

## US 290 AND OTHER HYDRAULIC STUDIES BY TXDOT

Elie J. Alkhoury, P.E.  
Texas Department of Transportation  
Transportation Engineering Supervisor  
Phone: (713)802-5508  
Fax: (713)802-5640  
ealkhou@dot.state.tx.us

The Houston metropolitan area continues to experience growth supported by a diverse economy. The fourth largest metropolitan area in the United States and the largest in Texas, Houston's population is projected to increase 64 percent by the year 2035. The US 290 Corridor, which serves as the major transportation route from the northwest Houston area, a hurricane evacuation route, and ultimately connects to the state capital in Austin, is a gateway to the city's equally rapidly growing northwest region.

With positive aspects of growth also come the challenges of increased congestion and an overall breakdown of the transportation system. Currently, over 250,000 vehicles utilize US 290 daily, far exceeding the capacity of the roadway and resulting in excessive traffic conditions for three to four hours during the morning and evening commute. In addition, there are almost 1,500 accidents per year on US 290 between IH 610 and FM 2920 and approximately 200 accidents per year on IH 610 within the US 290 Interchange. With a 2006 population estimate of 543,256 people, the US 290 Program corridor's population is predicted to increase to over 888,438 people by the year 2035, and in turn, increase the congested stop and go traffic period to over 12 hours each day if no improvements are implemented.

The US 290/Hempstead Corridor Program is committed to bringing relief to this vitally important corridor. As part of the Program, the Texas Department of Transportation is working with its agency partners including the Federal Highway Administration (FHWA), the Gulf Coast Rail District (GCRD), the Harris County Toll Road Authority (HCTRA), the Harris County Flood Control District (HCFCD), Harris County, the Metropolitan Transit Authority of Harris County (METRO), the City of Houston, the City of Jersey Village, Union Pacific Railroad, and the Houston-Galveston Area Council to develop a multi-modal solution to the challenges facing the US 290 corridor.

Today's presentation will examine the goals of the US 290/Hempstead Corridor Program, briefly touching on the current challenges facing the corridor as well as highlighting the proposed solutions and current construction scope and timeline. In addition, the presentation will review TxDOT's approach for drainage design and mitigation along the US 290 corridor. The majority of the US 290 corridor lies in the White Oak Bayou and Cypress Creek watersheds of northwest Harris County. Both watersheds are heavily developed and have a substantial number of properties with the 100-year flood plain.

TxDOT's drainage design of the US 290 corridor will accommodate the drainage needs of the expanded transportation facility, while providing storm water management facilities that avoid adverse impacts to flooding conditions within the affected watersheds. As the transportation system is expanded, additional concrete is constructed and efficient drainage systems are provided to remove storm water from travel lanes. Unless adequate drainage mitigation is provided, the new facility can increase flooding on adjacent properties. TxDOT's proposed storm water collection systems are designed to operate in conjunction with new detention basins along the corridor. Detention basins will temporarily store flood waters to avoid increases in flood levels on adjacent streams and drainage systems.