

TIGER DISCRETIONARY GRANT

PROJECT APPLICATION

Project Name: Construction of three overpasses along SH 349 in Midland and Martin Counties.

Project Type: Highway

Project Location: Urban portion of Martin and Midland Counties, Texas

Congressional Dist.: 11th Texas Congressional District, Conaway

Amount Requested: \$25,000,000.00

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Project Description

History

SH 349 is part of the Texas Trunk System, a 10,500-mile rural roadway network of four-lane divided highways that complements the Interstate Highway System, enhances mobility and meets the demands of a growing economy and the North American Free Trade Agreement (NAFTA). This project addresses the increase in truck traffic in the Border States.

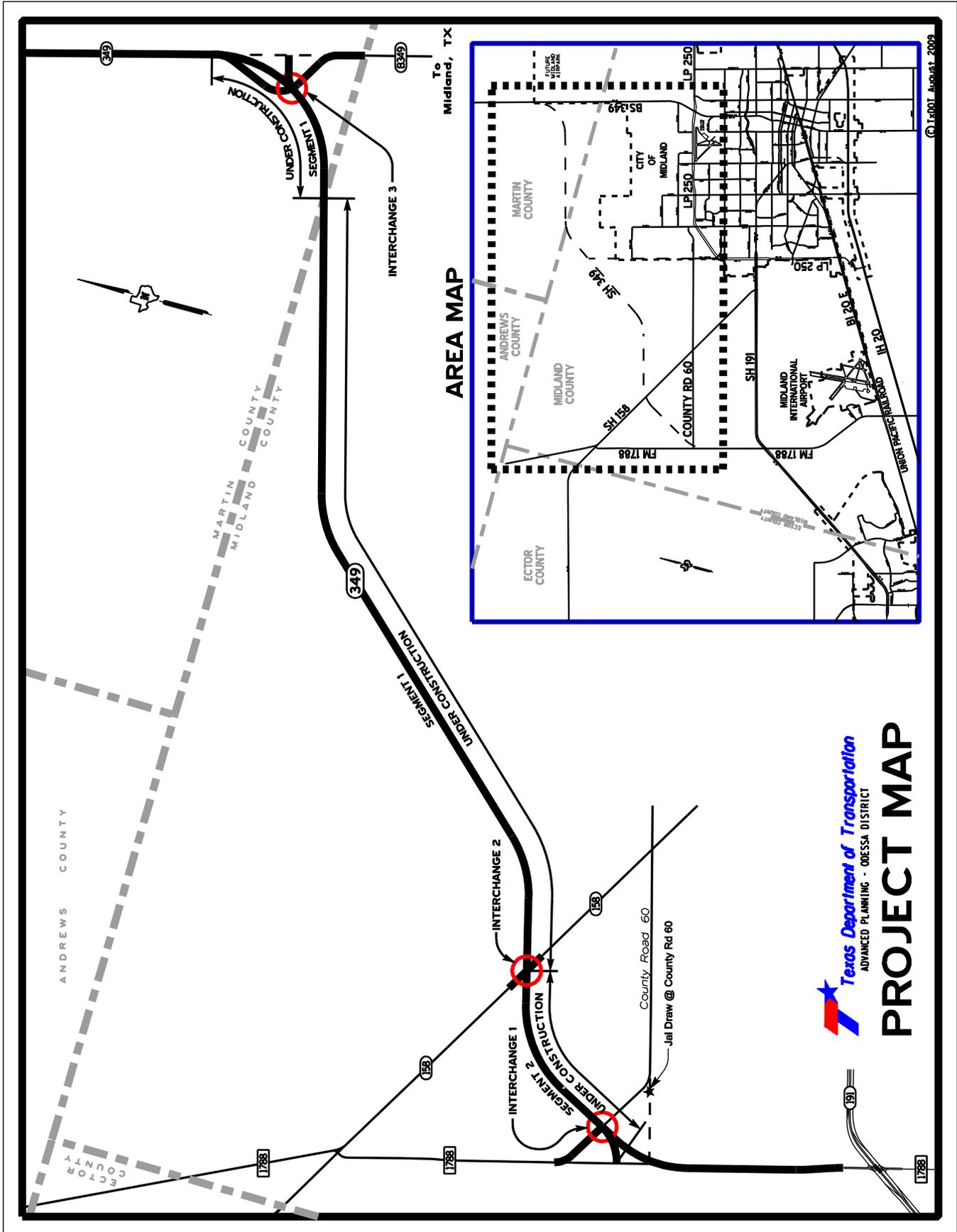
It also addresses important transportation goals identified at federal and state levels. Two federal transportation bills – the Intermodal Surface Transportation Efficiency Act (ISTEA-91) and the Transportation Equity Act for the 21st Century (TEA-21) – have advocated for rural mobility as well as congestion relief in urban areas. The Federal Highway Administration recognizes the potential for congestion in the Border States.

Through the efforts of the Midland-Odessa Transportation Alliance (MOTRAN), initial funding for the La Entrada al Pacifico corridor was secured through FHWA and TxDOT, and the project route was designated as a National High-Priority corridor. The La Entrada al Pacifico corridor proposes the development of a north-south trade corridor from the Pacific in Mexico through west Texas. In 1997, the Texas Legislature designated the La Entrada al Pacifico corridor to run through Texas from the international border crossing at Presidio to Lamesa.

The Texas Department of Transportation has a Strategic Priority which includes both rural and urban networks, including two corridors that overlap on SH 349: Ports to Plains and La Entrada al Pacifico. This project impacts both trade corridors.

An environmental assessment completed in 2004, in accordance with the National Environmental Policy Act of 1969, considered the effects this project might have on the human and natural environment. A Finding of No Significant Impact was issued by the FHWA on January 3, 2005, which allowed the right-of way acquisition and utility adjustment phases to begin.

Construction is underway on the first two segments: a two-lane roadway from the most eastern terminus to SH 158 (April 2008), and a two-lane roadway from SH 158 to FM 1788 (January 2009). SH 349 is being constructed in segments on new location. Two segments are currently under construction. Segment 1 is scheduled to be complete in November 2009. Segment 2 is scheduled to be complete one month later. This project (three interchanges) has been planned at the locations shown on the project location map (pg. 3). Current construction will create at-grade intersections at FM 1788, SH 158 and BS 349-C. The proposed project will improve these intersections and separate through-traffic from turning-traffic. The FM 1788 intersection will connect traffic to the Midland International Airport and Union Pacific Railroad. Transportation advocates like MOTRAN and the La Entrada al Pacifico Rail District expect future improvements near the airport to provide movement of goods from one transportation mode to another.



Texas Department of Transportation
ADVANCED PLANNING - ODESSA DISTRICT
PROJECT MAP

Project Funding and Parties

The total project cost is \$25,000,000.00 to include cost for PE, CE, construction, and indirect costs (administration). Although cost sharing has been included in the construction of segments 1 and 2, no cost sharing is planned for the construction of the three interchanges. State and federal funds are being used on the current construction projects. Right of way and utility adjustments will be complete before construction begins; therefore, no debt will be forwarded to this project.

Long term outcomes

State of “Good Repair”

The relief route around the northwest side of Midland is proposed to be a new alignment for SH 349. This segment is approximately 16 miles long, extending from SH 349, approximately 5 miles north of Loop 250 in Midland, to FM 1788, between SH 158 and SH 191. This relief route is proposed to prevent adding truck traffic from the La Entrada al Pacifico Corridor to Loop 250 in Midland. This relief route will be designed for trucks to travel at high speeds.

Benefits of this relief route include the reduction of interaction between truck traffic and local traffic compared to what would occur on Loop 250 in Midland, which is designed for lower speeds. Constructing the relief route is also less expensive than improving Loop 250 and will have fewer environmental impacts.

LP 250 is the most heavily traveled route in Midland. With a daily traffic volume of 57,000 vehicles, it has the highest traffic count within the MPO boundary. This relief route removes traffic from LP 250, and particularly truck traffic, which makes up 3.6% of the traffic or 2052 trucks daily.

The pavement design selections incorporate life-cycle analysis. TxDOT engineers utilize this information in evaluating pavement design strategies and select the best strategy to maximize available resources. Preventive maintenance will be funded from state and federal highway funds.

Upon completion of current construction, traffic volume along this project is expected to range from 3600 vpd to 4400 vpd. In the year 2023, traffic is expected to be 6600 vpd to 7800 vpd with 7.9% trucks. It is obvious that construction of the grade separation will improve mobility and safety. The amount of improvement will not be measurable until we obtain traffic accident information of the completed projects currently under construction.

Economic Competitiveness

The proposed project is planned to improve efficient movement of goods along this designated trade corridor. It will encourage the development of businesses and industry related to shipping cargo, by multiple transportation modes, to locations domestic and foreign.

By providing an alternative freight corridor for goods moving from the manufacturing areas of Monterrey and Chihuahua City, Mexico, and by providing highway freight access for ocean-going goods entering North America via the Mexican port of Topolobampo, goods can move both north and west from the Permian Basin area of west Texas. The economic benefits are reduced freight-shipping times and distances, and less delay than at the more congested ports-of-entry farther south, such as the port-of-entry at Laredo.

The Perryman Group (TPG), an economic and financial analysis firm, has performed two studies related to the La Entrada al Pacifico Corridor. Both of these reports use established and recognized economic models to determine potential economic impacts of roadway improvements and international trade. Neither of these reports addresses environmental issues.

In September 1995, TPG published *The Economic Impact of the Proposed Freeway Corridor from Lubbock to Interstate 10 – a Comparative Assessment of Three Alternative Routes*. That report presents the findings of analyses performed on three potential connections between IH 27 in Lubbock and IH 10. The alternative routes compared in the report are:

- **Midland-Odessa route,**
- San Angelo route, and
- Abilene route.

The Midland-Odessa route ties directly into the La Entrada al Pacifico Corridor. It is important to note, however, that the executive summary of that report states, "...although it was not used as a factor in the comparative assessment, the Midland-Odessa route is also a critical link in the proposed 'La Entrada al Pacifico'..." The report also states that the Midland-Odessa route "offers the greatest overall contributions to state economic activity by a substantial margin with regard to both domestic and international commerce."

The 1995 TPG report also "focuses on only a single element of the evaluation process – the potential economic impact of the alternative routes on business activity in Texas." The scenarios in the report are based on a project completion date of 2005 for a freeway connection between Lubbock and IH 10 and a long-term outlook for 2020. Since roadway improvement construction has not yet begun, the projection years and related data can be translated to later years, according to TxDOT plans.

There is an important statement in the report: "...the mere existence of export capacity does not in and of itself define the viability of the corridor." It goes on to explain that there needs to be a balanced flow of goods and resources between two areas. This statement is validated by the interviews TTI performed with representatives of maquiladoras, trucking companies and government officials in the Chihuahua City area.

In December 1997, TPG published *The Economic Potential of the "La Entrada al Pacifico" Route for Expanded Trade in Texas and Western Mexico*. This report focuses on economic impacts of the La Entrada al Pacifico Corridor. Its economic impact projections are based on the assumption that the overall benefits of NAFTA would be realized within a 25 year time-frame.

One of the findings of the 1997 TPG report is an estimation of 69,278 additional truck trips per year along the La Entrada al Pacifico Corridor by 2020 – the anticipated full maturity of the trade patterns. This volume, which does not consider impacts of eventual freight traffic originating in Asia and passing through the Port of Topolobampo, equates to approximately 190 trips per day (based on the volume being spread evenly over each day of the year).

The volume of 190 truck trips per day falls within the ranges of potential near-future truck diversion (from other ports of entry to Presidio-Ojinaga) estimations made by TTI. The TPG report contains higher projected truck volumes if maritime freight traffic begins to pass through the Port of Topolobampo and along the La Entrada al Pacifico Corridor.

The central issue related to the La Entrada al Pacifico Corridor is freight movement. Currently, large amounts of freight are moved by trucks from manufacturing facilities in Chihuahua City, Chihuahua through Ciudad Juarez to El Paso. There has been no documentation of the volumes of trucks that travel from Chihuahua City to El Paso.

In addition to the freight traffic originating in Chihuahua City, numerous factories in Ciudad Juarez generate truck traffic across the international border into El Paso. From El Paso, trucks and trains carry the freight in many directions to all parts of the United States. Freight traffic - measured by loaded truck containers entering Texas from Mexico - increased by 51.7% from 1996 to 2003. During the span of 1999 to 2001, the volume of loaded truck containers entering Texas from Mexico leveled off, before increasing again.

The Mexican state of Chihuahua has constructed a four-lane, divided highway from Chihuahua City to Presidio, which opened for travel in the spring of 2003. This new highway circumvents a mountainous route and allows easy access for commercial traffic, plus an alternate route for trucks and cars to enter Texas via Chihuahua from Monterrey. Utilizing the under-used border crossing at Presidio also alleviates the delays at the I-35 port-of-entry in Laredo. It will also facilitate the movement of goods that have been shipped via ocean-going freight from the Pacific Rim through the Mexican port of Topolabampo, and then by rail to Chihuahua.

The port-of-entry at Presidio will then become a conduit for relief from traffic on I-35, and for the movement of goods both west via I-10 and I-20, and north via Highway 349 and US 87. This route has the potential of moving freight around the congested I-35 corridor and alleviating traffic congestion, thus lowering traffic-related particulate matter from the air in the non-attainment areas along I-35 from San Antonio to Dallas-Fort Worth.

The December 1997 TPG report provides detailed information about potential economic benefits in both Texas and Mexico. The document suggests that by 2005, the maximum effects of trade in Texas (related to exports to Mexico) along the La Entrada al Pacifico Corridor are:

- \$21.961 billion in annual total expenditures;
- \$9.501 billion in gross area product;
- \$5.311 billion in personal income;

- \$4.025 billion in annual wage and salary income;
- \$2.032 billion in annual retail sales; and
- 187,146 permanent jobs.

These projections were made in 1997 with the assumption that “various aspects of the North American Free Trade Agreement move forward and the growth stimulus associated with expanding trade opportunities is attained.” The model also assumed that 2005 was “a plausible date for the opening of substantial portions of an enhanced corridor.” More important than the dates of potential impacts being realized are the potential impacts themselves.

As highway improvements continue to be made in Texas and Mexico, more of these impacts can be realized. A key statement in the 1997 TPG report is: “...the economic opportunities are substantial and would be greatly facilitated by the catalyst of improved infrastructure.” This statement lends credence to the theory that highway improvements along the La Entrada al Pacifico Corridor will have positive economic impacts in the region. While the projected economic impacts are based on a sound model, they were derived in 1997. Consideration should be given to updating the projections.

Livability

The construction of a relief route around Midland will be a great benefit by reducing trucks and lessening the increase of through-traffic using existing Loop 250 en route to Odessa, and destinations south and west (see Location Map). As trade traffic increases, goods bound for market by other transportation modes will be routed directly to container handling areas (in the free trade zone) near the Midland International Airport. Reduced congestion along Loop 250 will have a positive effect on travel along this route.

Improving the mobility of goods along the developing trade corridor and reducing congestion on Loop 250 are the most significant benefits projected for the relief route. Segments of the SH 349 Relief Route have been included in the 2005 Metropolitan Transportation Plan developed by the local MPO, better known as Midland Odessa Transportation Organization (MOTOR). In addition, the current projects were included in the 2008 to 2011 Transportation Improvement Plan.

Both of these plans were developed with significant public input and were presented for scrutiny at public meetings. In addition, the EA document developed for the corridor includes summaries of three public meetings and two meetings of affected property owners. As stated earlier, a FONSI was issued in 2005.

The ultimate freeway facility will include bike lanes along the lower-speed frontage roads. Although the bridges proposed in this application do not include such lanes, safety should be improved by the relocation of through-traffic from the frontage road facility.

Sustainability

There are no non-attainment areas along the La Entrada al Pacifico route. Therefore, any traffic re-routed from the I-35 corridor will reduce air particulate matter and provide relief to the non-attainment and near non-attainment cities along I-35 in the reduction of PM 10 counts associated with diesel exhaust. Further benefits can be realized by reducing congestion along the I-35 corridor, thus improving safety with the reduction of congestion along that corridor.

The Midland-Odessa area is in compliance with air quality standards. This condition means that additional development and vehicular traffic can be accommodated in this area without jeopardizing the air quality status. Development and traffic may come as a result of truck traffic being diverted from areas that are not in compliance with air quality standards.

Safety

Unfortunately, crash data is not available for this site because construction of the relief route (segments 1 and 2) will not be complete until December 2009. It is certain that construction of the grade separation will improve mobility and safety. The amount of improvement will not be directly measurable until we obtain traffic accident information after the completion of construction.

In the absence of crash data, an analysis was performed using a Safety Prediction Model developed by the Texas Transportation Institute, Report FHWA/TX-09/0-4703-7. The model provides statewide crash data to be used for evaluation purposes. Because all three interchanges are similar in purpose, only interchange 2 was modeled. The Safety Prediction Model predicted 0.79 crashes per year (using first-year traffic data obtained from TxDOT).

Upon completion of current construction, traffic volume along this project is expected to range from 3600 vpd to 4400 vpd. In the year 2023, traffic is expected to be 6600 vpd to 7800 vpd with 7.9% trucks.

Again, without any accident history, an estimate of anticipated crash data is uncertain. However, if we compare the volume of vehicles (2023 projections) traveling through the at-grade intersection with and without the construction of the overpasses, we get an estimate of the improvement made by the grade separation.

For the SH 158 at SH 349 intersection, the volume ratio is 2800 vpd to 7200 vpd or 0.39. This indicates the removal of approximately two-thirds of the traffic from the un-signalized at-grade intersection and all of the conflict points typical of a four-leg intersection. From the Safety Prediction Model, we would then have a crash rate of 0.46 crashes per year.

Evaluation of Project Performance Plan

The Texas Workforce Commission provides monthly reports of Civilian Labor Force Estimates. The data from this agency will be used to monitor short-term and long-term performance. In addition, ARRA program rules require the collection of job data as part of

the reporting process. We will utilize this data to monitor job creation and impact to the local workforce.

Benefit/Cost Analysis

Because the proposed project is a phase of the construction of an ultimate corridor improvement (namely the SH 349 relief route), the identification of benefit due to one phase is difficult to present. Both measurable and abstract improvements are presented here.

In terms of pavement quality (state of good repair), the removal of traffic would allow TxDOT to place less material on the pavement in the next rehabilitation. From pavement design information for Loop 250, reduced traffic (especially truck traffic) would save 0.5 inches of ACP and extend the life of the pavement improvement by two years to a total of 22 years. The cost of ACP reduction is \$800,000 for the initial pavement. Reduction in maintenance is approximately \$50,000 per year. Total savings for 20 years is \$1,800,000.00 in paving materials and construction effort.

The information prepared by TPG demonstrated a tremendous economic potential for the completion of the trade corridor. Of the 187,146 permanent jobs created, several hundred should be created in the Midland-Odessa area. When coupled with the robust economy of the petroleum industry, the added markets and industry may surpass the forecasts made by the Perryman Group.

Concerning livability, the removal of truck traffic from Loop 250 will reduce congestion on the most traveled roadway in Midland and Ector Counties. The city of Midland has seen the highest growth on the northwest side of town ever since the final construction of Loop 250. This corridor is the major center for shopping and entertainment in Midland.

The high-speed movement of cargo will improve emissions made from the trade corridor traffic along the existing route through Midland. This will provide a sustainable environment for the rapidly growing counties of Midland and Ector. With 6600 vpd to 7800 vpd (7.9% trucks) being routed around Loop 250, increases in congestion will be slowed dramatically and improve the curbing of greenhouse gas emissions.

The major benefit for this project is safety related. Quantifying that benefit is best made by identifying the reduction of accidents at the proposed intersections. The amount of accidents at each of the intersections is expected to be 0.33 crashes per year (0.79 minus 0.46) per interchange. This would equate to a one crash per year elimination based on improvements, or \$5.8 million.

Project Schedule

	2009				2010				2011						
Activity	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N
Compete for Funding	■	■	■	■											
Develop PS&E					■	■	■	■	■	■	■	■			
Construction Letting													■	■	■
Construction													■	■	■

Environmental Status

An Environmental Assessment (EA) was prepared in accordance with the National Environmental Policy Act of 1969. The EA considered the effects this project might have on the human and natural environment. A Finding of No Significant Impact was issued by the FHWA on January 3, 2005, which allowed the right-of way acquisition and utility adjustment phases to begin. Because the project limits do not intersect waters of the U.S., no permits are required for this project.

Project Partners and Collaborators

Although TxDOT will be the only financial supporter of the proposed interchange project, numerous organizations have supported this project, including those listed in Table 1 below. The table is an excerpt from the EA developed for the project corridor. Copies of the original resolutions can be made available upon request.

Program-Specific Criteria

This project meets the requirements of the Texas Trunk System and Federal Aid Highway Program as a National Highway System facility. It has been included in the Metropolitan Transportation Plan and a portion of it is included in the current Transportation Improvement Plan.

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.

Conclusion

This project is a great candidate for highway funds (conventional or economic stimulus). As the La Entrada al Pacifico trade corridor is fully developed, roadway improvements will be necessary. Relief routes like the one proposed for improvement and direct connectors are the major improvements needed. The potential for the trade corridor requires a constant

progression of plans in order to develop and provide timely implementation of planned improvements.

REF #	RESOLUTION	SPONSOR	DATE SIGNED
1	Resolution No. 2003-109	City of Midland City Council	May 13, 2003
2	Resolution by Midland County Commissioners Court for Preferred Option #1 Construction for State Highway 349 Reliever Route (Midland County	Midland County Commissioners Court	February 10, 2003
3	Resolution Preferred Option #1 Construction for State Highway 349 Reliever Route	Board of Directors of Midland Chamber of Commerce	January 22, 2003
4	Support Resolution Preferred Option #1 Construction for State Highway 349 Reliever Route, Midland County, Texas	Board of Directors of Odessa Chamber of Commerce	January 21, 2003
5	Proposed Reliever-Route Resolution Midland County Texas	Midland County Commissioners Court	February 12, 2001
6	Resolution Supporting SH 349 Route Alternative	Ector County Commissioners Court	undated (est. February 2001)
7	Resolution No. 2001-025	City of Midland City Council	January 23, 2001
8	Resolution No. 2000R-58	City of Odessa City Council	April 25, 2000
9	Resolution SH 349 Reliever Route (La Entrada al Pacifico)	Ector County Commissioners Court	April 24, 2000
10	Resolution No. 2000-104	City of Midland City Council	April 11, 2000
11	Resolution of the Commissioners Court of Midland...	Midland County Commissioners Court	April 10, 2000
12	Regional Cooperative Agreement	U.S., State, and City public officials	Transmittal to Robert Nichols, TxDOT Commissioner, April 20, 1999

Table 1