used to guide the development of alternatives and will be fundamental to how the evaluation criteria for making selections among the alternatives are developed. The Purpose defines the transportation problem to be solved. The Need describes the problem and provides data to support the identified solution to the problem (Purpose).

**Purpose of the Neches River Bridge Project**

The purpose of the proposed Neches River Bridge project is to:

- Improve rail operations through the Beaumont area by providing a second rail crossing of the Neches River. Improved rail operations would focus on maintaining existing rail mobility and continuity while providing new rail capacity to accommodate growth. Improved rail operations would increase overall freight and passenger rail capacity and efficiency and reduce rail and vehicular congestion by addressing vehicular mobility at railroad-highway grade crossings.

- Support and enhance industrial facilities utilizing rail, marine and highway services in the Beaumont region. Improving the movement and interface amongst rail, marine and vehicular
modes would benefit the Beaumont region in terms of development and economic growth, which are top priorities for stakeholders and the public in the region.

Figure 1: Beaumont Area Rail System Components

Need for the Neches River Bridge Project
Currently, there are a number of operational challenges in and around the Beaumont area, which includes the existing single track Neches River crossing, the Port of Beaumont operations and infrastructure, and the balance of local versus through trains. Improvements to the Beaumont regional freight and passenger rail environment are needed because:

- Existing rail operations through the Beaumont area are affected by track capacity, track switching, industrial service access, and bridge openings for marine vessel traffic.
  - The existing rail operations in the Beaumont area are estimated to operate at a delay ratio of 25% at an average speed of 15.0 mph (TxDOT, 2013).
The existing bridge is in the rail locked position until a navigation request is made to raise the lift bridge, generally to a requested vertical clearance. Information supplied by the United States Coast Guard (USCG) during TxDOT's feasibility study (2013) indicates approximately 400 lifts of the bridge per year in 2011. Data from KCS in 2012 indicates seven lifts in a six-day period which is consistent with the USCG's annual lift figures. While requests for bridge openings can occur at any time, most occur during daylight hours. The bridge results in some train delays. The delays are more pronounced when trains are traveling in the same direction across the bridge as adjacent trains must be separated by two signals in order to prevent a train from stopping on the bridge. Typically the bridge stays open to river traffic between 15 and 30 minutes. An average of 37 trains per day cross the Neches River Bridge according to owner/operator KCS.

- Future rail traffic across the Neches River is expected to increase with both through traffic along this national corridor as well as local rail traffic serving the region's existing and expanding industrial facilities.
  - Rail traffic throughout the region's network is forecast to increase in the next 20 years, from 287 trains per week to 584 trains per week. The Port of Beaumont's Master Plan calls for expanded industrial facilities in both Jefferson and Orange Counties where efficient rail and vehicular access is necessary to serve projected demand. Increased activities at private industrial facilities, including terminals along the Neches River, are also forecasted.

- Without improvements to the existing rail crossing of the Neches River at Beaumont, operations will deteriorate in the future with increased rail traffic.
  - With train volumes nearly doubling within the next 20 years, the delay ratio would increase to 94% which is more than double what it would be for a new crossing at the existing location (46%) and almost triple what it would be for a new crossing parallel to I-10 (35%); operating speeds are forecast to decrease systemically from 15.0 mph to 10.6 mph while delays would increase from 9.0 delay hours per day to 68.3 delay hours per day (TxDOT, 2013). When river traffic requires the lift bridge to be open, all rail traffic is delayed for a period of time. The return to normal operations can take several hours. With more rail traffic, the effects of a delay are magnified both in time of delay as well as physical impacts in storing the stopped train traffic. With increased train traffic, railroad-highway grade crossings will be blocked more frequently, and likely for longer periods of time, resulting in increased vehicular delay with associated operating costs, adverse impacts to air quality, and potentially safety.

References