

**AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009**

**GRANTS FOR TRANSPORTATION INVESTMENT GENERATING  
ECONOMIC RECOVERY “TIGER DISCRETIONARY GRANTS”**

**Organization submitting request:**

Texas Department of Transportation

**Exact physical address of the organization, including Congressional District:**

Texas Department of Transportation  
125 E. 11<sup>th</sup> Street  
Austin, Texas 78701-2483

Congressional District: 27

**Highway: SH 35**

Grade Separation Overpass Structures

**Location of Project:**

State: Texas  
County: San Patricio  
Area: Rural

**Amount of Grant being requested:**

\$21,000,000.00

**Applicant contact information:**

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**DUNS number and Central Contractor Registration:**

DUNS 186446308

The Texas Department of Transportation is registered with the Central Contractor Registration.

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## **Project Description**

The Texas Department of Transportation (TxDOT) – Corpus Christi District is proposing to construct grade separation overpass structures with frontage roads on State Highway 35 (SH 35) at its intersection with Farm to Market 136 (FM 136) just east of the city of Gregory, Texas in San Patricio County. The project location is 7 miles east of downtown Corpus Christi along the Texas Gulf Coast. The limits extend from the west end of the SH 35 Overpass at Spur 202 to 0.4 mi east of FM 136 for a total project length of 1.4 miles. (For project location, see Figures 1 & 2 at the TxDOT Web site.)

SH 35 is a 207-mile east-west corridor. The west termini is the Corpus Christi city limits (San Patricio County / Nueces County Line), and the east termini is the city of Houston in Harris County. SH 35 is a 6-lane and four-lane divided highway from the Corpus Christi city limits to the city of Rockport in Aransas County, which is a length of 50.5 miles. From that point it is a two-way highway heading north along the Texas Gulf Coast. At its intersection with FM 136, SH 35 is a four-lane divided highway and is functionally classified as a Rural Other Principal Arterial. FM 136 is a 29.5-mile north-south corridor that has a north termini at US 77 at Woodsboro in Refugio County, and its south termini is SH 35 north of Gregory in San Patricio County. FM 136 is functionally classified as Rural Major Collector.

The proposed project will construct two bridge structures, with two 12-foot travel lanes in each direction with 10-foot inside and 10-foot outside shoulders. The existing bridge structure crossing Spur 202 will also be widened to accommodate the alignment of the eastbound exit ramp. Exit ramps and entrance ramps from SH 35 will be constructed with full frontage roads on the south side and a partial frontage road on the north side. The new exit and entrance ramps will provide safe and easy access to FM 136 and SH 35. The new construction will also include a retaining wall, drainage structures, guard rail, signing, striping and safety lighting. No additional right-of-way needs to be acquired. (For proposed improvements, see Figure 3 at the TxDOT Web site.)

The Final Environmental Statement was completed for the section of SH 35 from Gregory to Copano Bay Causeway in 1972, which encompasses the project limits. The Final Environmental Document can be found at [ftp://ftp.dot.state.tx.us/pub/txdot-info/crp/environ\\_state\\_final.pdf](ftp://ftp.dot.state.tx.us/pub/txdot-info/crp/environ_state_final.pdf). A ROW Map was prepared and approved in 1979, and subsequently, the ROW required for the entire corridor has been acquired. Since that time, over last 25 years, the corridor has been constructed and is a four-lane divided highway from Gregory to Rockport in Aransas County. In 1982, the section of SH 35 in the project limits was constructed into its present configuration, which is a four-lane divided highway with an on-grade intersection at FM 136. This proposed project will complete one of the last segments needed in the 24 mile corridor.

The Corpus Christi region is a growing community with multimodal transportation assets that will help it attract new trade and businesses and stimulate economic growth and development in the entire area. The project is located in the County of San Patricio and near the small city of Gregory. This is an economically disadvantaged area which stands

to benefit greatly from the proposed highway project and any new developments. The proposed overpass project is located in an area that has many existing industrial facilities and proposed large developments. The infrastructure needed to meet the existing and planned demands for the area is becoming critical. Understanding the potential growth and planned developments of the area will help one understand the transportation challenges and the importance of this project along with the long term transportation and economic benefits. The proposed overpass project will facilitate the transportation connections between the existing major industries and proposed facilities that will have region-wide and statewide benefits.

### **Project Funding and Parties**

The amount of TIGER Discretionary funds requested is \$21,000,000. Below identifies the percentage share of all parties providing funds for the project.

	<b>TIGER Funds (requested)</b>	<b>State Funds (Source)</b>	<b>Total Funds</b>
<b>Project Engineering</b>		<b>\$1,157,485</b>	<b>\$1,157,485</b>
<b>Construction</b>	<b>\$21,000,000</b>		<b>\$21,000,000</b>
<b>Construction Engineering</b>		<b>\$1,062,996</b>	<b>\$1,062,996</b>
<b>Contingency</b>		<b>\$2,125,993</b>	<b>\$2,125,993</b>
<b>Indirect</b>		<b>\$1,344,100</b>	<b>\$1,344,100</b>
<b>Totals</b>	<b>\$21,000,000 (79%)</b>	<b>\$5,690,574 (21%)</b>	<b>\$26,690,574 (100 %)</b>

*Note: Table does not include costs for ROW which was acquired circa 1981.*

### **Long Term Outcomes**

#### **State of “Good Repair”**

The proposed intersection improvement is on Texas’ state highway system and thus will be under the jurisdiction of the Texas Department of Transportation. The project is consistent with regional efforts to maintain and rehabilitate transportation facilities and incorporate needed improvements to increase the safety and mobility of the system. The new grade separation will improve the efficiency of the SH 35/ FM 136 intersection and allow traffic to flow with out major interruptions. The improvement of this intersection and access will help lead to the economic success of the entire area. The existing grade

intersection and access to SH 35 is not adequate to meet the near term demands of adjacent developments and needs significant improvement to meet future economic growth of this area. Traffic needing to head south towards Corpus Christi or north towards San Antonio or Houston will need to merge and cross high speed traffic with very limited stacking distance at the intersection and along SH 35. This condition is very undesirable and a major safety concern. It's of special concern for the large number of trucks making this movement which directly impacts their ability to access the transportation system safely and the safety and mobility of thru traffic on SH 35. The proposed overpass project will reconstruct and upgrade this important transportation link that will improve safety and lead to short and long term economic success of the area. Improving the functionality of current access and improving the road surface is an asset to the community that will attract business and industry to the region. Without this project, future economic growth in the area can be hindered.

As a state agency, TxDOT is under a great obligation to demonstrate the good stewardship of taxpayer investments in transportation infrastructure. Life cycle cost analysis is used by TxDOT in determining the lowest cost method to accomplish the performance objectives. TxDOT uses life cycle costs analysis programs to determine project alternatives for roadway surface, bridge structure and retaining walls necessary to complete the project. The department uses this analysis to demonstrate the economic merits of the selected alternative in an analytical and fact based manner.

The Texas Department of Transportation utilizes an asset management approach to preserve and maintain TxDOT's infrastructure assets. The plan provides an inventory of specific assets, conditions of specific assets, a performance target for specific assets and frame work how to achieve best performance. There is money dedicated every year to the preventive maintenance of the state highway system.

All roadways in the state highway system are managed with the help of the Pavement Management Information System (PMIS). Data is collected yearly on the condition of the pavement, and the data is used to efficiently maintain the condition of the pavement and to ensure the roadway meets or exceeds its designed life. The new bridges will be entered on TxDOT's BRINSAP (Bridge Inventory Inspection Appraisal) Program and would be inspected in the program's two-year inspection cycle.

### **Economic Competitiveness**

San Patricio County has been identified in the American Recovery and Reinvestment act of 2009 as an economically distressed county. In comparison to other counties in the Texas, San Patricio County has below average per capita taxable property value, below average per capita income, and above average unemployment. Unemployment rates for Texas, as of July 2009 are 7.9%. Unemployment rates for San Patricio County are 9.7%. The City of Gregory, which lies just to the northwest of this project, has a population of 2,458. Gregory is one of the poorest communities in the county with 19.3% of the residents having incomes below the poverty level. The median household income in 2007 was \$37,576. The city is currently dependent on a residential tax base and has

minimal commercial developments. City of Gregory demographic data can be found at <http://www.city-data.com/zips/78359.html>. San Patricio County is also being hit hard by the closing of Naval Station Ingleside. Total number of civilian jobs to be lost is 2,875 and total direct and indirect salaries of \$237,432,867 according to a report prepared for workforce solutions. See report at [http://www.coastalworksource.com/pdf\\_files/Impact\\_Study\\_BRAC\\_CorpusChristi.pdf](http://www.coastalworksource.com/pdf_files/Impact_Study_BRAC_CorpusChristi.pdf). The proposed highway project in San Patricio County lies right in the middle of an undeveloped area that is getting ready to explode with industrial development. The economic benefits, both short and long term, are enormous for the area. A well functioning highway system provides important economic resources for individuals and businesses throughout the area.

Two major planned developments in the area include the La Quinta Gateway Terminal project located just southwest of the overpass project adjacent to US 181 and the TPCO America Texas Mill facility located on the southwest corner of the proposed project (see [Figure 4 at TxDOT Web site](#)). The grade separation and associated frontage roads with new exit and entrance will improve the mobility, safety and connectivity between these industrial developments and existing facilities in the area. This project is located in an area where it will directly impact and contribute to the economic success of the entire region.

The Port of Corpus Christi's most ambitious and far reaching infrastructure project is the development of the La Quinta Trade Gateway Terminal project (see [Figure 5 at TxDOT Web site](#)). This project, planned on an 1100-acre site, will accommodate a multimodal facility providing seamless transfer of cargo, trailers and containers between highway, rail, ferry and deep sea conveyances. Its 3800-feet of shoreline provides space for the largest and most efficient containerships. This facility has direct access to US 181 and connects directly to IH 37, SH 35 and US 77. The proposed overpass benefits this facility and others in terms of time savings and efficiency of operations and safety. Containerized cargo often moves by truck and container terminals are typically major generators of truck traffic. La Quinta's ability to handle containerized cargo will position itself as a major global player in the distribution of goods. This world class import/export distribution center on the Corpus Christi Ship Channel is a rational solution to the problem of congestion on the east and west coast ports and is well positioned to receive increased trade through the soon to be expanded Panama Canal. The overpass project will support this major planned development and the economic benefits for the area, region and state are unprecedented for this area of San Patricio County. A strong argument in support of the Port of Corpus Christi's effort to develop a major container handling network is the need for redundancy in the state's container handling network. An alternative center for importing and exporting containers within Texas would be a strong asset for the state in the case of rapid container growth or natural disaster (hurricane) in the Houston/Gulf coast area. This project would assist in this effort.

The La Quinta Trade Gateway Terminal project is expected to generate approximately 608 direct, induced and indirect jobs; \$35 million of business revenue; \$32 million of personal wages and salaries and consumption purchases; \$4.1 million of local purchases;

and \$3 million of state and local taxes in the first year alone. This project will have area-wide significance. Continuing to improve the infrastructure is important for the economic success of the entire region. This highway overpass project will support and connect this project with other existing industries in the area and reduces the number of conflict points which provides for improved traffic safety.

The provision of greater efficiencies for landside movements is one area in which Corpus Christi believes it can offer a sustained advantage over Houston. The proposed overpass and new exit and entrance ramps are needed to fully support the transportation infrastructure needed for the La Quinta project. The overpass project would further help the development gain advantages in their attempt to win future market share from competitors. These highway improvements would reduce accidents and increase reliability of the transportation network so that deliveries of raw materials and finished products arrive “just in time” to the production/commercial facilities. Economic data regarding the proposed La Quinta trade gateway project is from the Port of Corpus Christi’s *Potential Economic Impact of La Quinta trade gateway Container Terminal* report which can be found at <http://www.portofcorpuschristi.com/pdfs/La%20Quinta%20Economic%20Report.pdf>.

TPCO America Corporation is planning on constructing and operating the TPCO America Texas Mill located east of Gregory, Texas, along SH 35 just south of the intersection of FM 136. This facility will manufacture seamless tubular steel product from recycled scrap steel. The Texas mill is expected to produce 500,000 metric tons of pipes per year which will be shipped all around the United States and the world. TPCO America Corporation is a wholly-owned subsidiary of Tianjin Pipe Company (Group), which is one of the world’s largest seamless steel pipe manufacturers located in Tianjin, China. TPCO is developing its first ever American facility on a 252 acre site near Gregory, Texas. They are planning to break ground in 2010 on their estimated \$1 billion dollar, 1.6-million-square-foot Texas Mill facility. The Texas Mill will create at least 300 new direct jobs in the first year and 600 workers within the following two years of operation. These are exceptional jobs for the local area. The project would generate new local tax revenues exceeding \$37 million for local taxing districts in San Patricio County, including school district revenues and local sales tax. This activity will create local tax revenues as well as additional revenues for other businesses in the Coastal Bend area, along with indirect jobs and salaries. The economic benefit to the city of Gregory would equate to more than \$1 million dollars in the first ten years of the facility operation. This will improve the quality of life and will bring hope and change to the economically distressed city.

<b>Economic Output, Jobs, and Annual Salaries Created and Supported by the Facility Over the First Ten Years</b>			
	<b>Economic Output</b>	<b>Jobs</b>	<b>Salaries</b>
Direct	\$2,767,484,920	600	\$327,615,207
Indirect and induced	\$4,151,227,380	900	\$491,422,810
<b>Total</b>	<b>\$6,918,712,301</b>	<b>1500</b>	<b>\$819,038,017</b>

**Source:** *A Report of the Regional Economic Impact of Project Overseas Near Gregory, Texas prepared for the Corpus Christi Regional Economic Development Corporation.*

As shown above, the ten-year economic impact of the project will be \$2.7 billion with \$327 million in direct salaries for workers. While the facility will employ 600 workers, the facility's spending and spending by its employees will create another 900 jobs in the area. In total, the facility's operation will create 1,500 jobs in the area. The improved access and geometry of the roadway would help facilitate freight commodity flows and help improve traffic flow for businesses and residents. Economic data regarding the TPCO development is from the Corpus Christi Regional Economic Development Corporation's *A Report of the Regional Economic Impact of Project Overseas Near Gregory, Texas*.

The proposed project also would benefit the movement of large loads through the area, which is a common occurrence with the existing industrial facilities located near the intersection and the proximity of the Port of Corpus Christi. The Port of Corpus Christi handled 87,167,810 tons of cargo in 2008 and is a major port for the shipment of wind turbines, which is an emerging industry in the county. This included the components for 108 wind turbines used at the Papalote Creek Wind Farm in San Patricio County, which is expected to come online this fall. The port is poised to handle components for the second phase of the Papalote Creek Wind Farm. This upcoming phase will extend the wind farm from central San Patricio County, just west of Taft to the eastern edge of the county, bordering Gregory to the north and crossing FM 136 just north of its intersection with SH 35, at the proposed project location. The intersection would handle a major portion of the 768 loads, which would range in lengths of 100-feet to 200-feet.

Another benefit for this economically distressed area is the spin-off businesses related to the TPCO development and the other developments. The new development and the new overpass would act like an economic catalyst, causing additional industries and commercial support businesses to look at the open adjacent land. As a result of these spin-off jobs, there will be an increase in the number of people who move to the area, new residential properties and taxable sales for the area. This highway improvement will support commerce and economic development for the entire area. One of the most exciting long-term benefits to this project is the huge first-time investment by China in

the United States. If this project is successful it could act as a catalyst for other companies to follow in the steps of this project.

These proposed projects, coupled with the many existing industries and the continued population growth in the area, will have significant strain on the current transportation network in this area. This economically distressed region is well positioned to capture revenue, employment, economic growth and other benefits that these projects will bring. The overpass project at SH 35 and FM 136 is very important in enhancing safety, increasing capacity, increasing mobility, reducing delays, conflicts, emissions and maintaining efficient movement of people and goods through this area.

### **Livability**

The proposed project would significantly enhance user mobility by separating traffic at the SH35 / FM 136 intersection through a grade separation. Currently there are 26,000 vehicles per day that pass thru this intersection. This project will allow truck traffic generated from the proposed developments and all the other nearby industrial facilities to proceed toward their destination, regardless of direction, without having to cross traffic traveling at 70mph. Trucks will be able to safely merge and won't have to pull out in front of fast moving vehicles. Residents of Gregory, Corpus Christi and other surrounding cities also would make use of the new grade separation and would be better served by the safer, more efficient intersection. Currently there is only one exit ramp from SH 35 to SH 361 towards Ingleside. This exit ramp is congested and weaving movements make it unsafe. The overpass project would give users a choice and decrease the chance of accidents in this area. Connectivity to other major corridors, such as US 77 and US 181, would be easier, better serving area residents. The improvements made to the roadway, coupled with the current planned industrial developments in the area, would more development and improve the availability of goods, commodities and services for the residents of Gregory, San Patricio County and the surrounding areas. The Regional Transit Authority has vehicles that also serve the area near Gregory, and this would provide safer and improved access.

Gregory is a historic rural community that developed around agriculture and the railroad. As times have changed, there have been decreased employment opportunities and declining population growth. This transportation project, along with the new developments planned for this area, would reverse this trend. The city currently has many unpaved streets in very poor condition, and this opportunity should help improve the daily lives of residents. The improved streets and our proposed project would help link this community to new job opportunities.

TxDOT has had meetings with local and area leaders interested in the development of this area. We have shared ideas and encouraged participation at all levels to help strategically plan and solve transportation challenges. This project has wide support and is vital for the area.

## **Sustainability**

In general, road-user costs, such as fuel and oil usage, wear on tires, repairs, long delays and crashes that result from speed changes, stops, and waiting, are significantly more for at-grade intersections versus grade-separated intersections as mentioned in AASHTO's *A Policy on Geometric Design of Highways and Streets* (2004). The grade separation at the SH 35/ FM 136 intersection would decrease the amount of time vehicles spend idling waiting to cross the intersection and travel times will decrease, thus reducing fuel consumption and reducing greenhouse emissions. The addition of the eastbound off-ramp will allow traffic to exit SH 35 past the SH 35/SH 361 interchange, and will reduce vehicle delay for traffic wanting to access the area east of SH 361 by bypassing the railroad crossing.

There would be no impact to wetlands on this project. Minimal impact would be to existing grasses because most of the construction would be along an existing footprint. An estimated 60 trees will be introduced to increase carbon sequestration, oxygen generation, reduce other gaseous pollutants (sulfur dioxide, ozone, nitrogen oxides, and particulates) and reduce topsoil erosion. When mature, the 60 trees are estimated to sequester 1.44 tons of carbon dioxide per year. This amount is based on information found at <http://www.coloradotrees.org/benefits.htm>.

## **Safety**

Elimination or minimization of crossings and turning conflicts improves safety, especially at intersections. Regardless of design, at-grade intersections have a potential for crashes resulting from vehicle conflicts, which is mitigated by a grade-separated intersection.

Because nighttime crash rates are higher than daytime crash rates, proposed lighting would help with night visibility. This is of increased importance because the proposed TPCO development, which is near the SH 35/FM 136 intersection, will be a 24-hour operation and will generate truck traffic through the intersection at night. Existing industrial development along SH 361 between Gregory and Ingleside also generates traffic through this intersection. This project would reduce the number of vehicles that will cross the Union Pacific railroad tracks. The rail cars carry hazardous materials to nearby industries and this project would help prevent unintended release of those materials.

The addition of the eastbound off-ramp would allow traffic to exit SH 35 past the SH 35 / SH 361 interchange and would separate traffic, including traffic from the TPCO steel mill site, which is expected to be in operation in 2012 from the traffic heading south on SH 361. It is also critical because it would separate it from traffic from the proposed La Quinta Container Terminal traffic, which in The Port of Corpus Christi's *La Quinta*

*Container Terminal Landside Transportation Analysis* (2002) projected that the Level of Service (LOS) operation at the SH 35 Northbound Exit Ramp to SH 361/SH 35 Northbound Frontage Road weaving section would operate at LOS C/D in the future with or without the La Quinta Container Terminal, which is at the limit of acceptable operation for this type of area.

With the construction of overpasses at the intersection of SH 35 and FM 136, this project will not only increase safety at this location, but would serve to alleviate collisions occurring in and around the SH 35/SH 361 intersection. The TPCO facility on the south east quadrant of the SH 35/SH 361 Interchange is expected to generate an additional 750 vehicles per day. Out of the 750 vehicles, 250 are expected to be large trucks. Without the proposed interchange, northbound SH 35 traffic wanting to access the TPCO facility would have to take the SH 361 exit. Motorists would then have to stop and maneuver across westbound SH 361 traffic, the Union Pacific railroad tracks and the Spur 202 intersection.

The northbound SH 35 frontage road/westbound SH 361 intersection has averaged 2.33 collisions/year for the last three years. Considering the existing low traffic volume of 54 vehicles per day on the northbound frontage road, the collision rate for traffic entering from that approach is very high. There are currently four trains per day utilizing the railroad tracks. The rail serves the refinery industry in the area. The train's cargo is generally classified as Toxic Inhalation Hazards (TIH).

The proposed interchange would relieve traffic from using these intersections and provide for safer access to the TPCO. An estimated 107 trucks and 321 passenger vehicles/per day are expected to be removed from the conflicts with the westbound SH 361 traffic, train the Spur 202 traffic.

The collision data for the proposed SH 35/FM 136 interchange is as below:

**SH 35 from SH 361 to  
1/2 mile West of FM 136  
in San Patricio County  
2006 - 2008**

<b>Crash Year</b>	<b>Total Crash Rate</b>	<b>Rural State Highway Crash Rate</b>
<b>2006</b>	152.60	88.89
<b>2007</b>	43.60	92.23
<b>2008</b>	32.70	85.99

## **Traffic Operations Analysis**

### ***Background***

The SH 35/FM 136 intersection is located just east of the town of Gregory, Texas. A nearby interchange of SH 35 and SH 361 is located approximately one mile to the west. Both SH 35 and SH 361 serve coastal roadway traffic, with SH 361 being the main roadway accessing Port Aransas to the south and SH 35 serving as the primary east-west roadway connecting many coastal communities east of Corpus Christi, including Aransas Pass, Rockport and Fulton south of Copano Bay and Lamar, Tivoli, Port Lavaca, Point Comfort, Palacios and Collegeport farther to the east.

### ***Roadway Conditions***

Between SH 361 and FM 136, SH 35 is a divided highway with two travel lanes in each direction. The junction of SH 35 and SH 361 is grade-separated for through travel, with frontage facilities interchanging traffic with SH 361. The at-grade intersections formed at this interchange are primarily two-way stop controlled. The intersection of SH 35 and FM 136 is at-grade and is also two-way stop controlled, with turning traffic from SH 35 and FM 136 traffic stopping to yield right-of-way to eastbound and westbound through vehicles on SH 35.

### ***Traffic Data***

Several sources were used to collect adequate traffic data for an analysis of current and future traffic conditions along SH 35 between SH 361 and FM 136. Field traffic counts were performed in August 2009 by the department's Corpus Christi District staff to document current volume conditions. These counts covered a full 24-hour period and included all turning traffic at the SH 35/FM 136 intersection and all movements within the SH 35/SH 361 interchange. Current count data were supplemented with data from Automatic Traffic Recorder (ATR) stations maintained by TxDOT's Transportation Planning and Programming Divisions (TP&P). With historical data available for an entire past year (2007 data is the most recent available), it was possible to construct an hour-by-hour volume profile of traffic demand along SH 35 (and proximate roadways) which represents the "average traffic day" of the year. Data from ATR station A-329, which is 4.9 miles north of the US 181/SH 35 Harbor Bridge in Corpus Christi was used for this purpose as it is the closest ATR station to the study site.

Future traffic conditions were estimated based on a growth rate contained within TxDOT's Texas Reference Marker System, whose data include traffic projection information populated with traffic data from TP&P. For SH 35 within the study boundary, traffic was expected to grow from 25,950 AADT in 2008 to 40,480 AADT in 2028, which is an annual growth rate of 2.25 percent. This growth rate was used in the analysis to project current volumes forward twenty years in time, resulting in future volumes that are 1.56 times current volume levels. The reference marker data also included traffic classification data, indicating that trucks composed 9.7 percent of the traffic stream.

### ***Proposed Design***

The proposed design for the SH 35/FM 136 junction is a grade-separated overpass with ramps that allow SH 35 traffic to interchange with traffic from FM 136. A frontage road segment is featured on the south side of SH 35 to allow for local property access (for new development) without turning movement conflicts with through traffic on SH 35. Ramps between the SH 35 through lanes and frontage road allow SH 35 eastbound traffic to reach FM 136 without passing through the SH 35/SH 361 interchange, and allow SH 361 traffic to enter eastbound SH 35 without passing through the at-grade portion of the proposed SH 35/FM 136 interchange. SH 35 will retain two through lanes in each direction, supplemented by ramps that approach FM 136 at-grade with two lanes in each direction. The frontage road segment previously mentioned will also have two lanes.

### ***Analysis Method***

The Federal Highway Administration's CORSIM (CORridor SIMulation) transportation modeling software was chosen to analyze both existing and proposed geometric conditions for the SH 35/FM 136 junction. CORSIM can model both at-grade and grade-separated (i.e., freeway) facilities with high fidelity, and has been proven to realistically represent real world driver behavior in countless roadway analysis scenarios and projects. The scope of the model included all roadway features and traffic paths that would be affected by the proposed grade-separation changes at FM 136 and the ramp and frontage road segments serving the proposed interchange. A small portion of the SH 35/SH 361 interchange was included in the model as it represents a change in travel path for vehicles that currently must pass at-grade across SH 361 and a parallel railroad track to access property southeast of the SH 35/SH 361 interchange. In the proposed design, a new ramp is supplied off of the SH 35 eastbound through lanes that will allow access to this property from the proposed frontage segment without passing through the SH 361 interchange.

Roadway geometrics, daily traffic volume profiles and turning vehicle percentages were entered into CORSIM for both existing and proposed conditions. Each of these models was then adjusted to model future year traffic conditions projected to exist in 20 years. The growth rate previously discussed was applied to each traffic volume input and the models re-analyzed. While the proposed network worked without congestion for both current and projected year 2028 conditions, the existing geometry exhibited significant peak period congestion from 4 PM to 8PM in the year 2028.

Detailed review revealed that the congestion was caused by insufficient gaps in the westbound SH 35 traffic stream to meet the left-turning demand from eastbound SH 35 (an issue directly addressed by the proposed grade separation). To alleviate this congestion, it was assumed that a traffic signal would be warranted and one was subsequently included in the model. The signal was timed to heavily favor the predominant traffic movement – westbound SH 35 – but provided sufficient crossing opportunities for the SH 35 eastbound left turn demand for year 2028 projected conditions.

**Results**

Measures of performance available from CORSIM for both the existing and proposed conditions provide overall network and roadway-specific indicators of the quantity and quality of traffic flow. Delay, fuel consumption and emissions information was extracted from the output files for current and future year volume conditions for both the existing and proposed geometries. All outputs are shown in the table below, and the extent benefits are demonstrated from implementation of the proposed design is indicated by the percent change in each measure. Note that each output value represents an entire average day’s aggregated delay, fuel consumption and emissions. If an assessment is made for delay time, note that 9.7 percent of traffic – and an assumed 9.7 percent of delay – is applicable to trucks.

**Daily Performance Measures for the SH 35/FM 136 Proposed Redesign, 2008 and 2028**

Year	Measure	Existing Network	Proposed Network	Change
2008	Delay (vehicle-hours)	51.81	25.76	-50.3 %
	Fuel consumption (gallons)	1802.15	1734.96	-3.7 %
	Emissions			
	Carbon Monoxide (Kg)	858.7	804.4	-6.3 %
	Nitrous Oxides (Kg)	102.3	99.9	-2.3 %
2028	Hydrocarbons (Kg)	37.6	36.3	-3.7 %
	Delay (vehicle-hours)	198.94	48.98	-75.4 %
	Fuel consumption (gallons)	3000.57	2733.26	-8.9 %
	Emissions			
	Carbon Monoxide (Kg)	1478.0	1312.9	-11.2 %
	Nitrous Oxides (Kg)	165.9	156.2	-5.8 %
	Hydrocarbons (Kg)	62.0	58.0	-6.5 %

**Source:** *Traffic Operations Analysis Courtesy of Texas Transportation Institute (TTI).*

**Innovations**

Partnering with local governments and local economic development corporations, TxDOT works with and provides support regarding transportation issues to these entities in their work to stimulate job growth and attract new businesses. Early involvement in the new business recruitment process ensures that short-term and long-term impacts to traffic, safety, and the transportation facilities are taken into account. This involvement provides a potential new business in the area, information regarding access, goods

delivery routes, and traffic in the proposed development area and eliminates problems early and promotes economic development.

### **Evaluation of Project Performance Plan**

Short-term job creation will be monitored by reviewing weekly submitted payrolls for contractors and subcontractors which is a requirement on all TxDOT projects using federal funds. In addition, off-the-project job creation will be monitored through requirements of having information submitted on all material suppliers on the project. This information required to be submitted will allow tracking of the short-term economic impact of the project.

Long-term job creation will be monitored in conjunction with the San Patricio Economic Development Corporation and Workforce Solutions of the Coastal Bend which are entities that track data on employment and other economic indicators in the project area. The San Patricio Economic Development Corporation is an organization of public and private partners dedicated to enhancing the business environment for existing and new businesses, stimulating job growth and marketing the area to attract new businesses, residents and tourists. More information on the San Patricio Economic Development Council can be found at <http://www.sanpatricioedc.com/>. Workforce Solutions of the Coastal Bend is a non-profit organization that provides services to individuals seeking employment, and to employers needing skilled workers. Workforce Solutions of the Coastal Bend can be found online at <http://www.coastalworksource.com/>. These two entities, along with TxDOT, will track the impacts the project will have on the economy of the area surrounding the project.

### **Benefit/Cost Analysis**

The SH 35 Overpass Project is expected to provide a net benefit to the region. Based on a Texas Transportation Institute (TTI) analysis, the productivity cost measure is 1.06 suggesting a 6 cents productivity gain per dollar over the long term. A benefit to cost ratio of 0.24 at 7% real discount rate and 0.33 at 3% focusing only on user benefits was shown in the benefit/cost analysis. Based on AASHTO guidelines, the categories of benefit include delay savings, fuel consumption savings, and emissions as listed below. Safety was not considered.

- 469 direct full-time equivalent jobs created in the San Patricio region.
- \$960,894 in fuel consumption savings over 20 year analysis period due to reduced delay time.
- \$4,126,883 in delay cost savings over 20 year analysis period.

- \$346,799 in emission savings over 20 year analysis period due to reduced delay time.
- A total savings of \$5,434,576 was predicted over the 20 year analysis period.

The economic impact analysis was done by using the IMPLAN 2.0 model, an economic software system developed by the Minnesota IMPLAN group (MIG). It is important to note that IMPLAN is a static model and is not able to display dynamics of economic impacts over time. **The complete economic impact and benefit cost analysis done by TTI can be found at the TxDOT Web site.**

It is important to note that economic impact analysis discussed in this section was solely on the impact of the SH 35 overpass project and its current functional condition. It did not take into account any data associated with any of the proposed developments such as the TPCO Development or The La Quinta Gateway Terminal Project.

### **Job Creation and Economic Stimulus**

This project is estimated to create 469 immediate jobs throughout the local economy. These jobs will be available to the residents of Gregory and San Patricio County, which is an economically distressed area. Project oversight would be done through TxDOT, and goals would be included in the contract to provide opportunities to small businesses and disadvantaged business enterprises (DBE's). TxDOT has set programs to provide opportunities to DBE's and ensure compliance to these goals.

The project will proceed rapidly, and job creation and other economic stimulus will be created quickly. Details on job creation are shown below.

#### **General Project Schedule**

<b>Activity</b>	<b>Start Date</b>	<b>Completion Date</b>
Environmental Clearance	October 2009	May 2010
Plans, Specifications, & Estimates	October 2009	June 2010
Plan Review	June 2010	August 2010
Bid Process & Contract	September 2010	December 2010
Construction	January 2011	January 2012

#### **Expected Construction Jobs and Fund Expenditure**

<b>Calendar Quarter</b>	<b>On-Project Jobs</b>	<b>Funds Spent</b>
1 <sup>st</sup> (Jan 2011 - Mar 2011)	40	\$5,000,000
2 <sup>nd</sup> (Apr 2011 – Jun 2011)	50	\$4,000,000
3 <sup>rd</sup> (Jul 2011 – Sep 2011)	50	\$5,000,000
4 <sup>th</sup> (Oct 2011 – Dec 2011)	50	\$6,000,000
5 <sup>th</sup> (Jan 2012)	20	\$1,000,000

## **Environmental Status**

National Environmental Policy Act (NEPA) – The NEPA requirements for this project are not complete. In the early 1970s an Environmental Impact Statement (EIS) was completed for the new location SH 35 Relief Route from US 181 in Gregory to the Copano Causeway. A Programmatic Categorical Exclusion (PCE) document will need to be completed for the actual overpass segment. It is anticipated the PCE would be completed and approved by May of 2010.

Permits – This project would not require any permits or approvals from any other federal, state, or local agencies other than the Federal Highway Administration (FHWA). The Texas Department of Transportation (TxDOT) would approve the required NEPA document, a PCE, as delegated to the agency by the FHWA.

**Project Partners and Collaborators** (see [TxDOT Web site](#))

## **Program-Specific Criteria**

The project location is outside of the Corpus Christi MPO boundaries and as such, not included in the Metropolitan Transportation plan. This project is not in the current STIP. However, it will be added prior to the award of the TIGER Grant.

## **Certifications**

The Texas Department of Transportation has and will continue to comply with all required certifications under the American Recovery and Reinvestment Act. All current and future certifications have been submitted to the appropriate DOT and Federal websites. In addition the certifications are posted on TxDOT's website at [http://www.dot.state.tx.us/project\\_information/stimulus/default.htm](http://www.dot.state.tx.us/project_information/stimulus/default.htm).

## **Index of Websites for Supporting Information**

Final Environmental Statement - [ftp://ftp.dot.state.tx.us/pub/txdot-info/crp/environ\\_state\\_final.pdf](ftp://ftp.dot.state.tx.us/pub/txdot-info/crp/environ_state_final.pdf)

City of Gregory demographic data - <http://www.city-data.com/zips/78359.html>

U.S. Census Bureau – San Patricio County - <http://quickfacts.census.gov/qfd/states/48/48409.html>

San Patricio Economic Development Council - <http://www.sanpatricioedc.com/>

Workforce Solutions of the Coastal Bend - <http://www.coastalworksource.com/>

Port of Corpus Christi - *Potential Economic Impact of La Quinta trade gateway Container Terminal* - <http://www.portofcorpuschristi.com/pdfs/La%20Quinta%20Economic%20Report.pdf>

A Report of the Impact of the 2005 base Realignment and Closure Committee Actions for Naval Station Ingleside, Naval Station Corpus Christi, and Corpus Christi Army Depot - [http://www.coastalworksource.com/pdf\\_files/Impact\\_Study\\_BRAC\\_CorpusChristi.pdf](http://www.coastalworksource.com/pdf_files/Impact_Study_BRAC_CorpusChristi.pdf)

Port of Corpus Christi - <http://www.portofcorpuschristi.com/>

Port of Corpus Christi – La Quinta Trade Gateway - <http://www.laquintatradegateway.com/#>

ColoradoTrees.org - <http://www.coloradotrees.org/benefits.htm>