

THE TEXAS DEPARTMENT OF TRANSPORTATION
Transportation Planning and Programming Division



La Entrada al Pacifico

Corridor Feasibility Study

Truck Diversion Forecasts

DRAFT

Executive Summary

February 2008



Wilbur Smith Associates;
Parkhill, Smith and Cooper, Inc;
Hicks & Company; C&M Associates

**The Texas Department of Transportation
Transportation Planning and Programming Division**

**La Entrada Al Pacifico Feasibility Study
Truck Diversion Forecasts**

**Draft
Executive Summary**

**Prepared by:
HDR Engineering, Inc.
HDR Decision Economics**

February 2008

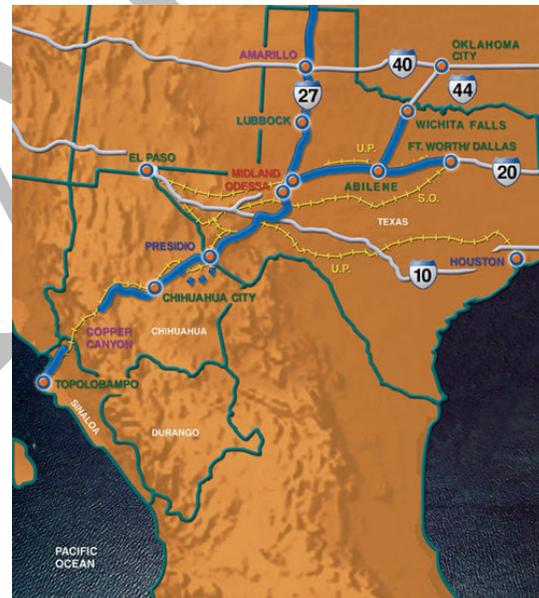
1 Executive Summary

1.1 Overview

La Entrada al Pacifico (LEAP) is a highway corridor connecting the Presidio port of entry (POE) at the Texas-Mexico border through Midland/Odessa in Texas (**Figure 1.1**). The Texas Department of Transportation (TxDOT) is preparing a study to determine the feasibility of developing a corridor serving traffic coming through Presidio into western Texas. As the first major portion of this feasibility study, a freight diversion component is the primary factor necessary to determine the potential for development and ultimate realization of a trade corridor in West Texas. This freight diversion analysis is intended to reflect future sources of growth and diversion that could potentially serve the LEAP Corridor. Forecasting freight traffic demand, therefore, requires understanding the expected share of all Pacific Coast and Gulf of Mexico freight movements that would be attracted to the Topolobampo port once the capacity at other ports was exceeded and the appropriate infrastructure was in place to facilitate the movement. In addition, an understanding of potential freight diversion from other Texas POEs is required.

The purpose of this report is to provide a detailed analysis of this freight forecast. This freight forecast will then be used in conjunction with the Statewide Analysis Model (SAM) to determine the overall traffic forecast (freight and general purpose) for the study area. If the year 2030 traffic forecast in the study area is significant then the remainder of the study will focus on the development of a corridor plan to widen identified corridor(s) to a four-lane facility. However, if the year 2030 traffic forecast in the study area does not justify a four-lane facility, a No-Build Alternative may be recommended that would eliminate the four-lane alternative but could include the identification of safety and local mobility improvements needed in the study area (if any). These recommended improvements would be based on the overall traffic forecast and could represent needs in the entire study area and not necessarily just along the current La Entrada al Pacifico Corridor. These safety and mobility recommendations could include projects such as passing lanes, signalization and a reliever route discussion, among others. It should be noted that the results of this study would only recommended improvements. Subsequent studies and public involvement would still be required to provide a detailed process in compliance with the National Environmental Policy Act (NEPA).

Figure 1.1 - La Entrada al Pacifico



1.2 Risk Analysis Process (RAP)

As with any traffic and freight forecasting tool, there is an element of uncertainty that needs to be factored into the overall forecasting process. In order to determine the most realistic freight forecast for the La Entrada al Pacifico Feasibility Study, the Risk Analysis Process (RAP) was used. RAP provides a way of developing traffic and/or freight forecasts in an inherently uncertain environment. It helps avoid the lack of perspective in the typical approach of presenting “high” and “low” cases by measuring the probability or “odds” that any particular outcome will actually materialize.

The Risk Analysis Process involves four steps:

- Step 1. Define the structure and logic of the forecasting problem, in this case freight diversion to Presidio and the LEAP Corridor;
- Step 2. Assign estimates and ranges (probability distributions) to each key factor and forecasting coefficient in the structure and logic model from Step 1;
- Step 3. Engage experts and the La Entrada al Pacifico Technical Advisory Committee (TAC) members in assessment of model and assumption risks (the “RAP Session”); and
- Step 4. Update risk analysis assumptions, run the freight forecasting diversion model, and report and document results (currently underway).

By utilizing this RAP and gathering input from previous studies, port and freight experts and the TAC, assumptions were compiled and modified and resulted in the development of a probability range of freight forecasts including a 50% or “Most Likely”.

1.3 Factors Considered

In order to develop the freight forecast for this study, the Study Team looked at all potential sources of freight that could potentially reach the Presidio POE either by way of Topolobampo or from internal Mexico. In order to study this more thoroughly, only freight heading to Texas or parts of the United States north and east of Texas was used in the analysis process as this is the freight that would most likely use the west coast Mexico ports including Topolobampo. A key part of this process was gaining an understanding of the factors that could directly or indirectly influence the ability of the diverted freight to reach Topolobampo as well as Presidio. These factors included competition with other ports, infrastructure deficiencies and proximity to congested ports of entry to name a few.

There were five primary areas that made up the total freight diversion potential to Presidio. These primary areas included 1) diversion from the Port of Los Angeles/Port of Long Beach, 2) diversion from Gulf Coast ports, 3) diversion from other US-Mexico POE, 4) freight growth originating in and/or traversing through Mexico, and 5) the impact of Mexico infrastructure. The following is a brief description of each major freight source considered in this analysis.

Diversions from the Port of Los Angeles/Port of Long Beach (POLA/POLB)

The most significant source for freight diversion that may ultimately utilize the LEAP Corridor is the POLA/POLB which currently handles a significant share of the Asian trade market heading to the United States. The existing demand at this port is reaching the port's capacity and while there are plans for significant port expansion, there is still anticipated to be a need to divert freight from POLA/POLB to other ports. For the LEAP Feasibility Study, only the portion of this diverted freight headed to Texas and parts of the United States north and east of Texas was considered since this is the likely freight that may divert to west coast Mexico Ports. In addition to POLA/POLB, the capacities and planned improvements at other west coast US and Mexico ports were considered to determine the portion of the diverted freight that could reasonably be expected to divert to Topolobampo.

Diversions from other Border Ports of Entry

The second most significant source for freight diversion that may ultimately utilize the LEAP Corridor is the diversion from other US-Mexico POEs. To determine the overall freight diversion from other border ports of entry to Presidio several factors were considered including the POE capacity, potential expansion opportunities and border crossing delays. In addition to capacity at the POEs, the likelihood of freight diverting to Presidio was also analyzed. This analysis looked at proximity of the POE to Presidio, the origin and destination of freight and the transportation cost of using Presidio versus other POEs.

Mexico Freight Growth

The overall economic growth in Mexico and the impact of this growth on freight destined to the U.S is another factor influencing freight diversion to Presidio. By looking at the export of goods and recent trends for maquiladoras, a determination was made as to the anticipated freight growth in Mexico.

Diversions from Texas Gulf Coast

Another source of potential freight diversion includes freight that diverts from the Texas Gulf Coast ports to west coast of Mexico. To define the impact of this potential diversion source, the capacities at the Gulf Coast Ports (Houston, Beaumont and Corpus Christi) were factored in along with anticipated improvements. Another element considered that directly influences the diversion potential from the Gulf Coast Ports is the planned improvements to the Panama Canal.

Mexico Infrastructure

Through the development of this study it became apparent that the single biggest influence on the freight diversion potential to the Presidio POE is the development of the Mexican infrastructure. For the purposes of this study, the Mexican infrastructure referred to includes two key items: 1) improvement at the Port of Topolobampo including the expansion of the port facilities (including container terminals) and the dredging of the port to accommodate larger container vessels; and 2) improvements to the Mexican highway infrastructure between Topolobampo and Chihuahua City that includes the Copper Canyon.

Currently, the only official documentation for Mexico infrastructure development that has been verified is the National Infrastructure Program that includes funding by 2012 for the completion of highway and rail projects directly related to the Topolobampo to Presidio corridor. With the magnitude of these infrastructure projects, completion of all needed infrastructure prior to 2012 appears aggressive. In order to account for this uncertainty, the Study Team determined that the LEAP Feasibility Study would benefit from an analysis of two main scenarios. These scenarios would include a freight forecast with all infrastructure completed prior to the year 2020 (including the possibility of infrastructure completion as early as 2012) and a second scenario that looks at the possibility that the Mexico infrastructure is never completed. The latter scenario is represented in our 2030 scenario since this study is only looking at results out to the year 2030.

1.4 Freight Forecasting Results

As a result of the aforementioned RAP, factoring in those key items that directly or indirectly influence the overall freight forecast anticipated at the Presidio POE, **Table 1.1** shows the overall results of this analysis.

Table 1.1 - Comparison of Anticipated Freight Forecasts through Presidio¹

Average Annual Daily Truck Traffic (AADT)					
Scenario	2010	2015	2020	2025	2030
Baseline	44	60	82	112	152
2020	47	125	195	456	739
2030	47	125	174	243	338

To understand the differences between these scenarios: a) Baseline means that there is no freight diversion from any of the sources described above; b) 2020 assumes that the infrastructure from Topolobampo to Chihuahua is completed by 2020 (potentially sooner); and c) 2030 means that the Mexican infrastructure is not completed until after 2030 and thus diversion to Topolobampo and onto Presidio is not included (though it does include diversion from El Paso and other Texas POEs). For the purposes of this report, the overall freight forecast has been converted to an Average Annual Daily Truck Traffic (AADT); however, this freight forecast number could easily be converted to TEUs (Twenty Foot Equivalent Units) for analysis of rail alternatives.

As part of this analysis, several observations were made concerning the results:

- With the magnitude of the infrastructure projects needed to fully realize the freight diversion potential at Presidio, completion of the essential infrastructure prior to 2012 does not appear likely. In order to account for the uncertainty of the

¹ Values in Table 1 are the median results from the daily truck traffic estimation model. The results of the analysis are equally likely to be above or below this value. The full technical report includes a range of likely future freight volumes consistent with an 80% confidence interval.

infrastructure completion, this study looks at scenarios that will address the possibility that infrastructure could be completed prior to 2020 (including 2012) as well as a scenario that evaluates the freight forecast without the infrastructure completed.

- Most of the diversion to the Presidio border crossing, and in turn the two largest influences on the growth in freight traffic, is likely to come from either El Paso or diversion of shipments through the Port of Topolobampo. Assuming the full scale of planned Mexico infrastructure is completed prior to 2020, this will account for two-thirds of the traffic through Presidio in 2030 (see **Table 1.2**).

Table 1.2 - Daily Truck Proportions

Mean Expected Share of Daily Truck Traffic through Presidio 2020 Mexican Infrastructure Completion					
Location	2010	2015	2020	2025	2030
El Paso	0%	41%	36%	22%	20%
Port of LA/LB	0%	0%	11%	44%	51%
Other	0%	7%	7%	4%	4%
Induced	2%	2%	2%	2%	2%
Baseline	97%	49%	44%	27%	24%

- The factors most likely to influence diversion are the travel time and travel time reliability of a route, infrastructure availability and barriers to diversion such as: experience and familiarity with a route, costs and contractual obligations committed to a particular route; and the profitability of travel along each route and POE.
- The share of diversion reaching the Port of Topolobampo is likely to fluctuate as the freight movement from Asia to the United States is in a dynamic state. Potential and existing ports such as Puerto Colonet and Lazaro Cardenas, among others, are developing plans that will allow them to obtain a significant share of the excess capacity at the Ports of Los Angeles and Long Beach. Thus, the information presented here is consistent with the most recent, available data but recognizes that future port allocation of freight diversion is likely to change.