Development Plan
Supporting Technical Analysis

Table of Contents

2.1 Intelligent Transportation Systems (ITS) Information

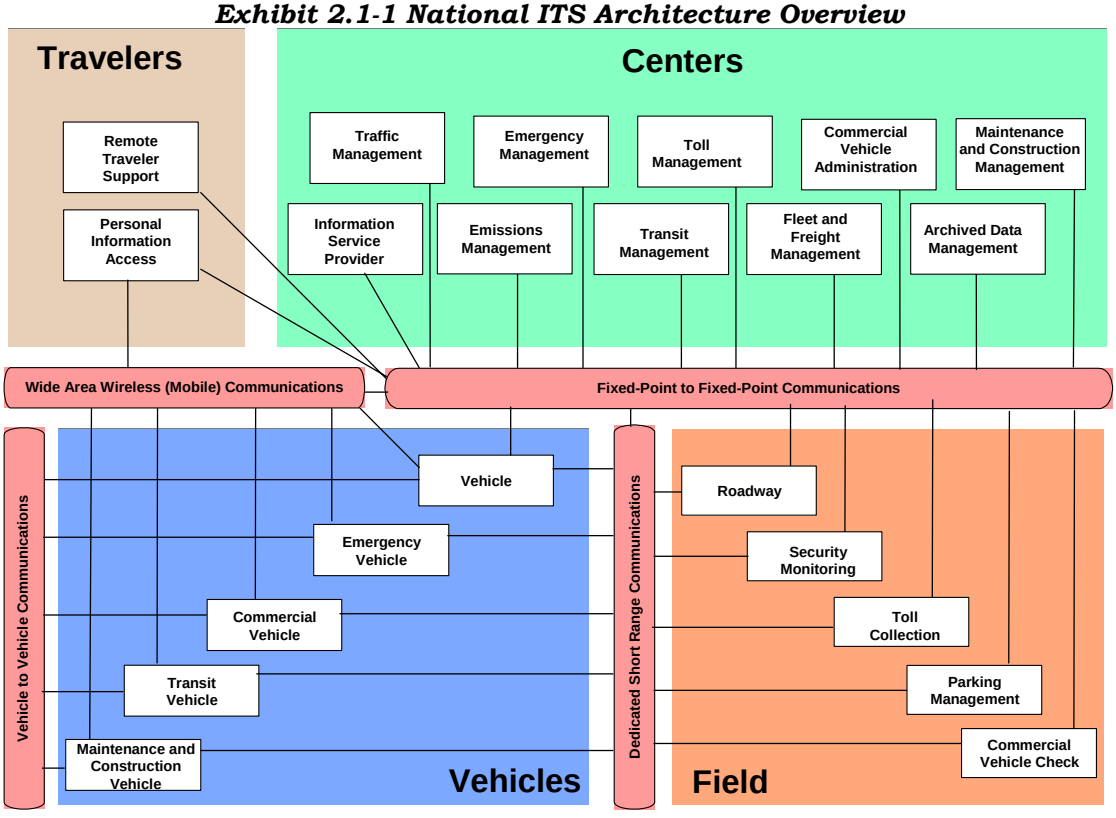
2.1.1 National ITS Architecture Overview

When the first Intelligent Transportation Systems (ITS) were developed, each one was custom designed for a particular application. Although these systems were significant achievements, the systems were incompatible because they did not adhere to a common framework. Examples of these early incompatibilities include electronic toll systems with toll tags that would only work on one particular bridge and electronic information systems that could not exchange data with one another. The Transportation Equity Act for the 21st Century began to remedy this incompatibility problem by requiring that ITS projects using federal funds conform to regional ITS architectures developed from the National ITS Architecture.

The National ITS Architecture is a tool to help identify and plan for system functionality, information sharing, and component interoperability. The architecture guides planners and engineers in the development of new ITS designs. It does this by providing a framework for the interaction of the ITS systems and subsystems. Small projects will use only a small part of this framework. Large projects will use many of its features. The key is that the adoption of this common framework for both small and large projects will simplify the addition of future functions, facilitate the sharing of information among systems, and enable the operation of devices on multiple systems.

Exhibit 2.1-1 presents the National ITS Architecture overview of all the possible interactions between ITS elements. As shown in this figure, the National ITS Architecture is divided into four groups of systems. These four groups are identified as travelers, centers, vehicles and field elements.

Exhibit 2.1-1 National ITS Architecture Overview



The **Travelers** group is composed of the systems directly serving travelers. These travelers may obtain information through a generalized source of data, such as an information kiosk (Remote Traveler Support system) or receive personalized information on their specific travel plans through a computer or Personal Data Access system (PDA).

The **Centers** group contains the management centers of the various agencies and organizations involved with transportation. These may be public agencies, like the traffic management center, or private sector organizations, such as the Information Service Provider.

The **Vehicles** group contains a generic vehicle and several other distinct types of vehicles. Each of these distinct types of vehicles is a system that is identified separately because each has a unique set of information needs.

The **Field** group is the final group. This group contains the systems that are installed along the transportation infrastructure. The roadway systems in this group include elements like Dynamic Message Signs (DMS) and Closed-Circuit Television (CCTV) Cameras. The toll collection system includes the tag-readers and violation enforcement cameras located at the toll plazas and other elements that are unique to toll facilities. The commercial-vehicle check system includes the weigh-in-motion detectors and other elements of these truck clearance systems.

The National ITS Architecture also shows several types of communications. These are the shaded rectangles with the round ends between the four groups of systems and the lines connecting them to the individual systems.

At the very high level represented by this overview diagram, the operation of a traffic signal control system can be envisioned as a Traffic Management System (in the "Centers" group) and a Roadway System (in the "Field" group), linked together through fixed-point to fixed-point communications.

2.1.2 ITS Market Packages

The National ITS Architecture overview diagram shows all of the possible interactions between ITS systems. However, because it is an overview that encompasses all interactions, it cannot identify the interactions associated with one particular function of the architecture. These individual functions are called Market Packages, and the diagrams that "zoom-in" to show the interactions associated with that function are called Market Package Diagrams.

The market packages provide a functional perspective that addresses real world transportation problems and needs. They identify the pieces of the architecture that are required to implement a particular transportation service or function.

Version 5.0 of the Architecture, 2004, (which is being used as the basis of this project) contains a total of 85 market packages. Version 5.0 and the prior versions are maintained by the USDOT. The easiest way to obtain information on the Architecture is from the web site that is dedicated to it, http://itsarch.iteris.com/itsarch/. One of the icons on the left side of the web page is identified as "market packages."

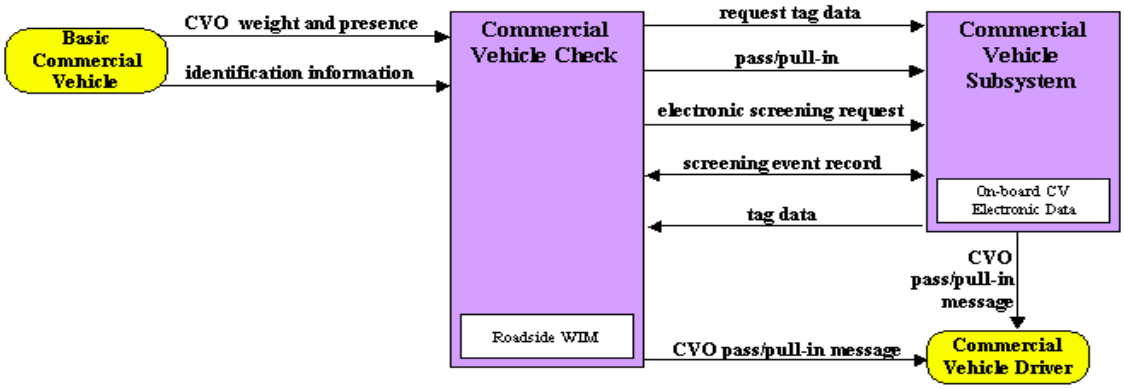
The information on the web site describes the market packages in several ways. One of the easiest ways to identify the systems and interactions associated with the market package is to look at the market package diagram. As a sample, the diagram for the Weigh-in-Motion market package is shown in Exhibit 2.1-2.

The two shaded rectangles in this figure are two of the systems in the National ITS Architecture Overview diagram. The "Commercial Vehicle Check" rectangle is in the "Field" group, and the "Commercial Vehicle" subsystem is in the "Vehicles group." The small ovals are referred to as "terminators." These terminators represent the people, systems, and general environment that interface to the Architecture. The annotated arrowheads identify the information that is sent between the systems, or between a system and a terminator.

The small rectangles within the Systems (Roadside WIM, and On-board CV Electronic data) are Equipment Packages. These equipment packages are the physical pieces of the Architecture that are installed to implement a market package. In this case the "roadside WIM" equipment package consists of the detectors, data processing equipment and other elements that weigh the vehicle and decide whether the weight and the credentials data are acceptable. The On-board CV Electronic Data equipment package is an electronic tag attached to the vehicle containing vehicle information.

The way that this market package implements the Weigh-in-Motion function is described in the following paragraphs which are summarized from the National ITS Architecture's description of the information transactions for this diagram.

Exhibit 2.1-2 Sample Market Package from the National ITS Architecture
Weigh In Motion



The **Basic Commercial Vehicle** passes over the electronic scale in the roadway and the weight information (CVO weight and presence) is sent to the Commercial Vehicle Check Subsystem. Either the Commercial Vehicle Check Subsystem identifies the Basic Commercial Vehicle using non-ITS equipment to visually determine the identity of the vehicle (USDOT number, license plate, etc), or the Commercial Vehicle Check Subsystem requests vehicle information from the Commercial Vehicle Subsystem (request tag data). The Commercial Vehicle Subsystem responds with the unique tag ID and related vehicle information (tag data).

The **Commercial Vehicle Check** Subsystem can request screening data from the Commercial Vehicle Subsystem (electronic screening request). In response, the Commercial Vehicle Subsystem will send the results of a prior screening activity (screening event record). The results of the current Commercial Vehicle Check Subsystem activity can be sent to the Commercial Vehicle Subsystem (screening event record) at the completion of the process.

After the data has been reviewed, a decision is made in the **Commercial Vehicle Subsystem** either to allow the vehicle to pass or require it to be stopped. Either the Commercial Vehicle Subsystem can send the message to the Commercial Vehicle Subsystem (pass/pull-in), which is seen or heard by the driver (CVO pass/pull-in message), or the Commercial Vehicle Subsystem can send the message directly to the commercial vehicle driver using a roadside sign (CVO pass/pull-in message).

It is important to note that this description of the information transactions contains several "Either…or…" and "…can…" statements. This is done to indicate that there are several alternate ways of implementing the functionality of this market package.

Version 5.0 of the National ITS Architecture, 2004, groups the market packages into eight major functional areas that are presented in the order listed below. A listing of the market packages within each functional area is shown in Exhibit 2.1-3. A general description of each functional area follows the exhibit. Descriptions of the individual market packages which include the narrative description, market package diagram, transaction diagram and description, and listings of equipment packages and subsystems are contained on the ITS Architecture website.

- Archived Data Management;
- Public Transportation;
- Traveler Information;
- Traffic Management;
- Vehicle Safety;
- Commercial Vehicle Operations;
- Emergency Management; and
- Maintenance and Construction Management

.Exhibit 2.1-3 National ITS Architecture Market Packages

Archived Data Management	
• ITS Data Mart	
• ITS Data Warehouse	• ITS Virtual Data Warehouse
Public Transportation	
• Transit Vehicle Tracking	• Transit Security
• Transit Fixed-Route Operations	• Transit Maintenance
• Demand Response Transit Operations	• Multi-modal Coordination
• Transit Passenger and Fare Management	• Transit Traveler Information
Traveler Information	
• Broadcast Traveler Information	• Integrated Transportation Management / Route Guidance
• Interactive Traveler Information	• Yellow Pages and Reservation
• Autonomous Route Guidance	• Dynamic Ridesharing
• Dynamic Route Guidance	• In Vehicle Signing
• Information Service Provider Based Route Guidance	
Traffic Management	
• Network Surveillance	• Virtual Traffic Management Center and Smart Probe Data
• Probe Surveillance	• Standard Railroad Grade Crossing
• Surface Street Control	• Advanced Railroad Grade Crossing
• Freeway Control	• Railroad Operations Coordination
• High Occupancy Vehicle Lane Management	• Parking Facility Management
• Traffic Information Dissemination	• Regional Parking Management
• Regional Traffic Control	• Reversible Lane Management
• Traffic Incident Management System	• Speed Monitoring
• Traffic Forecast and Demand Management	• Drawbridge Management
• Electronic Toll Collection	• Roadway Closure Management
• Emissions Monitoring and Management	
Vehicle Safety	
• Vehicle Safety Monitoring	• Driver Visibility Improvement
• Driver Safety Monitoring	• Advanced Vehicle Longitudinal Control
• Longitudinal Safety Warning	• Advanced Vehicle Lateral Control
• Lateral Safety Warning	• Intersection Collision Avoidance
• Intersection Safety Warning	• Automated Highway System
• Pre-Crash Restraint Deployment	
Commercial Vehicle Operations (CVO)	
• Fleet Administration	• On-board CVO Safety and Freight Safety & Security
• Freight Administration	• CVO Fleet Maintenance
• Electronic Clearance	• HAZMAT (Hazardous Material) Management
• CV Administrative Processes	• Roadside HAZMAT Security Detection and Mitigation
• International Border Electronic Clearance	• CV Driver Security Authentication
• Weigh-In-Motion	• Freight Assignment Tracking
• Roadside CVO Safety	
Emergency Management	
• Emergency Call-Taking and Dispatch	• Wide Area Alert
• Emergency Routing	• Early Warning System
• Mayday Support	• Disaster Response and Recovery
• Roadway Service Patrols	• Evacuation and Reentry Management
• Transportation Infrastructure Protection	• Disaster Traveler Information
Maintenance and Construction Management	
• Maintenance and Construction Vehicle and Equipment Tracking	• Winter Maintenance
	• Roadway Maintenance and Construction
• Maintenance and Construction Vehicle Maintenance	• Work Zone Management
• Road Weather Data Collection	• Work Zone Safety Monitoring
• Weather Information Processing and Distribution	• Maintenance and Construction Activity Coordination
• Roadway Automated Treatment	

Archived Data Management market packages provide the ability to share stored traffic, weather, and roadway operations data. The data could be shared electronically through a central clearinghouse or could be exchanged by direct request to a particular agency.

Public Transportation market packages principally address the need to provide improved information on bus location and arrival times, as well as greater efficiency in the management of transit systems.

Traveler Information allows motorists to receive more timely and accurate information. Traffic conditions that are monitored by local agencies can be shared with other organizations. This enables local radio stations to provide traffic reports and private sector traveler information providers to sell customized information on roads based on the travel patterns of their subscribers. Using these traveler information systems, the public can "dial-in" to request travel information on selected routes by using a variety of personal communications devices.

Traffic Management includes the basic systems that monitor and control traffic flow to ensure its safe and efficient operation. These include traffic flow detection systems, traffic signal systems, railroad crossing warning systems, incident management systems, freeway control systems, and parking management systems.

Vehicle Safety is concerned with functions that increase traveler safety. All of the market packages include equipment packages that are built into the vehicle by its manufacturer. Three of these market packages also include inputs from the roadway systems.

Commercial Vehicle Operations include market packages addressing the efficient operation of truck fleets, the administrative requirements of the agencies that tax and regulate trucking companies, inspections required by public agencies, and other trucking operations that result in delays to the shipment of goods.

Emergency/Incident Management market packages address the needs of law enforcement, fire departments, emergency medical services, hazardous material response personnel and related organizations for an efficient transportation infrastructure and accurate information about serious incidents that threaten life and property.

Maintenance and Construction Management market packages address several of the logistic, congestion, and safety problems that occur on roadways. These include helping the agencies keep track of their equipment, determining if there is (or will soon be) ice on the roadway during a winter storm, informing travelers of the delay, length and travel restrictions during maintenance and construction projects, and improving safety in the work zone for travelers and construction personnel.

2.1.3 Other Related ITS Activities in the Ports to Plains Region

Commercial Vehicle Information Systems and Networks - CVISN
CVISN supports Commercial Vehicle Operations (CVO) using a collection of information systems and communications networks owned and operated by governments, motor carriers, and other stakeholders. The CVISN program provides a framework that enables stakeholders engaged in CVO administrative, safety assurance, and regulatory activities to exchange information and conduct business transactions electronically. The CVISN architecture refines the market packages included in the CVO market package group.

CVISN information and technology provide enforcement staff with up-to-date safety and credentialing information from state or national motor carrier databases. One of the direct benefits of the program to commercial vehicle operators is that CVISN information and communication technologies permit roadside enforcement staff to direct a commercial vehicle driver to bypass weigh and inspection stations if the operator has a good record. This allows the enforcement staff to focus its efforts on the operators that are more likely to have problems.

An initial goal of the CVISN was to have every state reach a level of deployment, called Level 1. To accomplish Level 1 deployment, states must:

- Establish an organizational framework among state agencies and motor carriers for cooperative system development;

- Create a state CVISN System Design that conforms to the CVISN architecture and can evolve to include new technology and capabilities; and
- Implement specific capabilities in the areas of safety information exchange, electronic screening of vehicles, and electronic credentialing.

In December of 2001 the baseline CVISN Architecture was aligned with the National Intelligent Transportation Systems (ITS) and International Border Clearance (IBC) Architectures. This alignment enhanced the basic CVISN program to include electronic toll collection, international border crossing, additional safety functions, and Commercial Vehicle Operations (CVO) security.

As indicated in the preceeding paragraphs, the CVISN architecture will interface with and refine all of the market packages included in the Commercial Vehicle Operations market package group. This will enhance the safety, security, and efficiency of the commercial trucking activity in the Corridor.

PrePassTM
PrePassTM is an automatic vehicle identification (AVI) system that allows participating transponder-equipped commercial vehicles to bypass designated weigh stations, port-of-entry facilities, and agricultural interdiction facilities. Cleared vehicles may proceed at highway speed, eliminating the need to stop. It is, essentially, an implementation of the electronic clearance market package and the weigh-in-motion market package.

Participating vehicles are pre-certified based on the carrier's and driver's safety record and credentials, which are periodically verified with state and federal agencies. A weigh-in-motion (WIM) system electronically weighs the vehicles as they approach the PrePass weigh stations and the AVI system verifies their identity and compliance with state regulations. When this data processing has been completed, the AVI system communicates the bypass status to the driver. If weight and credentials are satisfactory, a green light and audible signal from the PrePass transponder advise the driver to bypass the weigh station. If not, a red light and audible signal advise the driver to pull into the weigh station.

There are currently six PrePass stations in the Ports to Plains Corridor. Colorado has northbound and southbound WIM stations near Lamar on US 287/US 50, eastbound and westbound WIM stations near Limon on I-70, and a northbound WIM Station on I-25 north of the New Mexico border. New Mexico has an operational PrePass site on I-25 south of the border with Colorado. Although Oklahoma has PrePass sites at several locations across the state, none of these locations is in the Ports to Plains Corridor. The state of Texas has no PrePass sites because of its more rigorous requirements for safety and credentials verification.

2.1.4 Recommended Ports to Plains Market Package Descriptions

The following paragraphs contain brief descriptions of the recommended Market Packages. These market packages represent the functions that are most important in the Corridor. It should be noted that the market packages encompass many capabilities, and the descriptions that follow focus on the aspects of the market packages that are most germane to the Ports to Plains Corridor.

ITS Data Mart (AD1) - This market package provides an opportunity for Corridor stakeholders to archive their data collected for future use and analysis.

Interactive Traveler Information (ATIS 1) - This market package provides tailored information in response to a traveler request through a 511 system or privately operated system. The traveler can obtain current information regarding traffic conditions, roadway maintenance and construction, etc.

Network Surveillance (ATMS 1) - This market package includes traffic detectors and other surveillance equipment, the supporting field equipment, and communications system transmitting the data back to the Traffic Management Subsystem. The data generated by this market package enables traffic managers to monitor traffic and road conditions, and collect data for long range planning.

Surface Street Control (ATMS 3) - This market package enhances the operation of traffic signals in the Corridor including operation of flashing warning lights at school zones.

Traffic Information Dissemination (ATMS 6) - This market package provides driver information at specific locations using equipment along the roadway such as dynamic message signs or highway

advisory radio. This package also covers the equipment and interfaces that provide traffic information from a traffic management center to the media and other private and public sector organizations.

Regional Traffic Control (ATMS 7) - This market package provides for the sharing of traffic information and control among traffic management centers to support a regional control strategy. The nature and extent of information and control sharing would be determined through working arrangements between the Ports to Plains jurisdictions.

Traffic Incident Management System (ATMS 8) - This market package manages both unexpected incidents and planned events to minimize the impact on the transportation network and traveler safety. The market package includes incident detection capabilities and supports regional planning and response by concerned stakeholders.

Standard Railroad Grade Crossing (ATMS 13) - This market package promotes safety at highway-rail intersections (HRIs) where rail operational speeds are less than 80 miles per hour.

Roadway Closure Management (ATMS 21) - This market package closes roadways to vehicular traffic when driving conditions are unsafe, maintenance must be performed, and other scenarios where access to the roadway must be prohibited.

Fleet Administration (CVO 1) - This market package provides the capabilities to manage a fleet of commercial vehicles by providing congestion and incident information within the Corridor to drivers.

Electronic Clearance (CVO 3) - This market package provides for automated clearance at roadside check facilities by retrieving critical carrier, vehicle, and driver data of passing vehicles.

CV Administrative Processes (CVO 4) - This market package provides for electronic application, processing, fee collection, issuance, and distribution of CVO credential and tax filing. Through this process, carriers, drivers, and vehicles may be enrolled in the electronic clearance program provided by a separate market package which allows commercial vehicles to be screened at mainline speeds at roadside check facilities. Through this enrollment process, current profile databases are maintained in the Commercial Vehicle Administration subsystem and snapshots of this database are made available to the roadside check facilities to support the electronic clearance process.

International Border Electronic Clearance (CVO 5) - This market package provides for automated clearance at international border crossings. This package augments the electronic clearance package by allowing interface with customs related functions.

Weigh-In-Motion (CVO 6) - This market package provides for high speed weigh-in-motion with or without Automated Vehicle Identification (AVI) capabilities. This market package provides the roadside equipment that could be used as a stand-alone system or to augment the Electronic Clearance (CVO03 – Tier II) market package.

HAZMAT Management (CVO 10) - This market package integrates incident management capabilities with commercial vehicle tracking to assure effective treatment of HAZMAT material and incidents. The response is tailored based on information that is provided as part of the original incident notification or derived from supplemental information provided by the Ports to Plains stakeholder agencies.

Roadside HAZMAT Security Detection and Mitigation (CVO 11) - This market package provides the capability to detect and classify security sensitive HAZMAT on commercial vehicles using roadside sensing and imaging technology. Credentials information can be accessed to verify if the commercial driver, vehicle and carrier are permitted to transport the identified HAZMAT. If the credentials analysis and sensed HAZMAT information do not agree, the vehicle can be signaled to pull in, and if required, an alarm can be sent to appropriate emergency management agencies to request they monitor traffic stop or disable the vehicle.

CV Driver Security Authentication (CVO 12) - This market package provides the ability for stakeholder agencies to detect when an unauthorized commercial vehicle driver attempts to drive their vehicle based on stored driver identity information. If an unauthorized driver has been detected, an alarm could be activated that commands to safely disable the commercial vehicle. Alarms can also be sent to emergency management to inform them of a potential commercial vehicle hijacking or theft and potential hazardous situation.

Emergency Call Taking and Dispatch (EM 1) - This market package provides basic public safety call-taking and dispatch services. It includes emergency vehicle equipment, equipment used to receive and route emergency calls, and wireless communications that enable safe and rapid deployment of appropriate resources to an emergency.

Emergency Routing (EM 2) - This market package supports automated vehicle location and dynamic routing of emergency vehicles. The market package provides recommended routes for emergency vehicles based on traffic conditions and could also provide emergency vehicles with a green light at traffic signals.

Mayday Support (EM 3) - This market package allows for systems to be established in the Ports to Plains Corridor to support Enhanced 911 systems that can identify the location of calls from cell phones.

Road Weather Data Collection (MC 3) - This market package collects current road and weather conditions using data collected from environmental sensors deployed on and about the roadway or maintenance vehicles to detect icy or flooding conditions.

Weather Information Processing and Distribution (MC 4) - This market package processes and distributes the environmental information collected from the roadway sensors to the media and traffic management agencies.

Winter Maintenance (MC 6) - This market package monitors environmental conditions and weather forecasts and uses the information to schedule winter maintenance activities, determine the appropriate snow and ice control response, and track and manage response operations.

Work Zone Management (MC 8) - This market package directs activity in work zones, controlling traffic through portable dynamic message signs (DMS) and informing other groups of work zone activity. Work zone speeds and delays are provided to the motorist prior to the work zones.

Work Zone Safety Monitoring (MC 9) – The systems in this market package improve work crew safety and reduce collisions between private vehicles and maintenance and construction vehicles. This market package detects vehicle intrusions in work zones and warns crew workers and drivers of imminent encroachment or other potential safety hazards. Crew movements are also monitored to warn them of movements outside the designated safe zone.

Maintenance and Construction Activity Coordination (MC 10) - This market package supports the dissemination of maintenance and construction activity to transportation management centers that can utilize it as part of their operations, or to provide the information to travelers.

ITS Questionnaire

The following Exhibit 2.1-4 is the questionnaire that was distributed to help determine market packages for the Corridor.

2.2 Cost, Prioritization, Implementation Schedule

Exhibits 2.2-1 to 2.2-4 provide information that was used in developing the cost estimates for expansion sections and relief routes, the criteria that were used in prioritization, and the resulting schedule of improvements.

Exhibit 2.1-4 ITS Questionnaire
PORTS TO PLAINS CORRIDOR
DEVELOPMENT OF AN INTELLIGENT TRANSPORTATION SYSTEM PLAN

Introduction

ITS is a means of improving transportation through the use of advanced technology and information systems that maximize the safety and efficiency of the transportation infrastructure. These systems can be integrated into the transportation infrastructure and vehicles to improve traffic flow, reduce congestion and delays, and improve safety and air quality.

The following questionnaire will help determine the ITS features that are most appropriate for the Ports to Plains Corridor. This questionnaire is divided into two parts. Part 1 is a one-page traveler survey with basic questions about the type of organization you work for, the way it uses information about travel conditions on major roads, and the way it exchanges information with other organizations.

Part 2 of the questionnaire is a two page table with a series of statements about different functions that could be included in the Corridor's ITS Plan. For example, the first statement reads "The system should collect traffic volume data for monitoring traffic flow in selected areas of the Corridor." Collecting traffic flow data is a basic function of a good traffic control system, however it is also possible to operate a very simple traffic control system without collecting data. These statements of functionality have been adapted from the National ITS Architecture.

Importance Ratings
It is essential that the ITS Plan be customized to serve the needs of the project stakeholders. The ITS Plan for the Ports to Plains Corridor will be customized by identifying the functions that should be performed by the System(s) that will implement this plan.

We would like you to participate in the development of the ITS Plan by reviewing each function and indicating how important you feel the function is. The functions that the stakeholders feel are most important will be incorporated into the ITS Plan.

The column on the right side of the table has been provided so that you can enter a number between zero and four to indicate how important you feel each function is. A four should be entered if you feel that function is very important, and a zero should be entered if you don't think the function is important. In a narrative sense:
Four indicates the system must have the functionality
Three indicates that the system should have the functionality
Two indicates that the system may have the functionality
One indicates that the system may or may not need the functionality
Zero indicates that the system doesn't need the functionality

The importance rating can also be thought of in monetary terms. If you assign a four to a particular function it means you believe that the Corridor should "buy" that functionality. If you assign a zero to a particular function it means that you don't think the Corridor should buy that particular function. In this interpretation the numbers between zero and four indicate your level of interest in buying that function.

This will take about 15 minutes, and we sincerely appreciate your willingness to invest the time required to provide these ratings.

Responses and Questions
Please return the completed pages to the Ports to Plain representative or Fax the completed pages to TCB 361-485-2421 Or DMJM+HARRIS at 303-376-2999
(This page does not have to be returned.)

If you have any questions any part of the ITS Plan all Steve Shapiro at 703-204-6352, or e-mail him at steven.shapiro@dmjmharris.com.

Thank you for your interest and participation on the project.

Exhibit 2.1-4 ITS Questionnaire, (continued)
PORTS TO PLAINS CORRIDOR
DEVELOPMENT OF AN INTELLIGENT TRANSPORTATION SYSTEM PLAN
Part 2 - System Functions

Reference (ITS Market Package)	Statement of Functionality	Importance 0 to 4 (0 = not important) (4 = very important)
	Group 1 - Advanced Traffic Management System Functions	
ATMS1a	The system should collect traffic data for monitoring traffic flow in selected areas of the Corridor	
ATMS1b	The system should provide video images of locations with frequent accidents and other key locations	
ATMS2	The system should collect traffic data for monitoring traffic flow in the entire Corridor	
ATMS3a	The system should enhance the operation of traffic signals in the Corridor	
ATMS3b	The system should support the operation of flashing warning lights at school speed zone signs	
ATMS4	The system should support ramp metering at highway on-ramps	
ATMS6a	The system should provide information to drivers using Highway Advisory Radio	
ATMS6b	The system should provide information to drivers using Dynamic Message Signs	
ATMS7	The system should exchange data with the CDOT, TxDOT, ODOT, NMHTD and local traffic agencies	
ATMS8	The system should improve coordination among agencies that respond to accidents	
ATMS9	The system should help predict future traffic volumes	
ATMS10	The system should support the electronic collection of tolls	
ATMS12	The system should gather data on state roads that do not have signals	
ATMS13	The system should monitor the operation of railroad grade crossings	
ATMS14	The system should monitor the operation of high speed (>80 mph) railroad grade crossings	
ATMS15	The system should coordinate grade crossing operation with the railroad	
ATMS19	The system should automatically ticket vehicles that drive at excessive speeds	
ATMS21	The system should support the closure of road segments because of weather and other emergencies	
	Group 2 – Commercial Vehicle Operations Functions	
CVO01	The system should alert commercial drivers of congestion and incidents along the Corridor	
CVO02	The system should support the tracking of cargo between origins and destinations	

Exhibit 2.1-4 ITS Questionnaire, (continued)

The following functions support the operation of the Commercial Vehicle Inspection and Enforcement Unit operated by any CVO licensing or regulating authorities in the Corridor.		
CVO03	The system should support automated clearance of commercial vehicles at roadside check facilities	
CVO04	The system should support the electronic processing of CVO permits and credentials	
CVO05	The system should support automated cargo clearance at US/Mexico border crossings	
CVO06	The system should support high speed weigh-in-motion	
CVO07	The system should provide data and support roadside safety checks of commercial trucks	
CVO10	The system should support the response to incidents involving Hazardous Materials (HAZMAT)	
CVO11	The system should support the detection of sensitive HAZMAT cargo	
CVO12	The system should support the identification of unauthorized drivers	
Group 3 - Emergency Management System Functions		
EM1a	The system should support the computer aided dispatch of emergency vehicles	
EM1b	The system should provide snapshots of accidents to dispatchers and emergency vehicles	
EM2a	The system should recommend routes for emergency vehicles based on traffic conditions	
EM2b	The system should provide emergency vehicles with a green light at traffic signals	
EM3	The system should support the E911 system to identify the location of calls from cell phones	
EM4	The system should provide roadway service patrols to expedite the identification & clearance of incidents	
Group 4 – Advanced (Real-time) Traffic Information Systems		
ATIS1	The system should provide traffic information to travelers through the radio or other broadcast services	
ATIS2	The system should provide customized traffic data to travelers in response to specific requests	
ATIS4	The system should provide traffic data for in-vehicle route guidance systems	
ATIS5	The system should provide traffic data and video images to private sector firms	
Group 5 – Maintenance and Construction Management		
MCO03a	The system should monitor roads to determine if they may become icy	
MCO03b	The system should monitor roads to determine if they are flooded	
MCO04	The system should provide weather information to the media and traffic management agencies	
MCO10	The system should improve coordination among agencies dealing w/ maintenance and construction management activities	
Group 6 – Archive Data		
AD1	The system should save Corridor traffic data for future analysis	
AD3	The system should facilitate the exchange of archived data among agencies	

This page was intentionally left blank.

Exhibit 2.2-1 Cost Estimates

Description	Roadway	From	To	Length (Miles)	ROW Required (Acres)	ROW Price ($/Acre)	ROW Cost ($Millions)	Utility Price ($/Acre)	Utility Cost ($Millions)	Total ROW+Utility Cost ($Millions)	Construction Cost ($Millions)	Planning (1.5%) (see note 3) ($Millions)	Design (12%) ($Millions)	Construction Management (15%) ($Millions)	Administrative (2%) ($Millions)	Total Cost ($Millions)
Build 4 lane median separated in asphalt	Carrizo Springs Relief Route	South of Asherton	North of Carrizo Springs	8.6	254	1500	0.4	5000	1.3	1.7	17.0	0.3	2.0	2.6	0.3	23.8
Build 4 lane median separated in asphalt	Eagle Pass Relief Route	Eagle Pass International Bridge	US 277 East of Eagle Pass	9.3	275	1500	0.4	5000	1.4	1.8	31.0	0.0	3.7	4.7	0.6	41.8
Build 4 lane median separated in asphalt	Eagle Pass Relief Route	US 277 East of Eagle Pass	US 277 North of Eagle Pass	8.4	248	1500	0.4	5000	1.2	1.6	46.0	0.0	5.5	6.9	0.9	61.0
Build 4 lane median separated in asphalt	Del Rio Relief Route	US 277 East of Del Rio	US 277 North of Del Rio	12	355	2000	0.7	5000	1.8	2.5	62.0	1.0	7.4	9.3	1.2	83.5
Build 4 lane median separated in asphalt	Sonora Relief Route	US 277 South of Sonora	US 277 North of Sonora	4.8	142	See note 1				1	20.0	0.3	2.4	3.0	0.4	27.1
Build 4 lane median separated in asphalt	San Angelo Relief Route	US 277 South of San Angelo	US 87 North of San Angelo	21.3	630	See note 1				6.0	90.0	1.4	10.8	13.5	1.8	123.5
Build 4 lane median separated in asphalt	Big Spring Relief Route	US 87 South of Big Spring	US 87 North of Big Spring	13	384	See note 1				3	63.0	0.9	7.6	9.5	1.3	85.2
Build 4 lane median separated in asphalt	Lamesa Relief Route	US 87 South of Lamesa	US 87 North of Lamesa	5.8	172	See note 1				2.0	40.0	1.0	4.8	6.0	0.8	54.6
Build 4 lane median separated in asphalt	Dumas Relief Route	US 287 South of Dumas	US 287 North of Dumas	5	148	7500	1.1	5000	0.7	1.8	13.0	0.2	1.6	2.0	0.3	18.8
Build 4 lane median separated in asphalt	Stratford Tx Relief Route	US 287 South of Stratford	US 287 North of Stratford	5.2	154	5000	0.8	5000	0.8	1.5	11.0	0.2	1.3	1.7	0.2	15.9
Build 4 lane median separated in asphalt	Boise City Relief Route	US 287 South of Boise City	US 287 North of Boise City	3.5	104	3500	0.4	5000	0.5	0.9	7.0	0.1	0.8	1.1	0.1	10.0
Build 4 lane median separated in concrete	Lamar Relief Route	US 287 South of Lamar	US 50 North of Lamar	9	266	5000	1.3	5000	See Note 2							95.0
Build 4 lane median separated in asphalt	Dalhart Relief Route	US 87 South of Dalhart	US 87 North of Dalhart	6.6	195	7500	1.5	5000	1.0	2.4	13.0	0.2	1.6	2.0	0.3	19.4
Build 4 lane median separated in asphalt	Midland Relief Route	I 20 West of Midland	Texas 349 North of Midland	6.6	195	See note 4	3.0	5000	1.0	4.0	86.0	1.1	10.3	12.9	1.7	116.0
Build 4 lane median separated in asphalt	Clayton Relief Route	US 87 South of Clayton	US 64 North of Clayton	3.8	69	800	0.1	5000	0.3	0.4	14.8	0.2	1.8	2.2	0.3	19.6

1) Total cost for ROW and Utilities provided by DOT.
2) Total cost for project including all associated costs provided by DOT.
3) Del Rio, Eagle Pass, Lamesa, and Midland adjusted to reflect planning work already completed.
4) ROW cost provided by DOT.

Exhibit 2.2-1 Cost Estimates (continued)

Colorado and Oklahoma Expansion Sections

Description	Roadway	From	To	Length (Miles)	With Existing Section Asphalt (Miles)	Constr. Cost per Mile ($Millions)	Constr. Cost (4 Lanes) ($Millions)	With Existing Section Concrete (Miles)	Constr. Cost per Mile ($Millions)	Constr. Cost (2 Lanes) ($Millions)	ROW required (Acres)	ROW unit price ($/acre)	ROW cost ($Millions)	Utilities Price ($/acre)	Utilities cost ($Millions)	Total ROW+Utility Cost ($Millions)	Total Constr. Cost ($Millions)	Planning (1.5%) ($Millions)	Design (8%) ($Millions)	Construction Management (11%) ($Millions)	Administrative (2%) ($Millions)	Total Cost ($Millions)
Build 2 new lanes in Asphalt	US 287	Ok/Tx Border	Boise City Relief Route	21	21	2.5	52.5	0	1.25	0.0	331	2000	0.7	5000	1.65	2.32	54.8	0.8	4.4	6.0	1.1	67.2
Build 2 new lanes in Asphalt	US 287	Boise City Relief Route	Ok/Co Border	19	19	2.5	47.5	0	1.25	0.0	299	See Note 3	1.6	See Note 4	1.38	2.93	50.4	0.8	4.0	5.5	1.0	61.8
Build 2 new lanes in Concrete	US 287	Ok/Co Border	Springfield	32	5	2.5	12.5	27	1.25	33.8	504	2000	1.0	5000	2.52	3.53	49.8	0.7	4.0	5.5	1.0	61.0
Build 2 new lanes in Concrete	US 287	Springfield	Baca/Prowers County Line	18	6	2.5	15.0	12	1.25	15.0	284	2000	0.6	5000	1.42	1.99	32.0	0.5	2.6	3.5	0.6	39.2
Build 2 new lanes in Concrete	US 287	Baca/Prowers County Line	Lamar Relief Route	28	17	2.5	42.5	11	1.25	13.8	441	2000	0.9	5000	2.21	3.09	59.3	0.9	4.7	6.5	1.2	72.7
Build 2 new lanes in Concrete	US 287	Lamar Relief Route	Prowers/Kiowa County Line	16	6	2.5	15.0	10	1.25	12.5	252	2000	0.5	5000	1.26	1.76	29.3	0.4	2.3	3.2	0.6	35.8
Build 2 new lanes in Concrete	US 287	Prowers/Kiowa County Line	Eads	19	0	2.5	0.0	19	1.25	23.8	299	2000	0.6	5000	1.50	2.10	25.8	0.4	2.1	2.8	0.5	31.7
Build 2 new lanes in Concrete	US 287	Eads	Kiowa/Cheyenne County Line	10	0	2.5	0.0	10	1.25	12.5	158	2000	0.3	5000	0.79	1.10	13.6	0.2	1.1	1.5	0.3	16.7
Build 2 new lanes in Concrete	US 287	Kiowa/Cheyenne County Line	Kit Carson	12	0	2.5	0.0	12	1.25	15.0	189	2000	0.4	5000	0.95	1.32	16.3	0.2	1.3	1.8	0.3	20.0
Build 2 new lanes in Concrete	US 40	Kit Carson	Wild Horse	13	13	2.5	32.5	0	1.25	0.0	205	2000	0.4	5000	1.02	1.43	33.9	0.5	2.7	3.7	0.7	41.6
Build 2 new lanes in Concrete	US 40	Wild Horse	Cheyenne/Lincoln County Line	10	0	2.5	0.0	10	1.25	12.5	158	2000	0.3	5000	0.79	1.10	13.6	0.2	1.1	1.5	0.3	16.7
Build 2 new lanes in Concrete	US 40	Cheyenne/Lincoln County Line	Hugo	23	23	2.5	57.5	0	1.25	0.0	362	2000	0.7	5000	1.81	2.54	60.0	0.9	4.8	6.6	1.2	73.5
Build 2 new lanes in Concrete	US 40	Hugo	Limon	16	0	2.5	0.0	16	1.25	20.0	252	2000	0.5	5000	1.26	1.76	21.8	0.3	1.7	2.4	0.4	26.7

1) $1.25 million per mile for construction from 2-lane concrete to 4-lane concrete estimated based upon similar projects completed or planned in the area.
2) $2.5 million per mile for reconstruction of 2-lane asphalt to concrete and adding an additional 2-lanes in concrete estimated based upon doubling the reconstruction cost, realizing trade-offs in roadway width and necessary grading.
3) ROW cost in Oklahoma north of Boise City includes 12.75 miles already programmed by ODOT at a cost of $1.35M plus an additional 6.25 miles at the rate of $2000/acre
4) Utility cost in Oklahoma north of Boise City includes 6.3 miles already programmed by ODOT at a cost of $382,445 plus an additional 12.7 miles at the rate of $5000/acre

General Notes: Each section was defined as either existing 2-lane asphalt, or existing 2-lane concrete "super-2", or a combination thereof. The cost per mile differs between these two categories of projects in that existing concrete sections are assumed to be already constructed to adequate width and other design characteristics, whereas existing asphalt sections are assumed to be reconstructed. Included in the per mile costs are improvements to drainage, intersection tie-ins, and re-striping or widening projects in towns without relief routes. Additional ROW estimates are based upon an existing ROW width of 100', an existing roadway width of 40' centered in the existing ROW, a newly constructed roadway width of 38', a median of 68', and distance from pavement edge to ROW line of 50'. Utility costs are applied on a per acre basis to the additional ROW acres estimated.

New Mexico Expansion Sections

Description	Roadway	From	To	Length (Miles)	Constr. Cost (1)(2) ($Millions)	Constr. Cost per Mile ($Millions)	All Planning, Engineering, and Contingencies (3)(4) ($Millions)	Total Cost ($Millions)
Build 2 new lanes in Asphalt	US 64	Clayton	Capulin	52	65.2	1.3	11.3	76.5
Build 2 new lanes in Asphalt	US 64	Capulin	Union/Colfax County Line	1	1.3	1.3	0.2	1.5
Build 2 new lanes in Asphalt	US 64	Union/Colfax County Line	Raton/I-25	26	39.1	1.5	7.3	46.4

1) Based on $99,087,150 estimate for construction cost as calculated in the US 64-87 Environmental Assessment, May 2004.
2) Re-construction of Raton/I-25 interchange construction cost of $6,480,000 included in 26 mile section near Raton.
3) Based on $17,106,340 estimate for these costs as calculated in the US 64-87 Environmental Assessment, May 2004.
4) Re-construction of Raton/I-25 interchange design cost of $1,687,002 included in 26 mile section near Raton.

Exhibit 2.2-1 Cost Estimates (continued)

Texas Expansion Sections

Description	Roadway	From	To	Length (Miles)	Length Flat Terrain (Miles)	Constr. Cost per Mile ($Millions)	Constr. Cost (Flat) ($Millions)	Length Aggr. Terrain (Miles)	Constr. Cost per Mile ($Millions)	Constr. Cost (Aggr.) ($Millions)	ROW required (Acres)	ROW unit price ($/acre)	ROW cost ($Millions)	Utilities Price ($/acre)	Utilities cost ($Millions)	ROW + Utility Cost ($Millions)	Constr. Cost ($Millions)	Planning (1.5%) ($Millions)	Design (8%) ($Millions)	Construction Management (11%) ($Millions)	Administrative (2%) ($Millions)	Total Cost ($Millions)
Build 2 new lanes in Asphalt	US 83	I 35	Webb/Dimmit County Line	34	34	1.5	51.0	0	2.7	0.0	494.5	800	0.4	5000	2.5	2.9	53.9	0.8	4.3	5.9	1.1	66.0
Build 2 new lanes in Asphalt	US 83	Webb/Dimmit County Line	FM 133, Catarina	9	9	1.5	13.5	0	2.7	0.0	130.9	800	0.1	5000	0.7	0.8	14.3	0.2	1.1	1.6	0.3	17.5
Build 2 new lanes in Asphalt	US 83	FM 133, Catarina	Carrizo Springs Relief Route	9	9	1.5	13.5	0	2.7	0.0	130.9	800	0.1	5000	0.7	0.8	14.3	0.2	1.1	1.6	0.3	17.5
Build 2 new lanes in Asphalt	US 277	Carrizo Springs Relief Route	Dimmit/Maverick County Line	17	17	1.5	25.5	0	2.7	0.0	247.3	800	0.2	5000	1.2	1.4	26.9	0.4	2.2	3.0	0.5	33.0
Build 2 new lanes in Asphalt	US 277	Dimmit/Maverick County Line	Eagle Pass Relief Route	19	19	1.5	28.5	0	2.7	0.0	276.4	800	0.2	5000	1.4	1.6	30.1	0.5	2.4	3.3	0.6	36.9
Build 2 new lanes in Asphalt	US 277	Eagle Pass Relief Route	Maverick/Kinney County line	23	23	See Note 7	32.6	0	2.7	0.0	334.5	1500	0.5	5000	1.7	2.2	34.8	0.5	2.8	3.8	0.7	42.6
Build 2 new lanes in Asphalt	US 277	Maverick/Kinney County line	Kinney/Val Verde County Line	14	14	1.5	21.0	0	2.7	0.0	203.6	1500	0.3	5000	1.0	1.3	22.3	0.3	1.8	2.5	0.4	27.3
Build 2 new lanes in Asphalt	US 277	Kinney/Val Verde County Line	Del Rio Relief Route	8	8	1.5	12.0	0	2.7	0.0	116.4	1500	0.2	5000	0.6	0.8	12.8	0.2	1.0	1.4	0.3	15.6
Build 2 new lanes in Asphalt	US 277	Del Rio Relief Route	Val Verde/Edwards County Line	55	18	1.5	27.0	37	2.7	99.1	800.0	1000	0.8	5000	4.0	4.8	130.9	2.0	10.5	14.4	2.6	160.3
Build 2 new lanes in Asphalt	US 277	Val Verde/Edwards County Line	Edwards/Sutton County Line	10	0	1.5	0.0	10	2.7	26.8	145.5	See note 10				0.7	27.4	0.4	2.2	3.0	0.5	33.6
Build 2 new lanes in Asphalt	US 277	Edwards/Sutton County Line	Sonora Relief Route	20	2	1.5	3.0	18	2.7	48.2	290.9	See note 10				1.3	52.5	0.8	4.2	5.8	1.1	64.3
Build 2 new lanes in Asphalt	US 277	Sonora Relief Route	Sutton/Schleicher County Line	8	4	1.5	6.0	4	2.7	10.7	116.4	See note 10				1.2	17.9	0.3	1.4	2.0	0.4	21.9
Build 2 new lanes in Asphalt	US 277	Sutton/Schleicher County Line	Schleicher/Tom Green County Line	30	15	1.5	22.5	15	2.7	40.2	436.4	See note 10				4.5	67.2	1.0	5.4	7.4	1.3	82.3
Build 2 new lanes in Asphalt	US 277	Schleicher/Tom Green County Line	San Angelo Relief Route	22	7	1.5	10.5	15	2.7	40.2	320.0	See note 10				3.3	54.0	0.8	4.3	5.9	1.1	66.1
Build 2 new lanes in Asphalt	SH 158	Sterling City	Sterling/Glasscock County Line	14.6	14.6	See Note 8	23.4	0	2.7	0.0	212.4	2000	0.4	5000	1.1	1.5	24.9	0.4	2.0	2.7	0.5	30.5
Build 2 new lanes in Asphalt	SH 158	Sterling/Glasscock County Line	Glasscock/Midland County Line	30	30	See Note 9	59.5	0	2.7	0.0	436.4	2000	0.9	5000	2.2	3.1	62.6	0.9	5.0	6.9	1.3	76.6
Build 2 new lanes in Asphalt	SH 158	Midland	Midland/Martin County Line	7	7	1.5	10.5	0	2.7	0.0	101.8	2000	0.2	5000	0.5	0.7	11.2	0.2	0.9	1.2	0.2	13.7
Build 2 new lanes in Asphalt	SH 158	Midland/Martin County Line	Martin/Dawson County Line	34	34	1.5	51.0	0	2.7	0.0	494.5	2000	1.0	5000	2.5	3.5	54.5	0.8	4.4	6.0	1.1	66.7
Build 2 new lanes in Asphalt	SH 158	Martin/Dawson County Line	FM 2052	13	13	1.5	19.5	0	2.7	0.0	189.1	500	0.1	5000	0.9	1.0	20.5	0.3	1.6	2.3	0.4	25.2
Build 2 new lanes in Asphalt	FM 2052	SH 349	US 87	2	2	1.5	3.0	0	2.7	0.0	29.1	500	0.0	5000	0.1	0.2	3.2	0.0	0.3	0.3	0.1	3.9
Build 2 new lanes in Asphalt	US 287	Stratford	Sherman/Dallam County Line	9	9	1.5	13.5	0	2.7	0.0	130.9	850	0.1	5000	0.7	0.8	14.3	0.2	1.1	1.6	0.3	17.5
Build 2 new lanes in Asphalt	US 287	Sherman/Dallam County Line	Ok/Tx Border	7	7	1.5	10.5	0	2.7	0.0	101.8	850	0.1	5000	0.5	0.6	11.1	0.2	0.9	1.2	0.2	13.6
Build 2 new lanes in Asphalt	US 87	Dumas	Moore/Hartley County Line	9	9	See Note 5	15.4	0	2.7	0.0		See Note 5	1.3	5000	0.0	1.3	16.7	0.2	1.3	1.8	0.3	20.4
Build 2 new lanes in Asphalt	US 87	Moore/Hartley County Line	Hartley/Interchange with US 385	12	12	See Note 5	21.6	0	2.7	0.0		See Note 5	0.7	5000	0.0	0.7	22.3	0.3	1.8	2.5	0.4	27.3
Build 2 new lanes in Asphalt	US 87	Dalhart Relief Route	4-Lane Project	24	24	See Note 6	41.7	0	2.7	0.0	349.1	See Note 6	2.5	5000	1.7	4.2	45.9	0.7	3.7	5.1	0.9	56.3

NOTES:
1) $1.5 million per mile construction cost for "flat" terrain based on average of already estimated similar projects in close proximity to the corridor.
2) $2.7 million per mile construction cost for "aggressive" terrain based on already estimated similar projects on US 83 between the towns of Junction and Eden, with average per mile cost increased by 10%.
3) "Aggressive" terrain implies rolling hills with cuts through rock.
4) "Flat" terrain includes low, rolling hills with no cuts.
5) Construction cost and ROW cost based upon estimates from already programmed project by DOT.
6) Construction and ROW cost includes 23.7 miles of DOT programmed project totalling $41.7M for Construction and $2.5M for ROW, plus 11.3 miles at $1.5M per mile and $2000 per acre.
7) Construction cost includes 15.5 miles of DOT programmed project totalling $21.3M, plus 7.5 miles at $1.5M per mile.
8) Construction cost based upon estimates from already programmed project by DOT.
9) Construction cost based upon estimates from already programmed project by DOT.
10) ROW and Utility total cost based upon estimates provided by DOT, pro-rated based on project length.

General Notes: Each section was defined as either existing 2-lane asphalt, or existing 2-lane concrete "super-2", or a combination thereof. The cost per mile differs between these two categories of projects in that existing concrete sections are assumed to be already constructed to adequate width and other design characteristics, whereas existing asphalt sections are assumed to be reconstructed. Included in the per mile costs are improvements to drainage, intersection tie-ins, and re-striping or widening projects in towns without relief routes. Additional ROW estimates are based upon an existing ROW width of 110', an existing roadway width of 40' centered in the existing ROW, a newly constructed roadway width of 38', a median of 68', and distance from pavement edge to ROW line of 50'. Utility costs are applied on a per acre basis to the additional ROW acres estimated. Percentage increases for Planning, Design, Construction Management, and Administrative costs are then added to the raw construction costs.

Exhibit 2.2-2 Prioritization Criteria

Description	Roadway	State	From	To	Length (Miles)	Base Cost ($Millions)	Additional Environmental Cost ($Millions)	Total Cost ($Millions)	Total Cost/Mile ($Millions)	Total Cost/VehMile	2030 Forecast AADT with Improvements	2030 Forecast AADT Trucks with Improvements	Multi-Modal Connectivity	System Connectivity	Travel Time Savings Rate	Existing Accident Rate (acc/100MVM)
Build 4 lane median separated in asphalt	Carrizo Springs Relief Route	Texas	South of Asherton	North of Carrizo Springs	8.6	23.8	0.3	24.1	2.77	807	3480	720	6.2	1722	9	46
Build 4 lane median separated in asphalt	Eagle Pass Relief Route	Texas	Eagle Pass International Bridge	US 277 East of Eagle Pass	9.3	41.8	0.0	41.8	4.49	1075	4180	948	4.6	1592	20	47
Build 4 lane median separated in asphalt	Eagle Pass Relief Route	Texas	US 277 East of Eagle Pass	US 277 North of Eagle Pass	8.4	61.0	0.0	61.0	7.26	1736	4180	948	4.6	1763	20	47
Build 4 lane median separated in asphalt	Del Rio Relief Route	Texas	US 277 East of Del Rio	US 277 North of Del Rio	12	83.5	0.2	83.7	6.96	1139	6120	1360	3.0	1234	15	184
Build 4 lane median separated in asphalt	Sonora Relief Route	Texas	US 277 South of Sonora	US 277 North of Sonora	4.8	27.1	0.1	27.2	5.65	1693	3340	540	3.0	3336	3	40
Build 4 lane median separated in asphalt	San Angelo Relief Route	Texas	US 277 South of San Angelo	US 87 North of San Angelo	21.3	123.5	0.1	123.6	5.80	338	17172	2400	3.0	808	5	172
Build 4 lane median separated in asphalt	Big Spring Relief Route	Texas	US 87 South of Big Spring	US 87 North of Big Spring	13	85.2	0.3	85.5	6.56	909	7240	760	4.0	1325	0	157
Build 4 lane median separated in asphalt	Lamesa Relief Route	Texas	US 87 South of Lamesa	US 87 North of Lamesa	5.8	54.6	0.9	55.5	9.41	2345	4080	540	4.2	2640	3	62
Build 4 lane median separated in asphalt	Dumas Relief Route	Texas	US 287 South of Dumas	US 287 North of Dumas	5	18.8	0.0	18.8	3.76	434	8660	2640	5.3	2135	10	88
Build 4 lane median separated in asphalt	Stratford Tx Relief Route	Texas	US 287 South of Stratford	US 287 North of Stratford	5.2	15.9	0.1	15.9	3.06	448	6850	2100	5.6	1246	-3	31
Build 4 lane median separated in asphalt	Boise City Relief Route	Oklahoma	US 287 South of Boise City	US 287 North of Boise City	3.5	10.0	0.4	10.4	2.86	522	5670	2300	5.9	651	9	169
Build 4 lane median separated in concrete	Lamar Relief Route	Colorado	US 287 South of Lamar	US 50 North of Lamar	9	95.0	1.0	96.0	10.56	1510	7060	2570	6.6	545	7	177
Build 4 lane median separated in asphalt	Dalhart Relief Route	Texas	US 87 South of Dalhart	US 87 North of Dalhart	6.6	19.4	0.2	19.6	2.94	400	7400	1140	5.6	1034	2	67
Build 4 lane median separated in asphalt	Midland Relief Route	Texas	IH 20 West of Midland	Texas 349 North of Midland	21	116.0	0.6	116.6	5.52	2294	2420	660	3.0	735	16	126
Build 4 lane median separated in asphalt	Clayton Relief Route	New Mexico	US 87 East of Clayton	US 64 West of Clayton	3.8	19.6	0.0	19.6	5.17	2012	2570	660	5.9	1623	3	26

Exhibit 2.2-2 Prioritization Criteria (continued)

Description	Roadway	State	From	To	Length (Miles)	Existing Pvmnt Type	Existing Pvmnt Cond	Existing Lanes	Base Cost ($Millions)	Additional Structure Cost ($Millions)	Additional Environmental Cost ($Millions)	Total Cost ($Millions)	Total Cost/Mile ($Millions)	Total Cost/VehMile	Existing AADT	Existing AADT Trucks	2030 Forecast Background AADT	2030 Forecast Background AADT Trucks	2030 Forecast AADT with Improvements	2030 Forecast AADT Trucks with Improvements	Multi-Modal Connectivity	System Connectivity	Travel Time Savings Rate	Existing Accident Rate (acc/100MVM)	Existing V/C Ratio
Build 2 new lanes in Asphalt	US 83	Texas	I 35	Webb/Dimmit County Line	34	Asphalt	Fair	2	66.0	3.9	0.6	70.4	1.94	292	2650	960	7100	1940	7100	1940	6.3	68	10	41	0.17
Build 2 new lanes in Asphalt	US 83	Texas	Webb/Dimmit County Line	FM 133, Catarina	9	Asphalt	Fair	2	17.5	6.4	0.2	24.1	1.94	536	2650	960	5000	1200	5000	1200	5.7	68	10	36	0.17
Build 2 new lanes in Asphalt	US 83	Texas	FM 133, Catarina	Carrizo Springs Relief Route	9	Asphalt	Fair	2	17.5		0.3	17.8	1.94	395	2650	960	5000	1200	5000	1200	5.5	68	10	49	0.17
Build 2 new lanes in Asphalt	US 277	Texas	Carrizo Springs Relief Route	Dimmit/Maverick County Line	17	Asphalt	Good	2	33.0	1.3	0.4	34.7	1.94	409	3450	920	3700	970	4990	1190	4.9	68	10	36	0.17
Build 2 new lanes in Asphalt	US 277	Texas	Dimmit/Maverick County Line	Eagle Pass Relief Route	19	Asphalt	Good	2	36.9	1.4	0.6	38.8	1.94	409	3450	920	3700	970	4990	1190	4.4	68	10	30	0.17
Build 2 new lanes in Asphalt	US 277	Texas	Eagle Pass Relief Route	Maverick/Kinney County line	23	Asphalt	Poor	2	42.6	5.4	0.8	48.8	1.85	313	2750	800	5460	1270	6770	1510	3.9	68	10	34	0.17
Build 2 new lanes in Asphalt	US 277	Texas	Maverick/Kinney County line	Kinney/Val Verde County Line	14	Asphalt	Poor	2	27.3	3.7	1.0	32.0	1.95	338	2750	800	5460	1270	6770	1510	3.4	68	10	45	0.17
Build 2 new lanes in Asphalt	US 277	Texas	Kinney/Val Verde County Line	Del Rio Relief Route	8	Asphalt	Poor	2	15.6	6.7	0.7	23.0	1.95	425	2750	800	5460	1270	6770	1510	3.1	68	10	91	0.17
Build 2 new lanes in Asphalt	US 277	Texas	Del Rio Relief Route	Val Verde/Edwards County Line	55	Asphalt	Good	2	160.3	25.6	4.0	189.9	2.91	818	850	430	2940	630	4220	1090	3.0	68	10	70	0.08
Build 2 new lanes in Asphalt	US 277	Texas	Val Verde/Edwards County Line	Edwards/Sutton County Line	10	Asphalt	Good	2	33.6	2.3	0.7	36.6	3.36	886	850	430	2840	540	4130	770	3.0	68	10	71	0.08
Build 2 new lanes in Asphalt	US 277	Texas	Edwards/Sutton County Line	Sonora Relief Route	20	Asphalt	Fair	2	64.3	9.9	0.4	74.6	3.22	788	1150	560	4680	800	4730	1030	3.0	68	10	33	0.08
Build 2 new lanes in Asphalt	US 277	Texas	Sonora Relief Route	Sutton/Schleicher County Line	8	Asphalt	Good	2	21.9	1.1	0.0	23.1	2.74	467	2350	660	5900	1230	6170	1290	3.0	287	10	21	0.15
Build 2 new lanes in Asphalt	US 277	Texas	Sutton/Schleicher County Line	Schleicher/Tom Green County Line	30	Asphalt	Good	2	82.3	3.2	0.1	85.6	2.74	489	2550	740	5840	1240	5840	1300	3.0	287	10	34	0.15
Build 2 new lanes in Asphalt	US 277	Texas	Schleicher/Tom Green County Line	San Angelo Relief Route	22	Asphalt	Good	2	66.1	11.3	0.4	77.8	3.00	605	2550	740	5840	1240	5840	1300	3.0	287	10	51	0.15
Build 2 new lanes in Asphalt	SH 158	Texas	Sterling City	Sterling/Glasscock County Line	14	Asphalt	Fair	2	30.5	1.8	0.3	32.6	2.18	474	2350	740	4460	1210	4910	1270	3.0	167	10	32	0.11
Build 2 new lanes in Asphalt	SH 158	Texas	Sterling/Glasscock County Line	Glasscock/Midland County Line	30	Asphalt	Fair	2	76.6		0.6	77.2	2.55	524	2300	740	4460	1210	4910	1270	3.0	167	10	29	0.11
Build 2 new lanes in Asphalt	SH 158	Texas	Midland	Midland/Martin County Line	7	Asphalt	Fair	2	13.7		0.0	13.7	1.96	719	2000	380	2720	480	2730	530	3.0	276	10	25	0.09
Build 2 new lanes in Asphalt	SH 158	Texas	Midland/Martin County Line	Martin/Dawson County Line	34	Asphalt	Poor	2	66.7		0.5	67.2	1.96	724	2000	380	2720	480	2730	530	3.2	276	10	33	0.09
Build 2 new lanes in Asphalt	SH 158	Texas	Martin/Dawson County Line	FM 2052	13	Asphalt	Fair	2	25.2		0.0	25.2	1.94	709	2000	380	2720	480	2730	530	3.4	276	10	44	0.09
Build 2 new lanes in Asphalt	FM 2052	Texas	SH 349	US 87	2	Asphalt	Fair	2	3.9		0.1	3.9	1.94	1071	1350	330	1820	320	1830	350	3.5	276	10	0	0.15
Build 2 new lanes in Asphalt	US 287	Texas	Stratford	Sherman/Dallam County Line	9	Asphalt	Fair	2	17.5		0.1	17.5	1.94	282	3050	1620	3760	1850	6900	2610	7.3	17	10	29	0.13
Build 2 new lanes in Asphalt	US 287	Texas	Sherman/Dallam County Line	Ok/Tx Border	7	Asphalt	Poor	2	13.6		0.1	13.6	1.94	282	3050	1620	3760	1850	6900	2610	7.2	17	10	25	0.13
Build 2 new lanes in Asphalt	US 287	Oklahoma	Ok/Tx Border	Boise City Relief Route	21	Asphalt	Good	2	67.2	4.5	0.1	71.7	3.20	495	3050	1620	3760	1850	6900	2610	7.1	17	10	73	0.13
Build 2 new lanes in Asphalt	US 287	Oklahoma	Boise City Relief Route	Ok/Co Border	19	Asphalt	Good	2	61.8	7.8	0.3	69.8	3.25	465	2350	1220	4810	2390	7900	3140	7.0	17	10	66	0.14
Build 2 new lanes in Concrete	US 287	Colorado	Ok/Co Border	Springfield	32	Concrete	Good	2	61.0	9.1	0.3	70.3	1.91	343	2350	1220	4810	2390	6410	3140	6.9	17	10	68	0.14
Build 2 new lanes in Concrete	US 287	Colorado	Springfield	Baca/Prowers County Line	18	Concrete	Good	2	39.2	6.2	0.3	45.7	2.18	396	2600	1690	4770	1860	6410	2600	6.8	17	10	53	0.14
Build 2 new lanes in Concrete	US 287	Colorado	Baca/Prowers County Line	Lamar Relief Route	28	Concrete	Good	2	72.7	1.8	0.3	74.7	2.60	416	2600	1690	4770	1860	6410	2600	6.7	17	10	117	0.14
Build 2 new lanes in Concrete	US 287	Colorado	Lamar Relief Route	Prowers/Kiowa County Line	16	Asphalt	Poor	2	35.8	1.9	0.9	38.6	2.24	280	2900	1480	5850	1780	8630	2570	6.6	63	10	86	0.12
Build 2 new lanes in Concrete	US 287	Colorado	Prowers/Kiowa County Line	Eads	19	Concrete	Good	2	31.7		0.1	31.8	1.67	194	2900	1480	5850	1780	8630	2570	6.4	63	10	54	0.12
Build 2 new lanes in Concrete	US 287	Colorado	Eads	Kiowa/Cheyenne County Line	10	Concrete	Good	2	16.7	5.6	0.4	22.6	1.67	262	2900	1480	5850	1780	8630	2570	6.3	63	10	27	0.12
Build 2 new lanes in Concrete	US 287	Colorado	Kiowa/Cheyenne County Line	Kit Carson	12	Concrete	Good	2	20.0	7.9	0.3	28.2	1.67	272	2900	1480	5850	1780	8630	2570	6.1	63	10	21	0.12
Build 2 new lanes in Concrete	US 40	Colorado	Kit Carson	Wild Horse	13	Asphalt	Fair	2	41.6		0.1	41.6	3.20	359	3100	1210	6140	1770	8930	2550	5.9	63	10	35	0.15
Build 2 new lanes in Concrete	US 40	Colorado	Wild Horse	Cheyenne/Lincoln County Line	10	Concrete	Good	2	16.7	2.2	0.2	19.0	1.67	212	3100	1210	6140	1770	8930	2550	5.8	63	10	107	0.15
Build 2 new lanes in Concrete	US 40	Colorado	Cheyenne/Lincoln County Line	Hugo	23	Asphalt	Poor	2	73.5	2.0	0.1	75.6	3.20	368	3100	1210	6140	1770	8930	2550	5.7	63	10	58	0.15
Build 2 new lanes in Concrete	US 40	Colorado	Hugo	Limon	16	Concrete	Good	2	26.7		0.1	26.7	1.67	187	2900	1130	6140	1770	8930	2550	5.6	63	10	67	0.15
Build 2 new lanes in Asphalt	US 87	Texas	Dumas	Moore/Hartley County Line	9	Asphalt	Fair	2	20.4		0.0	20.4	2.27	327	3550	1210	8490	1170	6940	1100	5.4	471	10	58	0.15
Build 2 new lanes in Asphalt	US 87	Texas	Moore/Hartley County Line	Hartley/Interchange with US 385	12	Asphalt	Fair	2	27.3		0.5	27.8	2.28	334	3550	1210	8490	1170	6940	1100	5.5	471	10	38	0.15
Build 2 new lanes in Asphalt	US 87	Texas	Dalhart Relief Route	4-Lane Project	24	Asphalt	Fair	2	56.3	6.7	0.3	63.3	2.35	303	4100	1160	10970	2630	8690	1990	5.7	37	10	55	0.18
Build 2 new lanes in Asphalt	US 64	New Mexico	Clayton	Capulin	52	Asphalt	Fair	2	76.5	1.9	0.0	78.4	1.47	397	2950	870	5100	1370	3800	1164	6.1	37	10	52	0.15
Build 2 new lanes in Asphalt	US 64	New Mexico	Capulin	Union/Colfax County Line	1	Asphalt	Good	2	1.5		0.0	1.5	1.47	387	2950	870	5100	1370	3800	1164	6.2	37	10	98	0.15
Build 2 new lanes in Asphalt	US 64	New Mexico	Union/Colfax County Line	Raton/I-25	26	Asphalt	Good	2	46.4	4.0	0.0	50.4	1.78	511	2950	870	5100	1370	3800	1164	6.3	37	10	98	0.15

Exhibit 2.2-3 Prioritization Rank

Description	Roadway	From	To	Length (Miles)	Forecast Truck AADT 20	Travel Time Savings 20	Accident History Factor 16	System Connectivity 14	Forecast Total Vehicle AADT 12	Multi-Modal Connection 9	Cost/Veh.mile 9	Ranking Score 100	Rank
Build 4 lane median separated in asphalt	Carrizo Springs Relief Route	South of Asherton	North of Carrizo Springs	8.6	1	2	1	2	1	3	2	161	13
Build 4 lane median separated in asphalt	Eagle Pass Relief Route	Eagle Pass International Bridge	US 277 East of Eagle Pass	9.3	2	3	1	2	2	2	2	204	7
Build 4 lane median separated in asphalt	Eagle Pass Relief Route	US 277 East of Eagle Pass	US 277 North of Eagle Pass	8.4	2	3	1	2	2	2	1	195	9
Build 4 lane median separated in asphalt	Del Rio Relief Route	US 277 East of Del Rio	US 277 North of Del Rio	12	2	3	3	2	2	2	2	236	3
Build 4 lane median separated in asphalt	Sonora Relief Route	US 277 South of Sonora	US 277 North of Sonora	4.8	1	1	1	3	1	1	1	128	15
Build 4 lane median separated in asphalt	San Angelo Relief Route	US 277 South of San Angelo	US 87 North of San Angelo	21.3	3	2	3	1	3	1	3	234	4
Build 4 lane median separated in asphalt	Big Spring Relief Route	US 87 South of Big Spring	US 87 North of Big Spring	13	1	1	3	2	3	2	2	188	10
Build 4 lane median separated in asphalt	Lamesa Relief Route	US 87 South of Lamesa	US 87 North of Lamesa	5.8	1	1	2	3	2	2	1	165	11
Build 4 lane median separated in asphalt	Dumas Relief Route	US 287 South of Dumas	US 287 North of Dumas	5	3	2	2	3	3	2	3	255	1
Build 4 lane median separated in asphalt	Stratford Tx Relief Route	US 287 South of Stratford	US 287 North of Stratford	5.2	3	1	1	2	3	2	3	205	6
Build 4 lane median separated in Concrete	Boise City Relief Route	US 287 South of Boise City	US 287 North of Boise City	3.5	3	2	3	1	2	3	3	240	2
Build 4 lane median separated in concrete	Lamar Relief Route	US 287 South of Lamar	US 50 North of Lamar	9	3	2	3	1	3	3	1	234	4
Build 4 lane median separated in asphalt	Dalhart Relief Route	US 87 South of Dalhart	US 87 North of Dalhart	6.6	2	1	2	2	3	2	3	201	8
Build 4 lane median separated in asphalt	Midland Relief Route	I 20 West of Midland	Texas 349 North of Midland	21	1	3	2	1	1	2	1	165	11
Build 4 lane median separated in asphalt	Clayton Relief Route	US 87 East of Clayton	US 64 West of Clayton	3.8	1	1	1	2	1	3	1	132	14

Exhibit 2.2-3 Prioritization Rank (continued)

Description	Roadway	From	To	Length (Miles)	Existing Truck AADT 8	Forecast Truck AADT 10	Accident History Factor 16	Pavement Condition 16	Multi-Modal Connection 12	System Connectivity 10	Forecast Total Vehicle AADT 8	Travel Time Savings 7	Cost/Veh.mile 7	V/C Ratio 6	Ranking Score 100	Rank
Build 2 new lanes in Asphalt	US 83	I 35	Webb/Dimmit County Line	34	2	2	2	2	3	2	3	2	3	3	233	5
Build 2 new lanes in Asphalt	US 83	Webb/Dimmit County Line	FM 133, Catarina	9	2	2	2	2	2	2	2	2	1	3	199	24
Build 2 new lanes in Asphalt	US 83	FM 133, Catarina	Carrizo Springs Relief Route	9	2	2	2	2	2	2	2	2	2	3	206	22
Build 2 new lanes in Asphalt	US 277	Carrizo Springs Relief Route	Dimmit/Maverick County Line	17	2	2	2	1	2	2	2	2	2	3	190	25
Build 2 new lanes in Asphalt	US 277	Dimmit/Maverick County Line	Eagle Pass Relief Route	19	2	2	1	1	2	2	2	2	2	3	174	30
Build 2 new lanes in Asphalt	US 277	Eagle Pass Relief Route	Maverick/Kinney County line	23	2	2	2	3	2	2	2	2	3	3	229	7
Build 2 new lanes in Asphalt	US 277	Maverick/Kinney County line	Kinney/Val Verde County Line	14	2	2	2	3	1	2	2	2	3	3	217	19
Build 2 new lanes in Asphalt	US 277	Kinney/Val Verde County Line	Del Rio Relief Route	8	2	2	3	3	1	2	2	2	2	3	226	8
Build 2 new lanes in Asphalt	US 277	Del Rio Relief Route	Val Verde/Edwards County Line	55	1	1	3	1	1	2	1	3	1	1	156	37
Build 2 new lanes in Asphalt	US 277	Val Verde/Edwards County Line	Edwards/Sutton County Line	10	1	1	3	1	1	2	1	3	1	1	156	37
Build 2 new lanes in Asphalt	US 277	Edwards/Sutton County Line	Sonora Relief Route	20	1	1	2	2	1	2	1	3	1	1	156	37
Build 2 new lanes in Asphalt	US 277	Sonora Relief Route	Sutton/Schleicher County Line	8	1	2	1	1	1	3	2	3	1	2	158	36
Build 2 new lanes in Asphalt	US 277	Sutton/Schleicher County Line	Schleicher/Tom Green County Line	30	1	2	2	1	1	3	2	3	1	2	174	30
Build 2 new lanes in Asphalt	US 277	Schleicher/Tom Green County Line	San Angelo Relief Route	22	1	2	2	1	1	3	2	3	1	2	174	30
Build 2 new lanes in Asphalt	SH 158	Sterling City	Sterling/Glasscock County Line	14	1	2	1	2	1	3	2	2	1	1	161	34
Build 2 new lanes in Asphalt	SH 158	Sterling/Glasscock County Line	Glasscock/Midland County Line	30	1	2	1	2	1	3	2	2	1	1	161	34
Build 2 new lanes in Asphalt	SH 158	Midland	Midland/Martin County Line	7	1	1	1	2	1	3	1	3	1	1	150	41
Build 2 new lanes in Asphalt	SH 158	Midland/Martin County Line	Martin/Dawson County Line	34	1	1	2	3	1	3	1	3	1	1	182	28
Build 2 new lanes in Asphalt	SH 158	Martin/Dawson County Line	FM 2052	13	1	1	2	2	1	3	1	3	1	1	166	33
Build 2 new lanes in Asphalt	FM 2052	SH 349	US 87	2	1	1	1	2	1	3	1	3	1	2	156	37
Build 2 new lanes in Asphalt	US 287	Stratford	Sherman/Dallam County Line	9	3	3	1	2	3	1	3	2	3	2	219	17
Build 2 new lanes in Asphalt	US 287	Sherman/Dallam County Line	Ok/Tx Border	7	3	3	1	3	3	1	3	2	3	2	235	4
Build 2 new lanes in Asphalt	US 287	Ok/Tx Border	Boise City Relief Route	21	3	3	3	1	3	1	3	2	1	2	221	13
Build 2 new lanes in Asphalt	US 287	Boise City Relief Route	Ok/Co Border	19	3	3	3	1	3	1	3	2	1	2	221	13
Build 2 new lanes in Concrete	US 287	Ok/Co Border	Springfield	32	3	3	3	1	3	1	2	2	2	2	220	15
Build 2 new lanes in Concrete	US 287	Springfield	Baca/Prowers County Line	18	3	3	2	1	3	1	2	2	2	2	204	23
Build 2 new lanes in Concrete	US 287	Baca/Prowers County Line	Lamar Relief Route	28	3	3	3	1	3	1	2	2	2	2	220	15
Build 2 new lanes in Concrete	US 287	Lamar Relief Route	Prowers/Kiowa County Line	16	3	3	3	3	3	2	3	2	3	1	271	1
Build 2 new lanes in Concrete	US 287	Prowers/Kiowa County Line	Eads	19	3	3	2	1	3	2	3	2	3	1	223	10
Build 2 new lanes in Concrete	US 287	Eads	Kiowa/Cheyenne County Line	10	3	3	1	1	3	2	3	2	3	1	207	20
Build 2 new lanes in Concrete	US 287	Kiowa/Cheyenne County Line	Kit Carson	12	3	3	1	1	3	2	3	2	3	1	207	20
Build 2 new lanes in Concrete	US 40	Kit Carson	Wild Horse	13	3	3	2	2	3	2	3	2	2	2	238	3
Build 2 new lanes in Concrete	US 40	Wild Horse	Cheyenne/Lincoln County Line	10	3	3	3	1	2	2	3	2	3	2	233	5
Build 2 new lanes in Concrete	US 40	Cheyenne/Lincoln County Line	Hugo	23	3	3	2	3	2	2	3	2	2	2	242	2
Build 2 new lanes in Concrete	US 40	Hugo	Limon	16	2	3	3	1	2	2	3	2	3	2	225	9
Build 2 new lanes in Asphalt	US 87	Dumas	Moore/Hartley County Line	9	3	1	2	2	2	3	3	2	3	2	223	10
Build 2 new lanes in Asphalt	US 87	Moore/Hartley County Line	Hartley/Interchange with US 385	12	3	1	2	2	2	3	3	2	3	2	223	10
Build 2 new lanes in Asphalt	US 87	Dalhart Relief Route	4-Lane Project	24	3	2	2	2	2	1	3	2	3	3	219	17
Build 2 new lanes in Asphalt	US 64	Clayton	Capulin	52	2	1	2	2	3	1	1	2	2	2	184	26
Build 2 new lanes in Asphalt	US 64	Capulin	Union/Colfax County Line	1	2	1	3	1	3	1	1	2	2	2	184	26
Build 2 new lanes in Asphalt	US 64	Union/Colfax County Line	Raton/I-25	26	2	1	3	1	3	1	1	2	1	2	177	29

Exhibit 2.2-4 Implementation Schedule

Texas

Description	Roadway	From	To	Miles	Total Cost $M	Ranking Score	Rank	Engineering Group (E)	Financial Group (F)	Funded 2005-2010 $M	Requested 2005-2010 $M	Funded 2011-2015 $M	Requested 2011-2015 $M	Funded 2016-2020 $M	Requested 2016-2020 $M	Funded 2021-2025 $M	Requested 2021-2025 $M
Build 2 new lanes in Asphalt	US 287	Sherman/Dallam County Line	Ok/Tx Border	7	13.6	235	4	A	A		13.6						
Build 2 new lanes in Asphalt	US 83	I 35	Webb/Dimmit County Line	34	70.4	233	5	A	A		70.4						
Build 2 new lanes in Asphalt	US 277	Eagle Pass Relief Route	Maverick/Kinney County line	23	48.8	229	7	A	A		48.8						
Build 2 new lanes in Asphalt	US 277	Kinney/Val Verde County Line	Del Rio Relief Route	8	23.0	226	8	A	A		23.0						
Build 2 new lanes in Asphalt	US 87	Dumas	Moore/Hartley County Line	9	20.4	223	10	A	A	16.7	3.7						
Build 2 new lanes in Asphalt	US 87	Moore/Hartley County Line	Hartley/Interchange with US 385	12	27.8	223	10	A	A	22.3	5.5						
Build 2 new lanes in Asphalt	US 287	Stratford	Sherman/Dallam County Line	9	17.5	219	17	B	B				17.5				
Build 2 new lanes in Asphalt	US 87	Dalhart Relief Route	4-Lane Project	24	63.3	219	17	B	A	44.2	19.1						
Build 2 new lanes in Asphalt	US 277	Maverick/Kinney County line	Kinney/Val Verde County Line	14	32.0	210	19	B	B				32.0				
Build 2 new lanes in Asphalt	US 83	FM 133, Catarina	Carrizo Springs Relief Route	9	17.8	206	22	B	B				17.8				
Build 2 new lanes in Asphalt	US 83	Webb/Dimmit County Line	FM 133, Catarina	9	24.1	199	24	B	B				24.1				
Build 2 new lanes in Asphalt	US 277	Carrizo Springs Relief Route	Dimmit/Maverick County Line	17	34.7	190	26	C	C						34.7		
Build 2 new lanes in Asphalt	SH 349	Midland/Martin County Line	Martin/Dawson County Line	34	67.2	182	29	C	C						67.2		
Build 2 new lanes in Asphalt	US 277	Dimmit/Maverick County Line	Eagle Pass Relief Route	19	38.8	174	31	C	C						38.8		
Build 2 new lanes in Asphalt	US 277	Sutton/Schleicher County Line	Schleicher/Tom Green County Line	30	85.6	174	31	C	C						85.6		
Build 2 new lanes in Asphalt	US 277	Schleicher/Tom Green County Line	San Angelo Relief Route	22	77.8	174	31	C	C						77.8		
Build 2 new lanes in Asphalt	SH 349	Sterling/Glasscock County Line	Glasscock/Midland County Line	30	77.2	168	35	D	A	59.5	17.7						
Build 2 new lanes in Asphalt	SH 349	Martin/Dawson County Line	FM 2052	13	25.2	166	34	D	D								25.2
Build 2 new lanes in Asphalt	SH 349	Sterling City	Sterling/Glasscock County Line	14	32.6	161	35	D	A	23.4	9.2						
Build 2 new lanes in Asphalt	US 277	Sonora Relief Route	Sutton/Schleicher County Line	8	23.1	158	37	D	D								23.1
Build 2 new lanes in Asphalt	US 277	Del Rio Relief Route	Val Verde/Edwards County Line	55	189.9	156	38	D	D								189.9
Build 2 new lanes in Asphalt	US 277	Val Verde/Edwards County Line	Edwards/Sutton County Line	10	36.6	156	38	D	D								36.6
Build 2 new lanes in Asphalt	US 277	Edwards/Sutton County Line	Sonora Relief Route	20	74.6	156	38	D	D								74.6
Build 2 new lanes in Asphalt	FM 2052	SH 349	US 87	2	3.9	156	38	D	D								3.9
Build 2 new lanes in Asphalt	SH 349	Midland	Midland/Martin County Line	7	13.7	150	42	D	D								13.7
					1139.6												

Oklahoma

Build 2 new lanes in Asphalt	US 287	Ok/Tx Border	Boise City Relief Route	21	71.7	221	13	B	B				71.7				
Build 2 new lanes in Asphalt	US 287	Boise City Relief Route	Ok/Co Border	19	69.8	221	13	B	A	18.6	51.2						

Colorado

Build 2 new lanes in Concrete	US 287	Lamar Relief Route	Prowers/Kiowa County Line	16	38.6	271	1	A	A		38.6						
Build 2 new lanes in Concrete	US 40	Cheyenne/Lincoln County Line	Hugo	23	75.6	242	2	A	B*				75.6				
Build 2 new lanes in Concrete	US 40	Kit Carson	Wild Horse	13	41.6	238	3	A	A*		41.6						
Build 2 new lanes in Concrete	US 40	Wild Horse	Cheyenne/Lincoln County Line	10	19.0	233	5	A	B*				18.9				
Build 2 new lanes in Concrete	US 40	Hugo	Limon	16	26.7	225	9	A	A*		26.7						
Build 2 new lanes in Concrete	US 287	Prowers/Kiowa County Line	Eads	19	31.8	223	10	A	C						31.8		
Build 2 new lanes in Concrete	US 287	Ok/Co Border	Springfield	32	70.3	220	15	B	D								70.2
Build 2 new lanes in Concrete	US 287	Baca/Prowers County Line	Lamar Relief Route	28	74.7	220	15	B	B				74.9				
Build 2 new lanes in Concrete	US 287	Eads	Kiowa/Cheyenne County Line	10	22.6	207	20	B	C						22.6		
Build 2 new lanes in Concrete	US 287	Kiowa/Cheyenne County Line	Kit Carson	12	28.2	207	20	B	C						28.2		
Build 2 new lanes in Concrete	US 287	Springfield	Baca/Prowers County Line	18	45.7	204	23	B	D								45.7
					3,025.8												

New Mexico

Build 2 new lanes in Asphalt	US 64	Clayton	Capulin	52	78.4	184	27	C	A	59.2	19.2						
Build 2 new lanes in Asphalt	US 64	Capulin	Union/Colfax County Line	1	1.5	184	27	C	A	1.2	0.3						
Build 2 new lanes in Asphalt	US 64	Union/Colfax County Line	Raton/I-25	26	50.4	177	30	C	B			29.6	20.8				

Notes:
* Priority of these Colorado sections were changed late in the study. The net result is a shift of approximately $7 million from group B to group A. Because of the relatively small change to the program structure, this change was not incorporated in group total costs.
** Engineering groupings are a result of the prioritization methods used. Financial groupings are the ultimate schedule of improvements used in the Finance Plan. Financial groupings considered smoothening groups to a reasonable capital structure, and also considered already committed projects and funding.

Engineering Groupings Summary**

All States:	Cost ($M)	Miles
Group A	437.4	190.0
Group B	375.7	205.0
Group C	434.3	201.0
Group D	476.8	159.0
	1886.1	755.0

Texas:	Cost ($M)	Miles
Group A	204.1	93.0
Group B	154.7	65.0
Group C	304.0	122.0
Group D	476.8	159.0
	1139.6	439.0

Oklahoma	Cost ($M)	Miles
Group A	0.0	0.0
Group B	141.6	40.0
Group C	0.0	0.0
Group D	0.0	0.0
	141.6	40.0

Colorado	Cost ($M)	Miles
Group A	233.3	97.0
Group B	241.4	100.0
Group C	0.0	0.0
Group D	0.0	0.0
	474.7	197.0

New Mexico	Cost ($M)	Miles
Group A	0.0	
Group B	0.0	
Group C	130.3	
Group D	0.0	
	130.3	
Group E1		0.0
Group E2		0.0
Group E3		79.0
Group E4		0.0
		79.0

Financial Groupings Summary**

All States:	Cost ($M)	Miles
Group A	641.1	272.0
Group B	375.7	155.0
Group C	386.5	163.0
Group D	482.9	165.0
	1886.2	755.0

Texas:	Cost ($M)	Miles
Group A	377.2	161.0
Group B	91.4	41.0
Group C	304.0	122.0
Group D	367.0	115.0
	1139.6	439.0

Oklahoma	Cost ($M)	Miles
Group A	69.8	19.0
Group B	71.7	21.0
Group C	0.0	0.0
Group D	0.0	0.0
	141.6	40.0

Colorado	Cost ($M)	Miles
Group A	114.2	39.0
Group B	162.1	67.0
Group C	82.5	41.0
Group D	115.9	50.0
	474.7	197.0

New Mexico	Cost ($M)	Miles
Group A	79.8	
Group B	50.4	
Group C	0.0	
Group D	0.0	
	130.3	
Group F1		53.0
Group F2		26.0
Group F3		0.0
Group F4		0.0
		79.0

Exhibit 2.2-4 Implementation Schedule (continued)

Description	Roadway	From	To	Length (Miles)	Total ROW+Utility Cost ($Millions)	Construction Cost ($Millions)	Planning (1.5%) ($Millions)	Design (12%) ($Millions)	Construction Management (15%) ($Millions)	Administrative (2%) ($Millions)	Environmental ($Millions)	Total Cost ($Millions)	Rank	Engineering Group (E)*	Financial Group (F)*	Relief Funded 2005-2010 ($Millions)	Relief Phasing Request 2005-2010 ($Millions)	Relief Phasing Request 2011-2015 ($Millions)	Relief Phasing Request 2016-2020 ($Millions)	Relief Phasing Request 2021-2025 ($Millions)
Build 4 lane median separated in asphalt	Dumas Relief Route	US 287 South of Dumas	US 287 North of Dumas	5	1.8	13.0	0.2	1.6	2.0	0.3	0.0	18.8	1	A	A		18.81			
Build 4 lane median separated in Concrete	Boise City Relief Route	US 287 South of Boise City	US 287 North of Boise City	3.5	0.9	7.0	0.1	0.8	1.1	0.1	0.4	10.4	2	A	A		10.36			
Build 4 lane median separated in asphalt	Del Rio Relief Route	US 277 East of Del Rio	US 277 North of Del Rio	12	2.5	62.0	1.0	7.4	9.3	1.2	0.2	83.7	3	A	A		43.67		39.99	
Build 4 lane median separated in asphalt	San Angelo Relief Route	US 277 South of San Angelo	US 87 North of San Angelo	21.3	6.0	90.0	1.4	10.8	13.5	1.8	0.1	123.6	4	A	B			65.50	58.05	
Build 4 lane median separated in concrete	Lamar Relief Route	US 287 South of Lamar	US 50 North of Lamar	9							1.0	96.0	4	A	A		49.60		46.35	
Build 4 lane median separated in asphalt	Stratford Tx Relief Route	US 287 South of Stratford	US 287 North of Stratford	5.2	1.5	11.0	0.2	1.3	1.7	0.2	0.1	15.9	6	B	B			15.94		
Build 4 lane median separated in asphalt	Eagle Pass Relief Route	Eagle Pass International Bridge	US 277 East of Eagle Pass	9.3	1.8	31.0	0.0	3.7	4.7	0.6	0.0	41.8	7	B	A	28.1	13.70			
Build 4 lane median separated in asphalt	Dalhart Relief Route	US 87 South of Dalhart	US 87 North of Dalhart	6.6	2.4	13.0	0.2	1.6	2.0	0.3	0.2	19.6	8	B	B			19.56		
Build 4 lane median separated in asphalt	Eagle Pass Relief Route	US 277 East of Eagle Pass	US 277 North of Eagle Pass	8.4	1.6	46.0	0.0	5.5	6.9	0.9	0.0	61.0	9	B	A	26	5.28		29.72	
Build 4 lane median separated in asphalt	Big Spring Relief Route	US 87 South of Big Spring	US 87 North of Big Spring	13	3.0	63.0	0.9	7.6	9.5	1.3	0.3	85.5	10	B	B			44.88		40.64
Build 4 lane median separated in asphalt	Lamesa Relief Route	US 87 South of Lamesa	US 87 North of Lamesa	5.8	2.0	40.0	1.0	4.8	6.0	0.8	0.9	55.5	11	C	B			29.70		25.80
Build 4 lane median separated in asphalt	Midland Relief Route	I 20 West of Midland	Texas 349 North of Midland	21	4.0	86.0	1.1	10.3	12.9	1.7	0.6	116.6	11	C	B			116.57		
Build 4 lane median separated in asphalt	Carrizo Springs Relief Route	South of Asherton	North of Carrizo Springs	8.6	1.7	17.0	0.3	2.0	2.6	0.3	0.3	24.1	13	C	C				24.14	
Build 4 lane median separated in asphalt	Clayton Relief Route	US 87 East of Clayton	US 64 West of Clayton	3.8	0.4	14.8	0.2	1.8	2.2	0.3	0.0	19.6	14	C	C				10.14	9.51
Build 4 lane median separated in asphalt	Sonora Relief Route	US 277 South of Sonora	US 277 North of Sonora	4.8	1.0	20.0	0.3	2.4	3.0	0.4	0.1	27.2	15	C	C				14.25	12.90

* Engineering groupings are a result of the prioritization methods used. Financial groupings are the ultimate schedule of improvements used in the Finance Plan. Financial groupings considered smoothening groups to a reasonable capital structure, and also considered already committed projects and funding.

This page was intentionally left blank.

2.3 Structure Inventory

Introduction

It was the goal to compile a listing of existing structures and their current condition in order to provide background data to support the structures cost estimate.

To begin the structure inventory, the Corridor was driven and the major structures were identified. Structure information was complied into the database and input using the GIS system. In order to provide a more complete listing, additional data was collected from the 2003 National Bridge Inventory (NBI) and from the state transportation departments.

The following is a summary of structures identified on the Corridor, using data taken from the 2003 NBI and from the site investigation. The analysis identified a total of 664 structures (i.e. bridges and culverts) along the Corridor. Approximately 432 of these structures are bridges and 232 are culverts.

Structure Inventory
During the investigation, it was determined to identify just the structures that were located along 2-lane (Group 1) and 4-lane (Group 2) alignments including major interchange locations. Structures along 4-lane (Group 2) alignments were further refined to include only those structures identified as structurally deficient or functionally obsolete. Both Group 1 and 2 structures were then used to develop a reasonable cost estimate for structure improvements for the Corridor study. All remaining structure improvement costs, including all culverts along the entire Corridor, were included in the roadway improvement estimates. The tables below summarize first the total structures identified in the Corridor, then the Group 1 and Group 2 structures in the Corridor.

Structures along the Ports to Plains Corridor			
	Total	**Bridges**	**Culverts**
State	**664**	**432**	**232**
- Texas	443	292	151
- Oklahoma	63	11	52
- Colorado	179	121	58
- New Mexico	26	8	18

Bridges on 2-lane Corridor Sections	**86**	**Bridges on 4-lane Corridor Sections**	**26**
- Texas	49	- Texas	14
- Oklahoma	11	- Oklahoma	0
- Colorado	21	- Colorado	10
- New Mexico	5	- New Mexico	2

Structure Condition

The available information from the 2003 NBI was reviewed to determine the overall condition of the Group 1 and 2 structures. Bridge classifications, sufficiency ratings, condition ratings, and component appraisal ratings were summarized to assess the existing structural conditions and ability to obtain potential funding.

Bridges were classified in generally good condition, functionally obsolete (bridges with inadequate roadway widths, substandard roadway clearances or alignments), or structurally deficient (bridges with structure components that do not meet current standards). Bridges in the functionally obsolete and

structurally deficient classifications can qualify for bridge rehabilitation or replacement funding if their respective sufficiency ratings are below 80. The table below summarizes the state-by-state breakdown.

Structure Classifications

	Good Condition Bridges	Functionally Obsolete Bridges	Structurally Deficient Bridges
Total	**82**	**22**	**8**
- Texas	47	13	3
- Oklahoma	11	0	0
- Colorado	21	7	3
- New Mexico	3	2	2

Structure Sufficiency Ratings

The Structure Sufficiency Ratings (SR) were also evaluated to determine their funding potential. Bridge SR values between 50 and 80 can qualify for bridge rehabilitation funding while bridges with SR values less than 50 can qualify for bridge replacement funds. This data indicates that only 28% of the Group 1 and 2 structures qualify for rehabilitation funding while less than 2% qualify for replacement funding.

Structure Sufficiency Ratings

	SR > 80	80 > SR > 50	50 > SR	N/A*
Total	**76**	**32**	**2**	**2**
- Texas	46	14	2	1
- Oklahoma	1	10	0	0
- Colorado	28	2	0	1
- New Mexico	1	4	0	2
* Railroad or Pedestrian Bridge				

Structure Condition Rating

The structure condition rating evaluates the structural adequacy of the bridge features (i.e. bridge deck, superstructure, substructure, etc.). These ratings and their associated descriptions are in accordance with the NBI Bridge Inspection Coding Guide. The data suggests that these structures are in generally good condition. Approximately two-thirds of these structures have good to very good ratings. Please note the data shown below represents the available information for the structures within the Corridor.

Structure Condition Ratings

		COMPONENTS				
Rating	**Description**	**Deck**	**Superstructure**	**Substructure**	**Channel**	**Culvert**
9	Excellent	0	0	0	0	0
8	Very Good	25	17	5	27	0
7	Good	32	55	44	38	0
6	Satisfactory	19	9	29	15	0
5	Fair	4	2	6	1	0
4	Poor	3	1	0	0	0
3 or below	Serious to Failed	1	0	0	0	0
N	Not Applicable	0	0	0	3	84

Note: Not Applicable is a code that implies that the component rating cannot be measured or is not relevant.

Structural Component Appraisal Rating

The structural component appraisal rating evaluates the bridge in relation to the level of service which it provides on the highway system (i.e. the bridge is compared to a new one built to current standards for that particular roadway classification). Review of this data is not as obvious as the structure condition ratings. The table below indicates that the ratings are not as favorable. Over 50% of these structures provide only tolerable to minimum structural evaluation ratings (i.e. rating scores less than or equal to 6) while only 33% have deck widths that barely meet minimum standards. This may suggest that the roadway alignment and shoulder widths are probably substandard and thus improvements to the existing roadway Corridors will most likely require additional structure improvement costs. Please note the data shown below represents the available information for the structures within this Corridor.

Structure Component Appraisal Rating

		COMPONENTS					
Rating	Description	Structure Evaluation	Deck Geometry	Under-Clearance	Bridge Posting	Water Adequacy	Approach Roadway Alignment
N	Not Applicable	1	0	81	0	3	0
9	Superior to Present Criteria	0	31	0	0	7	0
8	Equal to Present Criteria	1	2	1	0	20	78
7	Better than Min. Criteria	38	14	1	0	9	2
6	Equal to Min. Criteria	24	16	0	0	45	4
5	Tolerable	19	13	0	83	0	0
4	Barely Tolerable	1	8	1	1	0	0
3	Intolerable (Corrective Action)	0	0	0	0	0	0
2	Intolerable (Replace)	0	0	0	0	0	0

Note: Not Applicable is a code that implies that the component rating cannot be measured or is not relevant. Water adequacy is a measure of the structures hydraulic effectiveness.

Estimate of Reasonable Costs

After evaluating the existing structure conditions and comparing them with the needs for the Corridor, a reasonable cost estimate was developed for structure improvements to widen the entire Corridor to 4-lanes. This cost estimate is the summation of the individual improvement costs for each structure identified along the Corridor. All remaining structure improvement costs, including all culverts along the entire Corridor, were added into their respective roadway improvement estimates.

The following paragraphs and equations define the procedure used to determine these structure costs. Improvement costs were generated for each group of structures based upon the data collected in the field and within the 2003 NBI.

Group 1 Costs

All Group 1 cost estimates will consist of costs associated with the construction of a new 2-lane structure plus any cost required to rehabilitate, widen, or replace the existing structure. Cost estimates were based upon the information contained within Federal Highway Bridge Replacement and Rehabilitation Program (HBRRP), and as depicted in the following flowchart.

New Bridge and Existing Bridge Replacement Cost (Equation 1A). This is the structure costs associated with the construction of a new 2-lane structure with a 41-ft deck width consisting of two 12-ft lanes, 4-ft inside and 10-ft outside shoulders, and two 1.5-ft bridge rails. This cost is needed for all existing Group 1 bridges to accommodate the proposed 4-lane Corridor.

New Bridge Cost = Area × Unit Cost × CF1 × CF2
where the Area = Existing Length (NBI Item49) × 41-ft
Unit Cost = Bridge Unit Cost of $65/Sq.Ft
CF1 = Typical Cost Factor of 1.75
CF2 = Engineering Cost Factor of 1.2

Existing Bridge Rehabilitation (Equation 1B). This is cost of rehabilitating the existing 2-lane bridge.

Existing Bridge Rehabilitation = Area × Rehab Cost × CF2
where the Area =Existing Length (NBI Item49) × Existing Width (NBI Item52)
Rehab Cost = Average Cost for Rehab of $60/Sq.Ft
CF2 = Engineering Cost Factor of 1.2

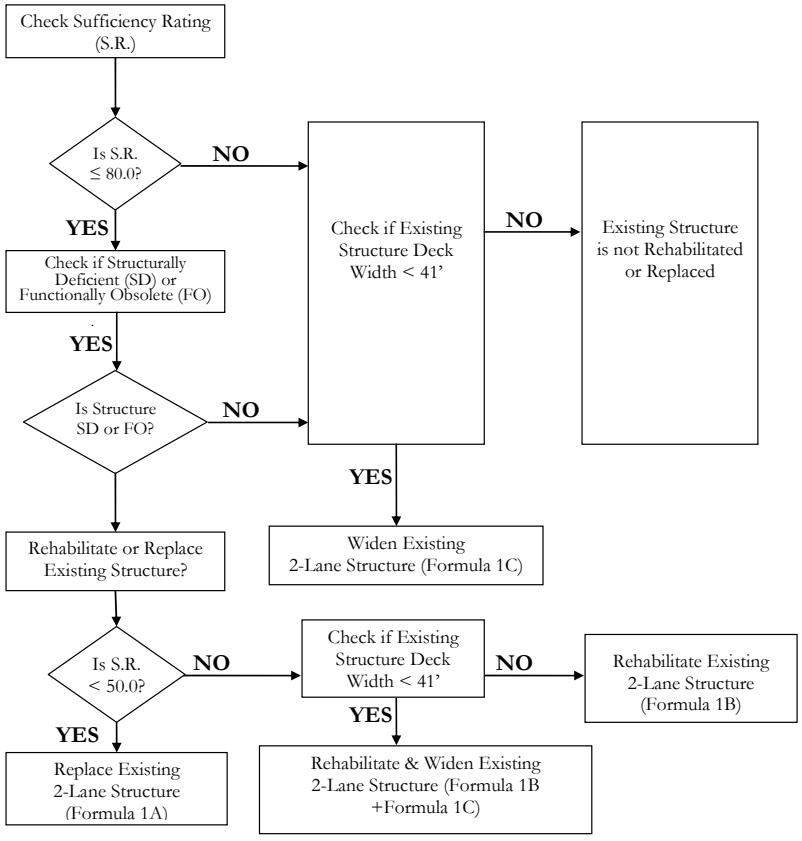
Existing Bridge Widening (Equation 1C). This is cost of widening the existing 2-lane bridge.

Bridge Widening Cost = Widened Area × Widen Cost × CF2
where theWidened Area = Total Deck Area – Existing Deck Area
Total Deck Area = Existing Length (NBI Item49) × 41-ft
Existing Deck Area = Existing Length (NBI Item49) × Existing Width (NBI Item52)
Widen Cost = Aver. Cost for Widening of $60/SqFt
CF2 = Engineering Cost Factor of 1.2

Group 1 Summary

The total cost for each Group 1 structure location is based upon a combination of the above equations. Because all Group 1 structures accommodate two lanes of existing traffic, these locations will all require a new bridge plus any costs required to rehabilitate, widen, or replace the existing bridge. The process used for determining if a structure requires rehabilitation, widening, or replacement is depicted in the following flowchart:

Group 1 Cost Flowchart



Group 2 Costs

All Group 2 structures that have been determined to be structurally deficient or functionally obsolete may require structure improvements. These improvements may either require rehabilitation or replacement. The following equations detail the cost requirements. The process used for determining if a structure requires rehabilitation or replacement is depicted in the following flowchart. Please note this analysis had determined that only 5 of the 26 Group 2 structures would qualify for rehabilitation funding (i.e. 5 structures had sufficiency ratings less than 80).

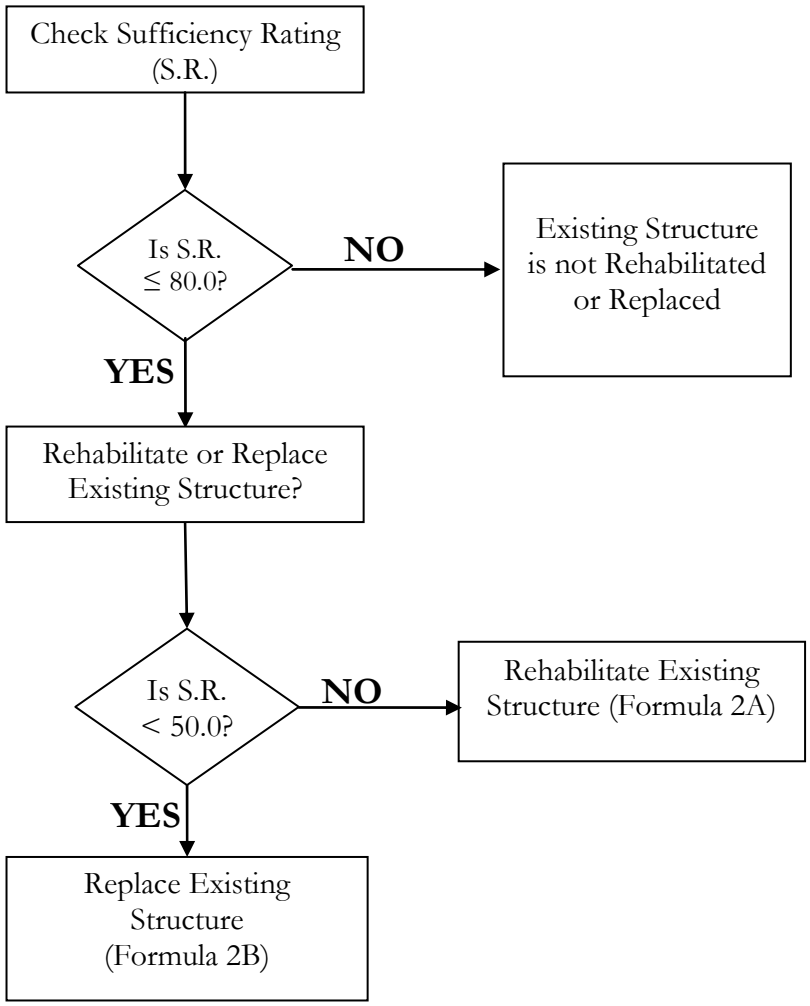
Bridge Replacement (Equation 2A). This is the cost of replacing the existing 4-lane bridge.

Existing Bridge Replacement = Area × Unit Cost × CF1 × CF2
where the Area = Existing Length (NBI Item49) × 41-ft or 82-ft
Unit Cost = Bridge Unit Cost of $65/Sq.Ft
CF1 = Typical Cost Factor of 1.75
CF2 = Engineering Cost Factor of 1.2

Bridge Rehabilitation (Equation 2B). This is cost of rehabilitating the existing 4-lane bridge.

Existing Bridge Rehabilitation = Area × Rehab Cost × CF2
where the Area = Existing Length (NBI Item49) × Existing Width (NBI Item52)
Rehab Cost = Average Cost for Rehab of $60/Sq.Ft
CF2 = Engineering Cost Factor of 1.2

Group 2 Cost Flow Chart



2.4 Border Crossing Detailed Information

The following provides a detailed description of the border crossings, as published by TxDOT in *TEXAS-MEXICO, International Bridges and Border Crossings, EXISTING AND PROPOSED 2004*.

Juárez-Lincoln Bridge
Laredo, Texas – Nuevo Laredo, Tamaulipas

The United States is shown at the bottom of the photo.

LOCAL NAMES: Bridge #2, Laredo-Nuevo Laredo Bridge 2, Puente Juárez-Lincoln and Laredo II

LOCATION:
TxDOT District: Laredo
Texas County: Webb
U.S. City: Laredo
Mexican City: Nuevo Laredo

DESCRIPTION:
A six-lane bridge
Bridge length: 1008 feet
Source: Bridge Division, TxDOT, June 2001
Bridge identification number-22 240 B01060 001 01

BRIDGE OWNER OR OPERATOR:
U.S. Owner: City of Laredo
U.S. Operator: Laredo Bridge System
Mexican Owner: Government of Mexico
Mexican Operator: Caminos y Puentes Federales de Ingresos y Servicios Conexos (CAPUFE)

YEAR OF CONSTRUCTION:
Became operational on November 26, 1976.

FUNDING/COST:
The City of Laredo financed the estimated $8 million cost through revenue bonds. Approximately $2 million in bonds were issued in October 1974 and $6 million were issued in April 1980.

Source: City of Laredo, May 1995

HOURS: 24 hours
Source: U.S. Customs and Border Protection, January 2004

TOLL: Yes

STATUS OF U.S. PERMITS AND MEXICAN APPROVALS:

U.S.: Built using permit of bridge #1 (Circa 1950s).
Source: Laredo District, TxDOT

BORDER STATION:

U.S.: The General Services Administration owns the U.S. border station, which was completed in 1982. The import lot was modernized in 1993.
Source: General Services Administration, Summary of Existing and Proposed Border Stations, May 1995

Mexico: The border station became operational in November 1976.
Source: Centro S.C.T. Tamaulipas, June 2001

CONNECTING ROADWAY:

U.S.: I-35, near US 83 (Matamoros St. and Houston St.) I-35 connects with US 59 and Loop 20. US 83 connects with Loop 20 and SH 359.

Mexico: Near MEX 85 and MEX 2
Source: Laredo District, TxDOT, June 2001

IMPROVEMENTS:

U.S.: I-35 frontage road (southbound) reconstruction from Scott Street to Del Mar Blvd. is complete at an estimated cost of $8.5 million. The I-35 frontage road (northbound) was completed in November 2002 at an estimated cost of $4.98 million.
Source: Laredo District, TxDOT, January 2004

Gateway to the Americas Bridge
Laredo, Texas – Nuevo Laredo, Tamaulipas

The United States is shown at the bottom of the photo.

LOCAL NAMES: Convent Street Bridge, Laredo International Bridge, Bridge #1, Old Bridge, Laredo-Nuevo Laredo Bridge 1, Puente Nuevo Laredo, Puente Laredo I and Puente Viejo

LOCATION:
TxDOT District: Laredo
Texas County: Webb
U.S. City: Laredo
Mexican City: Nuevo Laredo

DESCRIPTION:
A 4-lane bridge.
Bridge length: 1,050 feet
Source: Bridge Inventory and Inspection File, TxDOT
Bridge identification number-22 240 B00250 001 01

BRIDGE OWNER OR OPERATOR:
U.S. Owner: City of Laredo (Laredo Bridge System)
Mexican Owner: Government of Mexico
Mexican Operator: Caminos y Puentes Federales de Ingresos y Servicios Conexos (CAPUFE)

YEAR OF CONSTRUCTION:
The original bridge was destroyed by flood in 1954 and reconstructed in 1956.
Source: City of Laredo, May 1995

FUNDING/COST: **U.S.:** This bridge was originally purchased from a private owner in 1946 for $695,000. In 1954 floods resulting from a hurricane in the Gulf of Mexico destroyed the bridge. The city's flood damage insurance paid the bulk of the reconstruction cost of the U.S. side of the bridge. Records do not reflect the amount. The City of Laredo financed $300,000 of the reconstruction amount (a portion not covered by insurance) through revenue bonds.
Source: City of Laredo, May 1995

HOURS: 24 hours
Source: U.S. Customs and Border Protection, January 2004

TOLL: Yes

STATUS OF U.S. PERMITS AND MEXICAN APPROVALS:
U.S.: Presidential Permits are not required for bridges built before 1972.

BORDER STATION:
U.S.: The General Services Administration owns the border station, which was constructed in 1943 and renovated in 1990-91.
Source: General Services Administration, August 2002

Mexico: The border station was constructed in 1954 and renovated in 1956.
Source: Centro S.C.T. Tamaulipas, June 2001

CONNECTING ROADWAY:
U.S.: I-35 (Convent St. and Salinas St.) near I-35 and US 83 (Matamoros St. and Houston St.)
Source: Laredo District, TxDOT, June 2001

Mexico: Near MEX 2, MEX 85 or MEX 1

IMPROVEMENTS:

The GSA is working with the City of Laredo to convert one southbound lane for use as a northbound lane, in order to allow the conversion of one northbound vehicular lane for pedestrian processing.
Source: General Services Administration, March 2004

World Trade Bridge
Laredo, Texas – Nuevo Laredo, Tamaulipas

The United States is shown at the bottom of the photo.

LOCAL NAMES: Laredo North, Bridge 4, Laredo IV, Puente Internacional Nuevo Laredo III, and Puente del Comercio Mundial Nuevo Laredo III

LOCATION:
TxDOT District: Laredo
Texas County: Webb
U.S. City: Laredo
Mexican City: Nuevo Laredo

DESCRIPTION:
The eight-lane bridge is for commercial traffic only.
Bridge length: 977 feet
Bridge Identification Number-22-240-3483-01-025
Source: Bridge Division, TxDOT, June 2001

BRIDGE OWNER OR OPERATOR:

U.S.: City of Laredo
Mexican Operator: Caminos y Puentes Federales de Ingresos y Servicios Conexos (CAPUFE)

FUNDING/COST:

U.S.: The International Bridge let for approximately $2.2 million. Estimates for the GSA facilities totaled over $19.5 million. The roadway improvement costs related to the bridge were approximately $93 million.
Source: Laredo District, TxDOT, March 2000

HOURS: 8 a.m. – Midnight (Commercial/Cargo only – M-Fri)
8 a.m. – 4 p.m. (Commercial/Cargo – Sat.)
10 a.m. – 2 p.m. (Commercial/Cargo – Sun.)
Source: U.S. Customs and Border Protection, January 2004

TOLL: Yes

STATUS OF U.S. PERMITS AND MEXICAN APPROVALS:

U.S.: The City of Laredo submitted a Presidential Permit application in 1991; the permit was issued in November 1994.
Source: Office of Mexican Affairs, U.S. Department of State, February 1997

USCG Bridge permit was approved on February 12, 1996.
Source: United States Coast Guard

A FONSI was issued by the FHWA on March 26, 1998.
Source: Laredo District, TxDOT, December 1998

Mexico: The exchange of diplomatic notes committing both nations to the construction of the new crossing took place on March 10, 1998.

BORDER STATION:

U.S.: The bid for the border station was awarded in January 1999. The project was let for approximately $29 million and the facility became operational on April 15, 2000. The General Services Administration's lease expires April 2012.
Source: General Services Administration, August 2002

Mexico: Plans for the border station were approved on December 17, 1997.
Source: SEDICOT, Gobierno del Estado de Tamaulipas, May 1998

BRIDGE CONSTRUCTION STATUS:

U.S.: Groundbreaking occurred on September 30, 1998, and the bridge officially opened on April 15, 2000.
Source: Laredo District, TxDOT, November 2000

Mexico: The bridge officially opened on April 15, 2000.
Source: Laredo District, TxDOT, November 2000

CONNECTING ROADWAY:

U.S.: Loop 20, near FM 1472 and I-35. Loop 20 connects the International Bridge with FM 1472 and I-35.
Source: Laredo District, TxDOT, June 2001

Mexico: A 32 km loop connects at Kilometer 22 south of Nuevo Laredo on MEX 85 to Kilometer 12 on MEX 2, northwest of Nuevo Laredo.
Source: SEDICOT, Gobierno del Estado de Tamaulipas, May 1998

IMPROVEMENTS:

U.S.: The interchange construction at the intersection of Loop 20 and I-35 is ongoing. The project will consist of overpass bridges, reconstruction of frontage roads and two direct connectors.
Source: Laredo District, TxDOT, January 2004

A new direct connector at the intersection of Loop 20 and I-35, which connects from I-35 North to Loop 20 West, was completed in April 2003. The project was let in January 2002 at an estimated cost of $1.1 million.
Source: Laredo District, TxDOT, January 2004

Loop 20 will be widened from a 2-lane rural roadway to a five-lane section starting 1.6 miles north of US 59 to McPherson Road. The project was let in August 2001 at an estimated cost of $14.7 million and construction is ongoing.
Source: Laredo District, TxDOT, January 2004

Laredo-Colombia Solidarity Bridge
Laredo, Texas – Colombia, Nuevo León

The United States is shown at the bottom of the photo.

LOCAL NAMES: Colombia Bridge, Puente Solidaridad, Puente Colombia and Puente Internacional Solidaridad Colombia

LOCATION:
TxDOT District: Laredo
Texas County: Webb
U.S. City: Laredo
Mexican City: Colombia

DESCRIPTION:
An eight-lane bridge and two sidewalks.
Bridge length: 1,216 feet
Source: Bridge Inventory and Inspection File, TxDOT
Bridge identification number-22 240 B01391 001 01

BRIDGE OWNER OR OPERATOR:
U.S.: City of Laredo

Mexican Owner: Government of Mexico. The State of Nuevo León has the concession until 2007.
Source: S.C.T., December 1998

Mexican Operator: Caminos y Puentes Federales de Ingresos y Servicios Conexos (CAPUFE)

YEAR OF CONSTRUCTION:
Completed on July 31, 1991

FUNDING/COST:
U.S.: The City of Laredo financed the estimated $12 million cost through revenue bonds on May 21, 1990.
Source: City of Laredo, May 1995

HOURS: 8 a.m. – Midnight (Personal Occ. Vehicle-M-Sun)
8 a.m. – Midnight (Commercial/Cargo – M-Fri)
8 a.m. – 4 p.m. (Commercial/Cargo – Sat.)
12 p.m. – 4 p.m. (Commercial/Cargo – Sun.)
Source: U.S. Customs and Border Protection, January 2004

TOLL: Yes

STATUS OF U.S. PERMITS AND MEXICAN APPROVALS:
U.S.: The City of Laredo and Webb County submitted a Presidential Permit application in 1989, which was approved March 28, 1990.
USCG Bridge permit approved May 8, 1990.
Source: United States Coast Guard

BORDER STATION:
The General Services Administration owns the U.S. border station, which was constructed in 1991. The U.S. Customs and Border Protection constructed a fixed-site truck x-ray facility at this port in early 1999.
Source: General Services Administration, August 1999

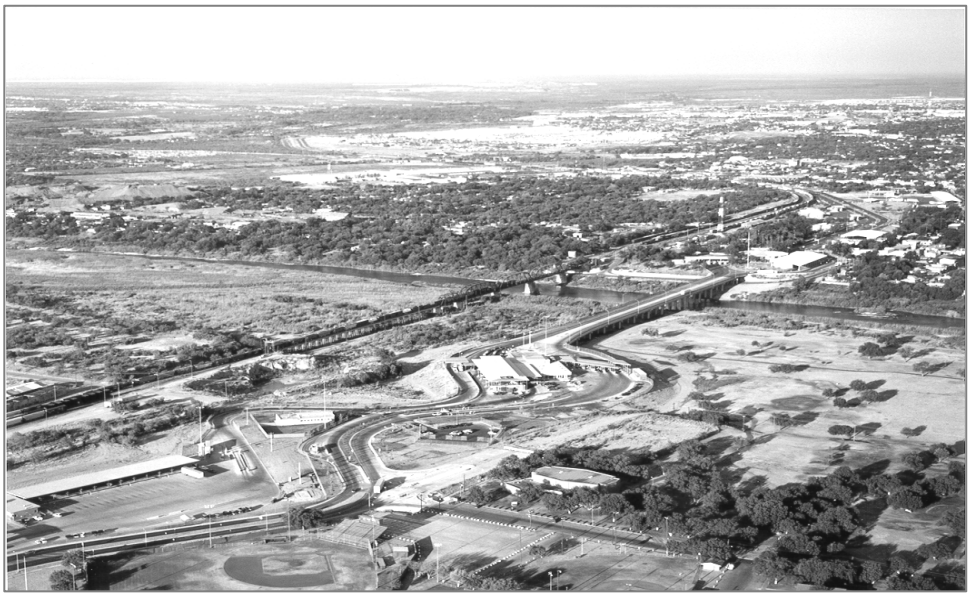
CONNECTING ROADWAY:
U.S.: FM 255, which connects to Camino Colombia (toll road) and FM 1472 (Mines Road).
Source: Laredo District, TxDOT, January 2004

Mexico: MEX 2 (La Ribereña) will be expanded from Kilometer 12 to the Colombia Bridge.
Source: Secretaria de Comunicaciones of Transportes of the United Mexican States S.C.T., February 1999

IMPROVEMENTS:
U.S.: The GSA has received TEA-21 funding to expand the truck lanes at the terminal of the bridge to alleviate congestion. The project is on hold awaiting design specifications from the City.
Source: General Services Administration, August 2002

Mexico: Construction of the $8.36 million 4-lane privately owned roadway project was let in May 1990 and opened in August 1991. MEX 2 (La Ribereña) was expanded to four lanes in the corresponding part of Nuevo León from kilometer 5 to 34, this project was completed in early 2002.
Source: Laredo District, TxDOT, January 2004

Camino Real International Bridge
Eagle Pass, Texas – Piedras Negras, Coahuila



The United States is shown at the bottom of the photo.
The Eagle Pass-Piedras Negras Railroad is shown to the left of the
Camino Real International Bridge

LOCAL NAMES: Eagle Pass-Piedras Negras International Bridge II, Puente Dos, Puente Camino Real and Puente Internacional Coahuila 2000

LOCATION:
TxDOT District: Laredo
Texas County: Maverick
U.S. City: Eagle Pass
Mexican City: Piedras Negras

DESCRIPTION: The bridge began operating on September 24, 1999, and is located approximately 0.6 miles south of the existing Eagle Pass International Bridge and immediately north of the international railroad bridge owned and operated by Union Pacific. The bridge structure is 1384 feet in length with 374 feet on the Mexican side and 1,010 feet on the U.S. side. The border station for the Port of Entry facilities consists of approximately 46 acres. The 84-foot wide bridge roadway provides six lanes (three in each direction) and includes two six-foot sidewalks for pedestrians.
Source: City of Eagle Pass, August 2002

BRIDGE OWNER OR OPERATOR:
U.S. Owner: City of Eagle Pass
U.S. Operator: Eagle Pass Bridge System
Source: City of Eagle Pass, May 1998

Mexican Owner: Mexican Government.
Source: Dirección General de Caminos SCOPE, Gobierno de Coahuila, September 1998
Mexican Operator: Caminos y Puentes Federales de Ingresos y Servicios Conexos (CAPUFE)

FUNDING/COST: The City of Eagle Pass provided funding for the $30 million project.

HOURS: 24 hours (Personal Occupancy Vehicles)
Hours for Commercial Traffic into U.S.:
7 a.m. – 11 p.m. (M-Fri)
8 a.m. – 4 p.m. (Sat)
Hours for Commercial into Mexico:
9 a.m. –10 p.m. (M-Fri)
11 a.m. –3 p.m. (Sat)
Note: wide loads up to nineteen feet can be accommodated
Source: City of Eagle Pass, March 2004

TOLL: Yes

STATUS OF U.S. PERMITS AND MEXICAN APPROVALS:

U.S.: The Department of State issued the Presidential Permit to the City of Eagle Pass in May 1996. The Coast Guard Bridge Permit was issued in August 1996. Final Diplomatic notes authorizing the construction of the bridge were exchanged between the U.S. and Mexican governments in November 1997.
Source: City of Eagle Pass, March 1999

Mexico: The State of Coahuila constructed and operates the bridge and facilities.
Source: Secretaria de Comunicaciones of Transportes of the United Mexican States (SCT), November 1999

BORDER STATION:

U.S.: The City of Eagle Pass and GSA have jointly developed a master plan for phased expansion of the border station. The phase I facilities have been in operation for two and a half years. Phase II of the facilities will include six tollbooths with one dedicated for truck traffic, 12 primary inspection stations, 36 secondary inspection stations, four truck inspection stations, an expanded truck dock and expanded support facilities for USDA, Customs and Border Protection. Letting for phase II of the facilities is scheduled for 2006, and will take approximately 24 months to complete.
Source: Laredo District, TxDOT, January 2004

The GSA has received 2002 funding for the design of the permanent border station facilities and received construction funding in 2004.
Source: General Services Administration, March 2004

Mexico: Construction of the border station began in July 1998 and was completed in August of 1999.
Source: Secretaria de Comunicaciones of Transportes of the United Mexican States (SCT), November 1999

CONNECTING ROADWAY:

U.S.: Construction for the Truck Route was divided into two phases. Phase 1A was completed in April 1999 at a cost of $1.1 million and is approximately 1/2 mile long, connecting at FM 1021-Wilson Street and ending at the Camino Real International Bridge. Phase 1B will be approximately 2 miles, starting at the Camino Real International Bridge and ending at FM 375. Phase 1B will include 2 lanes with shoulders and is re-scheduled for letting in April 2006 at a cost of $6 million.
Source: Laredo District, TxDOT, January 2004

Mexico: The governors of Coahuila and Zacatecas signed an agreement to expand highway infrastructure from Saltillo to Zacatecas. Mexican Highway 57, a 4-lane highway from Piedras Negras to Saltillo, Coahuila, is complete with plans for 4-

lanes all the way to Mexico City.
Source: City of Eagle Pass, March 2004

IMPROVEMENTS:

U.S.: An outer loop from the bridge around the city is scheduled for letting in 2005. Funding has been secured for this project. Phase I construction will extend from the bridge to US Highway 57, with phase II starting at US Highway 57 to US Highway 277 North.
Source: Laredo District, TxDOT, January 2004
Source: City of Eagle Pass, March 2004

Mexico: The State of Coahuila and SCT continue the improvement and construction of the Mexico-Piedras Negras Transport Corridor to the new port of entry. A number of projects are planned in the short to medium term. Included was the construction of two road sections, La Muralla (10.0 km) and Saltillo bypass (36.0 km) at a cost of 327 million pesos, completed in late 2002.
Source: Laredo District, TxDOT, January 2004

Eagle Pass Bridge I
Eagle Pass, Texas – Piedras Negras, Coahuila

The United States is shown at the bottom of the photo.

LOCAL NAMES: Eagle Pass-Piedras Negras International Bridge and Puente Piedras Negras-Eagle Pass

LOCATION:
TxDOT District: Laredo
Texas County: Maverick
U.S. City: Eagle Pass
Mexican City: Piedras Negras

DESCRIPTION:
A 2-lane bridge.
Bridge length: 1,855 feet
Source: Bridge Inventory and Inspection File, TxDOT
Bridge identification number-22 159 B00290 001 01

BRIDGE OWNER OR OPERATOR:

U.S.: City of Eagle Pass
Mexican Owner: Government of Mexico
Mexican Operator: Caminos y Puentes Federales de Ingresos y Servicios Conexos (CAPUFE)

YEAR OF CONSTRUCTION:

Originally constructed in 1927 and reconstructed in 1954, the bridge was rehabilitated in 1985.
Source: General Services Administration

FUNDING/COST:

The City of Eagle Pass purchased the bridge on March 17, 1947, from Francisco Estrada for $320,000.
Source: Laredo District, TxDOT

HOURS: 7 a.m. - 11 p.m. (Personal Occupancy Vehicle (POV) only – M-Sun)
Source: U.S. Customs and Border Protection, January 2004

TOLL: Yes

STATUS OF U.S. PERMITS AND MEXICAN APPROVALS:

U.S.: Presidential Permits were not required for bridges built before 1972.

BORDER STATION:

The U.S. border station, owned by the General Services Administration, was completed in 1960 and expanded in 1991. Commercial traffic was moved to the Camino Real International Bridge when it opened in 1999. Reuse of the commercial facilities will be determined by Customs and Border Protection in the near future.
Source: General Services Administration, March 2004

CONNECTING ROADWAY:

U.S.: US 57 connects to US 277
Mexico: Near MEX 2 and MEX 57

IMPROVEMENTS:

U.S.: US 57 was expanded from two lanes to four lanes with shoulders for approximately 14 miles outside the city limits.
Source: City of Eagle Pass, August 2002

A US 277 (Business) reconstruction and widening project let for $3.8 million was completed in May 1999. A reconstruction on US 277 (Business) consisting of the roadway from Ceylon St. to US 57 let in May 2001 at an estimated cost of $2.23 million. The project was completed in August 2003.
Source: Laredo District, TxDOT, January 2004
Source: City of Eagle Pass, March 2004

Del Rio-Ciudad Acuña International Bridge
Del Rio, Texas – Ciudad Acuña, Coahuila

LOCAL NAMES: Del Rio International Bridge, Puente Acuña, and Puente Ciudad Acuña-Ciudad Del Rio

LOCATION: TxDOT District: Laredo
Texas County: Val Verde
U.S. City: Del Rio
Mexican City: Ciudad Acuña

DESCRIPTION: A 4-lane bridge.
Bridge length: 2,035 feet
Source: Bridge Inventory and Inspection File, TxDOT
Bridge identification number-22 233 B00770 002 01

BRIDGE OWNER OR OPERATOR:
U.S.: City of Del Rio
Mexican Owner: Government of Mexico
Mexican Operator: Caminos y Puentes Federales de Ingresos y Servicios Conexos (CAPUFE)

YEAR OF CONSTRUCTION:
Originally constructed in 1930 and reconstructed in 1987.
Source: City of Del Rio, May 1995

HOURS: 24 hours (Personal Occupancy Vehicles)
Only one Personal Occupancy Vehicles lane is open between 12:30 a.m. – 8:30a.m.
Source: City of Del Rio, February 2004

8 a.m. – 9 p.m. (Commercial/Cargo – M-Fri)
9 a.m. – 5 p.m. (Commercial/Cargo – Sat.)
Source: U.S. Customs and Border Protection, January 2004

TOLL: Yes

STATUS OF U.S. PERMITS AND MEXICAN APPROVALS:

U.S.: The City of Del Rio submitted a Presidential Permit application, which was approved in 1986.

BORDER STATION:

U.S.: The U.S. border station was constructed in 1967, and the City of Del Rio's portion was reconstructed in 1995. The General Services Administration owns the border station and prepared a master plan for a major three-phase expansion of the border station. The first two phases, which included a new import lot, are complete. Funding for the third phase was received in 2002 and design is underway. Construction funding has been approved for 2004.
Source: General Services Administration, March 2004

Mexico: The border station was to be completed in three phases. The first two phases are complete, while the third phase has not yet been clearly defined.
Source: SCT, January 1999

CONNECTING ROADWAY:

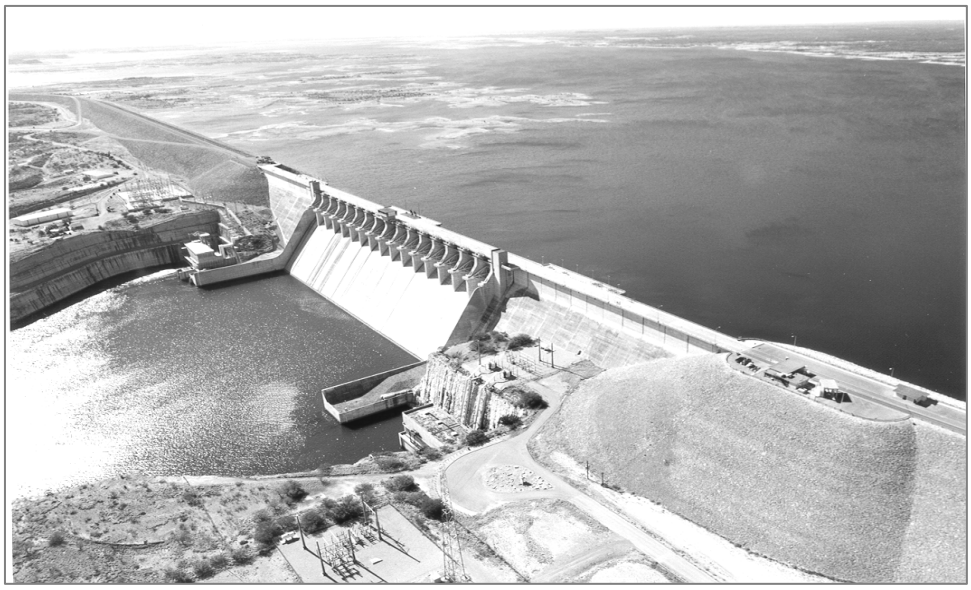
U.S.: US 277/Spur 239 connecting with US 90

Mexico: Near MEX 2, Coahuila State Highway 29 connecting with MEX 57

IMPROVEMENTS:

U.S: A US 90 reconstruction project from Avenue F to Bedell Ave., and from the Laughlin AFB to 1.5 miles east of Bedell Ave., was relet in September 1999 at an estimated cost of $4.5 million. The project was completed on March 7, 2002.
Source: Laredo District, TxDOT, August 2002

Lake Amistad Dam Crossing
Del Rio, Texas – Ciudad Acuña, Coahuila



The United States is shown at the bottom of the photo.

LOCAL NAMES: Amistad Dam, Presa la Amistad

LOCATION: TxDOT District: Laredo
Texas County: Val Verde
U.S. City: Del Rio
Mexican City: Ciudad Acuña

DESCRIPTION: A 2-lane road runs above the dam.
Source: International Boundary and Water Commission, U.S. Section, El Paso, TX, February 1997

DAM OWNER OR OPERATOR:
U.S: U.S. Section, International Boundary and Water Commission
Mexico: Mexican Section, International Boundary and Water Commission
Source: International Boundary and Water Commission, U.S. Section, El Paso, TX, February 1997

PORT-OF-ENTRY OWNERS AND OPERATORS:
U.S: Immigration and Naturalization Service

Mexico: Mexican Customs
Source: International Boundary and Water Commission, U.S. Section, El Paso, TX, February 1997

YEAR OF CONSTRUCTION:
1969
Source: International Boundary and Water Commission, U.S. Section, El Paso, TX, November 1996

HOURS: 10 a.m. – 6 p.m. (Personal Occupancy Vehicle only)
Source: U.S. Customs and Border Protection, January 2004

TOLL: No

STATUS OF U.S. PERMITS AND MEXICAN APPROVALS:
U.S.: Presidential Permits are not required for structures built before 1972.

BORDER STATION:
The U.S. border station, owned by the Immigration and Naturalization Service, was completed in 1969.
Source: General Services Administration, Summary of Existing and Proposed Border Stations, May 1995

CONNECTING ROADWAY:
U.S.: Spur 349 connects to US 90
Mexico: Near MEX 2

This page intentionally left blank.

Environmental Considerations
Supporting Technical Analysis

Table of Contents

3.1 Environmental Considerations Glossary

Attainment/Non-attainment - The federal Clean Air Act passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. This is the term used to signify that an area (city, county, etc.) has achieved EPA's air quality standard. Non-attainment means that the standard has been violated.

Base flood Elevations - Flood insurance rate zones correspond to the 100-year floodplains that are determined in a Flood Insurance Study by detailed methods. In most instances, Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within the zones.

Best Management Practices (BMP) – Effective, feasible (including technological, economic, and institutional considerations) conservation practices and land- and water-management measures that avoid or minimize adverse impacts to natural and cultural resources. Best Management Practices may include schedules for activities, prohibitions, maintenance guidelines, and other management practices. BMP's for a construction site might include: placement of barriers to prevent sediments from entering streams, contour grading, using selected plantings to stop soil erosion during the rainy season, retention of vegetation along a stream, and controlling heavy equipment operations at stream crossings.

Categorical Exclusion (CE) – The use of federal funds for the construction of a project would require compliance with NEPA regulations. A CE is completed for actions that do not individually or cumulatively have a significant environmental effect. Projects that may in some cases be documented with a CE include pedestrian facilities, landscaping and routine maintenance.

Clearance, Environmental – Statement declaring that impacts to a resource have been evaluated and no impacts have been found that cannot be mitigated. In effect, the project is cleared to proceed in regard to that particular resource.

Multiple Property Submission – This means that a site is on the NRHP listing of property groups relating to one or more historic contexts.

Comprehensive Environmental Response, Compensation & Liability Information System (CERCLIS) - CERCLIS contains information on hazardous waste sites, potential hazardous waste sites, and remedial activities across the nation, including sites that are on the National Priorities List (NPL) or being considered for the NPL.

Decibel – The unit that measures the intensity or loudness of sound

Displacement - Displacement, relocations, or acquisitions (partial or full) might occur during roadway widening and implementation of relief routes along the Ports to Plains Corridor. Displacements result from right-of-way acquisitions that require the use of land with existing uses.

Ecologically Unique River and Stream Segments - Several rivers and creeks along the Corridor in Texas are designated by the state as Ecologically Unique River and Stream Segments for their roles in local ecosystems. The designation of such segments are based on the following criteria: biological function, hydrologic function, riparian conservation areas, high water quality/exceptional aquatic life/stream of high aesthetic value, and threatened or endangered species/unique communities.

Endangered Species - A plant or animal species which is in danger of extinction throughout all or a significant portion of its range because its habitat is threatened with destruction, drastic modification, or severe curtailment, or because of overexploitation, disease, predation or other factors; federally endangered species are officially designated by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service and published in the Federal Register.

Environmental Assessment (EA) - The use of federal funds for the construction of a project would require compliance with NEPA regulations. An EA determines whether an action that is not clearly eligible for a CE needs an EIS. Following completion of an EA, the state department of transportation (DOT) and FHWA adopt a "Finding of No Significant Impact" (FONSI) if FHWA determines that "no significant impact" is created by the action.

Environmental Impact Statement (EIS) - The use of federal funds for the construction of a project would require compliance with NEPA regulations. An EIS is required when an action is likely to have

significant effects on the environment. Such actions could include a new controlled-access freeway, a highway project of 4 or more lanes on a new alignment, or new construction or extension of fixed rail transit facilities. These types of actions require a Record of Decision (ROD).

Environmental Justice - Along with policy statements and guidelines prepared by the U.S. Department of Transportation and the FHWA Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898), dated February 11, 1994, strongly encourages public entities to conduct an environmental justice analysis both at the project development level and at the system or planning level. The purpose of the analysis is to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of federal programs, policies, and activities on minority and low-income populations.

Finding of No Significant Impact - An EA determines whether an action that is not clearly eligible for a CE needs an EIS. Following completion of an EA, the state department of transportation (DOT) and FHWA adopt a "Finding of No Significant Impact" (FONSI) if FHWA determines that "no significant impact" is created by the action.

Flood Insurance Rate Map (FIRM) - Flood insurance rate zones are shown on Flood Insurance Rate Maps that are prepared by the Federal Emergency Manament Agency (FEMA).

Floodplain - Floodplains are low-lying areas subject to flooding from time to time that can present a hazard where structures encroach upon them, blocking the flow of water during a storm event.

Floodplain, 100-year - According to the FEMA, the 100-year floodplain refers to the areas along or adjacent to a stream or body of water that are capable of storing or conveying floodwaters during a storm expected to occur once every 100 years.

Floodplain, Zone A - Zone A is the flood insurance rate zone that corresponds to the 1 percent annual chance floodplains that are determined in the Flood Insurance Study by approximate methods of analysis. Because detailed hydraulic analyses are not performed for such areas, no Base Flood Elevations or depths are shown within this zone. Mandatory flood insurance purchase requirements apply.

Floodplain, Zone AE - Zone AE is the flood insurance rate zones that correspond to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. In most instances, Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Floodplain, Zone X - Zone X is the flood insurance rate zone that corresponds to areas outside the 1-percent annual chance floodplain, areas of 1-percent annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1-percent annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1-percent annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone. Insurance purchase is not required in these zones.

Floodplain, Zone X Shaded - Zone X shaded is the flood insurance rate zone that corresponds to areas of 0.2 percent chance flood in any given year, areas of the 1 percent chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levee from the 1 percent chance flood. No Base Flood Elevations are shown within this zone. Insurance purchase is not required in these zones.

High-ratio Enhancement - High-ratio enhancement of degraded wetlands (3 acres or more of enhancement to 1 acre of impact rather than a 1 to 1 ratio)

High-ratio Preservation - High-ratio (such as 3 to 1) preservation of existing wetland and adjacent buffers

Impacts, Cumulative – Cumulative impacts are defined as impacts that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.

Impacts, Direct - Direct impacts are caused by the action and occur at the same time and place.

Impacts, Indirect - Indirect impacts are caused by the action but are removed in time or distance.

Intermittent - Intermittent streams are streams that dry up during the summer months or only during periods of long drought.

Jurisdictional Wetlands/Waters - A "jurisdictional wetland" is one that falls under state or federal regulatory authority. Wetlands are included under surface water quality regulations, pesticide regulations and landfill regulations. Two federal agencies oversee wetland issues. The Natural Resources Conservation Service has jurisdiction over wetlands on "Agricultural Lands." The U.S. Army Corps of Engineers has jurisdiction over "waters of the United States, including wetlands." Additionally, the U.S. Fish and Wildlife Service has jurisdiction over wetlands provided through their easement program.

Mitigation - A process of minimizing or compensating for damages to natural habitats, caused by human developments. These activities are designed to decrease the degree of damage to an ecosystem. They may include restoration, enhancement, or creation. According to the Clean Water Act, mitigation is a sequential process that includes avoiding impacts, then minimizing impacts, and lastly, compensating for impacts.

Mitigation Banking - A site where wetlands are restored, created, or preserved to serve as compensation for wetlands that are going to be filled for development elsewhere in a region. The bank is the site itself, and the currency is parcels of wetlands within the site

National Ambient Air Quality Standards (NAAQS) - The *Clean Air Act*, which was last amended in 1990, requires EPA to set National Ambient Air Quality Standards for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards. *Primary standards* set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. *Secondary standards* set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards for six principal pollutants, which are called "criteria" pollutants.

National Environmental Policy Act (NEPA) - The National Environmental Policy Act of 1969, as amended, is an Act to establish a national policy for the environment, to provide for the establishment of a Council on Environmental Quality, and for other purposes. As stated in Sec. 2 [42 USC § 4321]: "The purposes of this Act are: To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality."

Noise Contour - The noise environment for the community can be described with noise contours based on the major noise sources. Noise contours define areas of equal noise exposures. Future noise contours may be estimated with information about existing and projected land use development and transportation activity.

Noise Receptor – The person who hears noise, which is defined as any unwanted sound. Concerns about noise depend on 1) the level of intensity, frequency, frequency distribution and patterns of the noise source; 2) background noise levels; 3) the terrain between the emitter and receptor; and 4) the nature of the noise receptor.

Palustrine - All non-tidal wetlands that are substantially covered with emergent vegetation--trees, shrubs, moss, etc. Most bogs, swamps, floodplains and marshes fall in this system, which also includes small bodies of open water

Perennial Stream - A stream that normally has water in its channel at all times.

Playa Lake – Playa lakes are a type of isolated wetland. Geographically isolated wetlands are wetlands completely surrounded by upland with no surface water outlet. Isolated wetlands typically occur in depressions. Landscapes with an abundance of geographic depressions are places where these wetlands may be abundant. These landscapes may be created by glacial action, the disintegration of limestone or karst formations, and by the wind.

Prime Farmland - Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water).

Protected Species - Species whose population is declining in the wild, from human or other causes that are protected by special federal or state laws.

Record of Decision (ROD) - This type of decision is used when an Environmental Impact Statement (EIS) has been produced. Decisions documented in a Record Of Decision are subject to administrative appeal.

Relocation – Relocations may result from right-of-way acquisitions that require the use of land with existing uses. If any relocations are required, they will need to be done under the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970, as Amended, under which all federal agencies are required to meet certain standards for the fair and equitable treatment of persons displaced by federally supported actions. Relocation assistance must follow the guidelines set forth in Title 49, part 24 of the code of Federal Regulations.

Riparian – This term refers to the area in or on the banks of a river.

Riverine – This term refers to an environment created along permanent and semi-permanent streams because of the increase in soil moisture.

Shrub-scrub - Shrub-scrub wetlands are characterized by low-growing, woody plants and may include harvested forest areas that are regenerating.

Section 4(f) - *Section 4(f) of the Department of Transportation Act of 1966 (23 USC 138; 49 USC 1653)* protects public parks and recreational lands, wildlife habitat, and historic sites of national, state, or local significance from acquisition and conversion to transportation use.

Section 6(f) - Section 6(f) of the U.S. Land *and Water Conservation Fund Act of 1965* preserves, develops, and assures the quality and quantity of outdoor recreation resources through purchase and improvement of recreational lands, wildlife and waterfowl refuges, and other similar resources.

Section 106 - the *National Historic Preservation Act of 1966 (16 USC 470*], Section 106, and NEPA documentation compliance, requires Federal agencies to "take into account" the effects of their actions on "historic properties."

Section 404 - Federal Water Pollution Control Act Amendments of 1972. As amended in 1977, this law became commonly known as the Clean Water Act. Section 404 of this act provides regulatory authority to the USACE to issue or deny permits for the discharge of dredged or fill material into waters of the United States.

Superfund - Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (commonly known as Superfund). Congress established the Superfund Program in 1980 to locate, investigate, and clean up the worst sites nationwide. The EPA administers the Superfund program in cooperation with individual states and tribal governments. The office that oversees management of the program is the Office of Superfund Remediation Technology Innovation (OSRTI).

Threatened Species - Legal status afforded to plant or animal species that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range, as determined by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service.

Vegetation Type – This term refers to a plant community with distinguishable characteristics.

Waters of the United States - 40 CFR 122.2 - For purposes of the *Clean Water Act*, "Waters of the United States" means: (a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (b) All interstate waters, including interstate "wetlands"; and (c) All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce (further defined in the

Act). Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of Clean Water Act are not waters of the United States.

Watershed - The area of land above a given point on a stream that contributes water to the volume of a body of surface water; also referred to as a drainage basin

Wetland - An area that is regularly saturated by surface water or groundwater and is characterized by a prevalence of vegetation that is adapted for life in saturated soil conditions (e.g., swamps, bogs, fens, marshes, and estuaries).

Wetland, Emergent - The Emergent Wetland Class is characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants. All water regimes are included except subtidal and irregularly exposed. Emergent Wetlands are known by many names, including marsh, meadow, fen, prairie pothole, and slough.

Wild & Scenic Rivers - The National Wild and Scenic River System was created by an act of Congress in 1968 (the *Wild and Scenic Rivers Act)* to preserve select rivers with outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural or other important values in free-flowing condition. Rivers in this national system are protected for the benefit and enjoyment of present and future generations.

3.2 Document Summaries

The purpose of this section is to review and summarize the content of existing and currently approved environmental documents, environmental documents in progress (where available), and environmental information from other studies (e.g., community and regional plans) pertinent to the Ports to Plains Corridor Study. Information in these studies will be used to supplement data collected and to increase compatibility with other projects and plans affecting the Ports to Plains Corridor Development Plan.

The documents consulted as part of this study are summarized below:

1. *Ports to Plains Feasibility Study,* Project Steering Committee (Texas Department of Transportation, Oklahoma Department of Transportation, New Mexico Highway and Transportation Department, and Colorado Department of Transportation), June 30, 2001.
2. *US Highway 64-87 Environmental Assessment (DRAFT)*, Raton to Clayton, Colfax and Union counties, New Mexico Department of Transportation (formerly New Mexico Highway and Transportation Department), May 2004. Finding of No Significant Impact signed on October 26, 2004
3. *Eagle Pass Outer Loop Environmental Assessment,* Texas Department of Transportation, November 1999.
4. *US Highway 287 at Lamar Environmental Assessment,* Colorado Department of Transportation, study completed in 2003, but still under CDOT review.
5. *Lamesa Route Study,* Texas Department of Transportation, February 2002.
6. *I-70 East Corridor Environmental Impact Statement,* Colorado Department of Transportation, document in progress.
7. *Laredo 2025 Metropolitan Transportation Plan,* Laredo Metropolitan Planning Organization (MPO), November 2003.
8. *US 50 Corridor Pueblo to Kansas--Corridor Selection Study*, Colorado Department of Transportation, September 2003.
9. *Draft I-69/Trans-Texas Corridor Study* (Tiered EIS; 1,000 miles in Texas from Louisiana to Laredo), to be completed in 2005.

Document Overviews

1. *Ports to Plains Feasibility Study***,** Project Steering Committee (Texas Department of Transportation, Oklahoma Department of Transportation, New Mexico Highway and Transportation Department, and Colorado Department of Transportation), June 30, 2001.

Document Purpose

The purpose of the Ports *to Plains Feasibility Study*, 2001, was to determine the impacts and feasibility of a four-lane highway between the Texas/Mexico border and Denver, Colorado, via the existing I-27 Corridor between Amarillo and Lubbock, Texas. Other roadways studied include US 83, US 277, US 287, US 40, US 87, US 64, Texas 158, Texas 349. This document is supported by the 3-volume *Ports to Plains Environmental Overview,* June 2001, in which all of the topics below are described in greater detail for each of the Corridor alternatives studied.

Environmental Considerations

The Land Use/Environmental Conditions section of this study "summarizes existing land use and environmental conditions within the Ports to Plains Corridor including socioeconomic conditions, physical geography, ecology, water and cultural resources, and air quality considerations." Some important points from the study are noted below.

Ecology

- The Corridor represents a diverse geographical region with significant topographical differences and precipitation ranges, and a correspondingly high diversity of plant and animal life.
- The Corridor covers several eco-regions, as defined by the U.S. Environmental Protection Agency (1999). From south to north, these are:
    - Southern Texas Plains
    - Central Great Plains
    - Chihuahuan Desert
    - Southwestern Tablelands
    - Western High Plains
    - Southern Rockies
- More than 22 major vegetation types occur within the Corridor. They range from arid to semi-arid grass and shrub lands to mesic woodlands and mountain forests.
- The southernmost portion of the Corridor includes an eco-region considered to be among the highest in species richness for bird, butterfly, reptile and mammal species in the continental U.S. In addition, the Edwards Plateau, through which the Corridor travels, contains subterranean formations that support high biodiversity in the region.
- The Corridor has areas of sensitive ecology providing high quality wildlife habitats that should be considered in the planning process, including:
    - Lakes (such as natural playa lakes in the Texas High Plains)
    - Ponds, river, and streams, both perennial and intermittent
    - Riparian corridors
    - Wetlands
    - Upland woods and forests
    - Dense clumps of mature trees and shrubs
- Endangered and threatened plant and animal species are also supported in the Corridor by grassland areas and cultivated croplands, especially where woody vegetation is present along fences. These areas should be considered in the planning process and in mitigation plans.
- Waters of the U.S. and wetlands are also present in the Corridor. For purposes of the Clean Water Act, "Waters of the United States" means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(b) All interstate waters, including interstate "wetlands";

(c) All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;

(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of Clean Water Act are not waters of the United States.

- Groundwater resources include aquifers and aquifer systems (water tables). Major aquifers in the Corridor are:
    - Ogallala
    - Edwards-Trinity Plateau
    - Dockum
    - Lipan
    - High Plains
    - Denver Basin (Laramie-Fox Hills, Arapahoe, Denver and Dawson)

Cultural Resources

- The Corridor has a number of diverse and unique cultural regions.
    - From the Mexican border to I-10, small, widely-dispersed, Mexican-influenced towns and ranches are characteristic of the Corridor. The earliest pertain to the Spanish Colonial period of Texas.
    - Mexican-influenced towns and ranches are characteristic. The earliest towns and ranches pertain to the Spanish Colonial period of Texas.

- From I-10 to the Texas borders with Oklahoma and New Mexico, the culture is generally related to ranching, the railroads and the oil and gas industries.
- In Colorado and New Mexico, the influences of ranching and mining are present.
- Archaeological sites in the Corridor range from early nomadic Paleo-Indian to sedentary village sites.

Air Quality

- Air quality is generally good to excellent throughout the Corridor, including Colorado, Texas, New Mexico and Oklahoma. Exceptions are in the Denver metropolitan area (non-attainment for carbon monoxide and particulate matter (PM-10)), and Lamar (non-attainment for PM-10). (Note: Lamar has not violated the standard since 1992, and was approved in 2001 by the Air Quality Control Commission as an attainment area for the federal particulate matter standard.)

2. *US Highway 64-87 Environmental Assessment (DRAFT)*, Raton to Clayton, Colfax and Union counties, New Mexico Department of Transportation, May 2004.

(Ports to Plains Corridor sections included in this report are *US 64 from Clayton to Capulin, US 64 from Capulin to Union/Colfax County Line,* and *US 64 from Union/Colfax County Line to Raton/I-25*.)

Document Purpose

The project studied in this Environmental Assessment (EA) is the improvement of US 64-87 between Raton and Clayton, New Mexico. The 81-mile study corridor begins west of the junction of I-25 and US 64-87 in Raton, and terminates at MP 430.1 in Clayton.

The preferred alternative is to widen the existing 2-lane highway to 4 lanes for the entire length of the project area. A Finding of No Significant Impacts (FONSI) was signed October 26, 2004.

Environmental Considerations

Adverse impacts of both "Build" alternatives on vegetation, wetlands and cultural resources were identified. Measures to mitigate the impacts were also identified, and consultations held with appropriate agencies. Some of the highlights of the report are:

- With 1 exception, the locations where property would be acquired for right-of-way are undeveloped and would involve narrow strips of land.
- The 4-lane alternative would affect up to 503 acres of vegetation, most consisting of grasslands used for livestock grazing and a small amount of piñon-juniper woodlands. The loss is not considered significant given the abundance of similar resources adjacent to the highway.
- Adverse impacts to wildlife include the following.
  - Creation of a wider barrier for small terrestrial animals to cross, potentially increasing wildlife/vehicle collisions.
  - Removal of vegetation that will affect bird habitat. Construction activities may affect nesting behavior.
  - Disturbance to and removal of some nest sites, due to reconstruction of existing drainage structure and removal of some trees.
  - Potential increases in collisions between deer and vehicles due to widening.
- The proposed widening will not have an adverse effect on any historic properties; however, one archaeological site is within the proposed construction limits and will be affected – site LA 140462, which has two areas: Area 1 and Area 2. Area 2 consists of historic railroad grades. Area 1 consists of associated railroad features with artifacts. A portion of Area 1 will be impacted due to 14 feet of additional right-of-way needed on the north side. A program of archival data recovery is recommended for this area. Area 2 will not be impacted.

3. *Eagle Pass Outer Loop Environmental Assessment*, for Texas Department of Transportation, November 1999.

(Note: This study covers the entire area that is proposed in the following Ports to Plains Relief Routes: *Eagle Pass Relief Route from US 277 east of Eagle Pass to US 277 north of Eagle Pass* and *Eagle Pass Relief Route from Eagle Pass International Bridge to US 277 East of Eagle Pass.)*

Document Purpose

The Texas Department Of Transportation proposes to construct a new outer loop facility around the city of Eagle Pass. The project and study limits begin at the Eagle Pass International Bridge II and end at US 277 north of Eagle Pass. The draft EA is part of the project planning process, and documents the alternatives analysis process, including an evaluation of potential social, economic, and environmental impacts from construction and operation of the loop project. Potential impacts relate to land use, displacements, natural resources and historic properties.

Four alternatives and a No-Build alternative were considered.

- All alignments follow the same beginning alignment from the Eagle Pass Bridge II (over the Rio Grande River from Mexico to Texas) and proceed south and essentially parallel to the Rio Grande River on undeveloped property for approximately 2.0 miles, where the alignments begin to cross a series of pecan orchards. Once past the pecan orchards, the alternatives diverge, with Alternatives 1, 2 and 3 converging at the Southern Pacific Railroad north of FM1588 (Thompson Road, approximately 700 feet east of the US 277/FM 1588 intersection). These alternatives terminate at Elm Creek Bridge. Alternative 1 is 12.5 miles long. Alternative 2 is 13.2 miles long, and Alternative 3 is 15.1 miles long.
- Alternative 4 is the longest of the alignments at 16.7 miles. From the pecan orchards, alternatives 1 and 2 travel concurrently and begin to curve in a northeasterly direction on undeveloped property for 1.7 miles to El Indio Highway. Alternatives 3 and 4 proceed north of Alternatives 1 and 2 to avoid an irrigation juncture. While the other Alternatives converge at the Southern Pacific Railroad north of FM1588 (Thompson Road), Alternative 4 continues northeast of and essentially parallel to the maverick County Main Irrigation Canal, crossing Elm Creek and heading west to tie to US 277 approximately 3.3 miles north of FM 1588.
- Alternative 4 was selected after 2 public involvement sessions where there was strong public support for it. The analysis showed that this alternative was the most cost-effective and most sensitive to the human and natural environment.

Comparison of Alternative 4, the preferred alternative to the other 3 alternatives (not considering the No-Build), show the following:

- Alternative 4 has the least utility and pipeline crossings, the least irrigation canal crossings, and the least stream/creek crossings. It has no potential displacements where the other alternatives had 6 to 36 potential displacements, and does not cross through any colonias (described below). Alternative 4 improved public service facility access and did not disrupt neighborhood cohesion as the others did. It has no potential noise impacts whereas the others had 4 and 29 potential impacts. Alternative 4 had no air-sensitive receptors, no potential hazardous materials sites, and the fewest (2) historic resources. However, it does have the most potential archaeological sites at 13 (over 6 and 10)
- Alternative 4 crosses next to the highest number of floodplain acres (31.2 with 31.7 being the highest and 22.9 being the lowest). It crosses the same acres of Scrub Shrub habitat (33.8) as the other alternatives, but takes the most acres of open range (361.8 with 230.7 being the next highest and 140.5 being the lowest), and prime/unique farmland soils 157 acres, with 153 the next highest and 127 being the lowest).

Alternative 4 Environmental Considerations (in more detail)

Some of the highlights of the environmental study are:

- Traffic volumes from TxDOT's 1999 Air Quality Guidelines do not exceed 20,000 vehicles per day for the construction year (2000) or the design year (2020). The project is exempt from a Traffic Air Quality Analysis because previous analyses of similar projects did not result in a violation of the National Ambient Air Quality Standards. The EA states, "Air quality impacts resulting from the proposed project are expected to be negligible." It also states, "The proposed loop would reduce traffic congestion within the City of Eagle Pass and enable more efficient traffic movement for the area."
- For the preferred alternative (#4), direct impacts are expected to include 362 acres of impact to open range/pasture lands and 34 acres to floodplain, and scrub-shrub/undeveloped land. In addition, one oil well location would be impacted.
- The racial/ethnic distribution of persons living within the Census Block Groups along the path of Alternative #4 is similar to that of Maverick County (in which the project is located) and Eagle Pass as a whole. While "individual minority and low-income persons may be affected by the proposed project, it cannot be shown that implementation of any of the four alternatives or the No-Build Alternative would cause disproportionate adverse impacts to minority and low-income populations."
- Alternative 4 does not pass through any "colonias." According to the study, colonias are rural and unincorporated communities/subdivisions located along the United States/Mexico border that are characterized by substandard housing, inadequate plumbing and sewage disposal systems, and inadequate access to clean water. Most residents living in South Texas colonias live below the national poverty level, with an estimated median annual household income of $7,000 to $11,000, and an average family size of 5 to 6 persons.
- Alternative 4 has no displacements or relocations, does not impact any neighborhoods, and does not impact any noise receivers because it traverses mostly agricultural/undeveloped lands.
- Alternative 4 crosses a minor channel of Elm Creek, which has a small seep identified by the U.S. Army Corps of Engineers as a wetland. However, it is located totally within the stream channel. No flow was detected from the seep area. Direct impacts to jurisdictional waters are expected to be limited to less than 1/10 acre; therefore, the project meets the requirements of the revised Section 404 Nationwide Permit No. 14 (without notification) effective June 2000.
- Alternative 4 crosses 4 tributaries to the Rio Grande on the southern side of Eagle Pass and Elm Creek at the far northern end of the city of Eagle Pass. The primary effects of the project on surface water are associated with the disturbance of vegetation and soil cover during construction and maintenance (of the road and rights-of-way).
- Encroachments on the floodplains would not increase the base-flood elevation to a level that would violate applicable regulations.
- Riparian woodland found along the major drainages (Rio Grande River, Elm creek, irrigation canals) is generally confined to floodplains.
- No wildlife management plan is in place and no population studies have been conducted within the project corridor. No rare native communities or sensitive natural areas were identified within the project area.
- Because of the aridness of the area, no landscaping is proposed except for reseeding with a native grass mix along disturbed areas of the right-of-way.
- Where the proposed loop crosses a stream or canal in a location not previously disturbed by a roadway, some disruption to the local wildlife territories would occur. The proposed alternative could divide habitat and cut off existing wildlife corridors.
- There is a possibility of impacts to individual threatened and endangered species (if present) as a result of construction of the proposed project, but the likelihood of encountering these species is considered remote. Several species received special attention:

  - Ocelot and jaguarundi: Lack of habitat; impacts not expected. Elm Creek is expected to be spanned with a bridge, which would allow for the existing vegetation to remain along the creek banks, thus eliminating any permanent modifications to the potential travel corridors of these cats.
  - Interior least tern: Lack of habitat in the corridor; impacts not expected.
  - Reticulate collard lizard and Texas tortoise: None have been found in the vicinity, therefore impacts not expected.
  - Wood stork: Lack of habitat in the corridor; impacts not expected.
  - Black bears: Considered to be extirpated from the area.
  - Black hawk and coati: Not expected to be directly impacted, as these species are highly mobile and will avoid construction activities.
- No federally-listed threatened/endangered plant species are known to inhabit the project area.
- Three existing archaeological sites are within portions of Alternative 4. Site 42MV237 is a historic bone and trash scatter likely associated with Site 41MV2, Fort Duncan. Site 41MB106 is a stratified, Archaic campsite crossed by the alignment along the Rio Grande in the southwestern portion of the project area. Further archaeological work may be necessary at these sites, depending on the level of proposed impacts and the final loop alignment.
- The potential for more unrecorded archaeological resources was noted near major creeks and waterways such as Elm Creek and along the alluvial terraces of the Rio Grande, which have been shown to contain significant, buried sites within the southwestern sections along the Texas-Mexico border.
- Two Historic Standing Structures are close to Alternative 4.
  - The Union Pacific Railroad bridge of the Rio Grande appears to be eligible for the National Register of Historic Places.
  - A possibly eligible single dwelling built around 1950. Coordination with the Texas State Historic Preservation Officer is required to establish eligibility for listing in the National Register of Historic Places.

4. *US Highway 287 at Lamar Environmental Assessment,* Colorado Department of Transportation, completed in 2003 but still under CDOT review.

(This is the same as the Ports to Plains section called *Lamar Relief Route from US 287 south of Lamar to US 287 north of Lamar.* This study adds a section from the interchange west of US 287.*)*

Document Purpose

The Colorado Department Of Transportation initiated a Feasibility Study in 1999 that considered new roadway corridors for US 287 around the city of Lamar, Colorado. The study identified a preferred corridor that bypasses Lamar on the east side of the city from US 287 south of Lamar to US 287 north of Lamar. This preferred corridor was presented to the public in the spring of 2000. The 2003 EA builds on the Feasibility Study and provides a greater level of detail on the proposed corridor, alternative designs, and potential environmental impacts.

Environmental Considerations

A Preferred Alternative has been selected. From south to north, this alternative leaves US 287 via an interchange and heads east at County Road C-C. After 1 mile it turns directly north, then goes about 1,000 feet farther east after crossing Lake Road. The route then continues north and intersects US 50 with an interchange. It then continues north, crossing the Burlington Northern Santa Fe Railroad, the Arkansas River and the Hyde Canal. The route continues northwest crossing Highway 196, then heads westward crossing US 287 with an interchange. It connects to Highway 196 about 2,000 feet west of US 287.

The Draft EA is still under review at CDOT and additional information is not available at this time.

5. *Lamesa Route Study*, Texas Department of Transportation, February 2002. (This is the same as the Ports to Plains section called *Lamesa Relief Route from US 87 south of Lamesa to US 87 north of Lamesa.)*

Document Purpose

The main purpose of the Lamesa Route Study was to identify mobility solutions in and around the city of Lamesa. This study describes the process followed and the 7 reliever route alternatives considered. It also describes the environmental constraints for each alternative, and the attributes of the preferred alternative (identified as US 87-2).

Environmental Considerations

Improvement constraints and features that could be impacted are as follows:

- Adjacent to the existing US 87 in the southern portion of the city is a golf course and the City of Lamesa Water Services.
- A drive-in movie theater is located on the east side of US 87, along with an electrical substation.
- Further south of Lamesa, along Farm-to-Market (FM) 2052, several large irrigation pivots exist, as well as a crossing of the Sulphur Springs Draw.
- The small incorporated community of Los Ybanez is near the eastern portion of the city. This community is primarily low-income, with only a few commercial establishments.
- Also located on the eastern boundary of the study area is a Texas Department of Criminal Justice prison, which is a major employer and large physical obstacle that limits some potential relief routes.
- The Lamesa Municipal Airport is located in the northeastern portion of the city, constraining route possibilities with airway/highway restrictions.
- Numerous businesses and residences are located along existing US 87 in town.
- An abandoned railroad right-of-way parallels US 87 for the length of the urbanized area.

The following describes the important environmental findings of the study:

- No prime farmland soils exist within the project study area, but the dominant vegetation community in the Lamesa area is cropland. (The U.S. Bureau of Land Management defines prime farmland as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses. Thus, the land could be cropland, pastureland, rangeland, forest or other land, but not urban built-up land or water.)
- According to the Texas Department of Transportation, Dawson County meets the criteria for an economically disadvantaged county because it has below average per capita taxable property value, below average per capita income, and above average unemployment. The study recommends more in-depth analysis, especially for environmental justice purposes.
- No archaeological sites were found along any of the proposed routes. The potential for prehistoric sites is generally considered low.
- Two historical markers were identified: one for Pioneer Cemetery and another commemorating the founding of Dawson County.
- One National Register of Historic Places site was identified--Los Ybanez, which was built for the Lamesa Farm Workers' Community in the 1940s.
- Historic structures may be present along each of the alternative routes. This resource requires further study.
- Lamesa is located within the upper reaches of the Colorado River Basin and over the Ogallala Aquifer.

- Sulphur Springs Draw, a shallow ephemeral stream that crosses this area from the northwest to the southeast, is considered part of the Waters of the U.S., and 10 playa lakes occur here.
- Lamesa is located within the High Plains vegetation region of Texas (mixed prairie, short-grass prairie, and in some locations tall-grass prairie). It has relatively flat topography with numerous playa lakes.
- Twenty state or federally listed threatened, endangered, or rare species, or species of concern, are identified as potentially occurring in Dawson County. The Texas Parks and Wildlife Department has no recorded occurrences of any of these species within the immediate area of Lamesa, but habitat suitable for several species (Texas horned lizard, Western burrowing owl and Black-tailed prairie dog) exists.

The selected 5.8-mile preferred alternative has a 4-lane controlled-access, rural freeway section, located approximately 1 mile east of existing US 87 through the city of Lamesa. It starts at US 180/US 87 south of the city, and near the intersection of US 87/FM 825 to the north. The proposed relief route will be designated a controlled access facility and will only provide grade separations (no access) at the road to Los Ybanez, FM 825 and FM 2592 with direct access provided at FM 827. There will be no frontage roads. Access to adjacent properties will be maintained through the use of the existing roadway network and "backage roads" if the final design of the roadway necessitates their use. (Although the term is not defined in the document, the text implies that backage roads, unlike frontage roads, direct local traffic away from the controlled access facility, reduce mixing of local and regional traffic, and allow for access to properties at a distance away from the mainline in a "back door" approach.) Its impacts, benefits and costs include:

- Impacts to the use of agricultural land
- One residential and 3 commercial displacements (relocations)
- Two minimal impacts to Waters of the U.S. (the location and type of impacts are not defined in the report)
- Regional and local traffic are not required to mix
- Hazardous cargo is routed out of the city limits

Overall, the impacts of the preferred alternative are described as minimal.

6. *I-70 East Corridor Environmental Impact Statement*, Colorado Department of Transportation, document study in progress. Anticipated completion July 2005.

(This section of I-70 is part of the Ports to Plains Corridor whose northern terminus is at I-25 in Denver, and it is not a section that will be widened.)

Document Purpose

This EIS, initiated in July 2003, is studying I-70 between I-25 and Pena Boulevard, and a potential transit connection between downtown Denver and Denver International Airport. It is analyzing transit, highway, bicycle and pedestrian alternatives to see how best to improve safety and mobility on I-70.

The EIS is currently in the Alternatives Analysis and Screening process. Completion is expected in July 2005 and a Record of Decision by December 2005.

7. *Laredo 2025 Metropolitan Transportation Plan*, Laredo Metropolitan Planning Organization (MPO), November 2003.

Document Purpose

The Laredo, Texas Metropolitan Transportation Plan (MTP) is an update to the previous 1995 MTP.

Environmental Considerations

The MTP highlights the following environmental issues:

- The Laredo metropolitan area is classified as being within the "attainment" criteria for conformity to the National Ambient Air Quality Standards. However, it is considered important to monitor increasing truck and automobile traffic. Airborne particulates are becoming a concern due to climate, wind, unpaved streets and increasing diesel truck traffic.
- Laredo has a "high degree of biological diversity" in its wildlife species. It is reported that more than 40 animal and 80 plant species in the Laredo area are considered rare. Some species are known to be losing habitat due to increasing urbanization on both sides of the international border.
- There is no prime farmland (as defined by the Bureau of Land Management) in the study area, but irrigated land, which is considered prime for farming, is located along the eastern perimeter of the study area toward the Rio Grande River.
- The Port of Laredo is the largest inland port for commerce in the United States. It is estimated that over 400 facilities within the city may store hazardous materials. The U.S. and Mexico signed the *Joint United States of America – United Mexican States Contingency Plan for Accidental Releases of Hazardous Substances along the Border (1988).* The City of Laredo has also formed a committee to review the city's hazardous materials ordinance and make recommendations.
- The MTP lists parks and historic districts, sites and structures.

8. *US 50 Corridor Pueblo to Kansas--Corridor Selection Study*, Colorado Department of Transportation, September 2003.

(US 50 crosses the Ports to Plains Corridor at Lamar, Colorado.)

Document Purpose

This study was done to determine an appropriate US 50 corridor for moving existing and future traffic from the Kansas State border to I-25 in Pueblo (150 miles), and to meet the transportation needs of the corridor's communities as well as regional and national traffic.

The study states: "As part of the regional transportation system, US 50 holds the possibility of delivering alternative routes for other congested corridors such as I-70, and ultimately the national transportation network."

Three alternatives for improvements were developed: the existing corridor, a new alignment generally located to the north but using some of the existing corridor, and a new alignment generally located several miles to the south but using some of the existing corridor.

This study states that it "sets the stage for the required environmental process, which will investigate, analyze, and recommend a preferred alternative." Existing and future conditions of travel demand, economic conditions, and the existing corridor's ability to meet the existing and future travel demand and economic conditions were studied.

This corridor is now being studied for a tiered Environmental Impact Statement (EIS).

9. *Draft I-69/Trans-Texas Corridor Study* (Tiered EIS; 1,000 miles in Texas from Louisiana to Laredo) to be completed in 2007.

Document Purpose

The first tier Environmental Impact Study of an area 20 to 50 miles wide and 1,000 miles long is underway and expected to be completed in the summer of 2005. After a preferred corridor is selected, the study area will be reduced to a width of 1/2 mile to 4 miles, and additional environmental studies will be undertaken to determine specific alignments for roads and rail. This is anticipated to be complete in 2007.

The Trans-Texas Corridor Plan envisions multi-modal corridors across the state to improve the efficiency and comprehensiveness of the state's transportation systems. I-69 is a key component of the Trans-Texas corridor system. The Federal Highway Administration and TxDOT are dedicated to making the I-69 project a model of the efficiency that can be achieved in large-scale projects.

Environmental Considerations

The Tiered Environmental Impact Statement Process Manual for environmental process streamlining was approved in 2003. As described in the Federal Highway Administration (FHWA) monthly newsletter (March 2004) the Steering Committee for this project created a Technical Advisory Committee (TAC), which includes TxDOT, FHWA, all state and federal resource agencies, and affected Metropolitan Planning Organizations. The TAC is, among other things, responsible for developing an overall approach to the project process, which in this case became the I-69/Trans-Texas NEPA and Project Development Process Manual (Process Manual). The manual provides "guidance for each step of the project development process, including how to effectively manage working relationships among many agencies."

The corridor is divided into 3 study areas comprised of multiple sections of independent utility. The Ports to Plains Corridor is intersected by the South Area, which covers the 110-mile area from George West (Junction US 59/US 281) to Laredo (Junction I-35/US 59) and south. This area also overlaps the I-35 study area and is coordinated with that study. Public scoping meetings were held in April 2004. Tier 1 draft documents are scheduled to be completed in spring 2005, with public hearings starting the following summer.

3.3 Agency Coordination

Coordination Efforts

Letters and project maps were sent to land and resource management and regulatory agencies, including the United States Fish and Wildlife Service, United States Army Corps of Engineers, United States Environmental Protection Agency, state Departments of Wildlife, state Departments of Public Health and Environment, and state Historic Preservation Offices. The intent of this coordination effort is to inform stakeholder agencies of the project, and to solicit their input on issues of importance to them in the Ports to Plains Corridor Development Plan. Exhibit 3.3-1 lists the agencies contacted. A sample letter and agency responses are included below. Office and contact information are included where known, or where a response to the inquiry has been made.

Exhibit 3.3-1 Ports to Plains Agency Environmental Coordination List

Agency	Office	Contact	Address
U.S. Fish and Wildlife Service	Colorado Field Office	Susan Linner, Field Supervisor	755 Parfet Street, Suite 361, Lakewood, CO 80215
U.S. Fish and Wildlife Service	Oklahoma Ecological Services Field Office	Field Supervisor	222 South Houston, Ste A Tulsa, OK 74127
U.S. Fish and Wildlife Service	New Mexico Ecological Services Field Office	Susan MacMullin, Field Supervisor	2105 Osuna NE Albuquerque, NM 87113
U.S. Fish & Wildlife Service	Ecological Services	Thomas J. Cloud, Jr., Field Supervisor	WinSystems Center Building 711 Stadium Drive Suite 252 Arlington, TX 76011
U.S. Fish & Wildlife Service	Ecological Services Field Office, Southwest Region 2	Robert T. Pine, Supervisor	100711 Burnet Road, Suite 200 Austin, TX 78758
Oklahoma Department of Wildlife Conservation	Wildlife Division	Ferrella March, Natural Resources Biologist	P. O. Box 53465 Oklahoma City, OK 73152-4365
Colorado Division of Wildlife	Southeast Region Service Center (Area 14)	Mark B. Konishi, Regional Manager	4255 Sinton Road Colorado Springs, CO 80907

Agency	Office	Contact	Address
Colorado Division of Wildlife	Area 12	--	2500 S. Main Street Lamar, CO 81052
Texas Parks and Wildlife Department	Wildlife Habitat Assessment Program, Wildlife Division	Danny Allen	3000 S. IH-35, Suite 100 Austin,TX 78704
Texas Parks and Wildlife Department	Resource Protection Division	--	4200 Smith School Road Austin, TX 78744
New Mexico Department of Game & Fish	Conservation Services Division	Lisa Kirkpatrick, Chief	One Wildlife Way P. O. Box 25112 Santa Fe, NM 87504
U.S. Environmental Protection Agency	Region 6 Main Office	--	1445 Ross Avenue Suite 1200 Dallas, TX 85202
U.S. Environmental Protection Agency	Region 8 Office	--	999 – 18th St. Suite 300 Denver, CO 80202-2466
U.S. Army Corps of Engineers	Fort Worth District	Col. John Minahan, Commander	P. O. Box 17300 Room 3A-32 Fort Worth, TX 76102-0300
U.S. Army Corps of Engineers	Southern Colorado Regulatory Office, Albuquerque District	Anita E. Culp, Senior Project Engineer	720 Main Street, Suite 300 Pueblo, CO 81003
U.S. Army Corps of Engineers	Tulsa District	David L. Manning, Chief, Regulatory Branch	1645 S. 101st E. Avenue Tulsa, OK 74128-4609
U.S. Army Corps of Engineers	Albuquerque District	William M. Oberle, Regulatory Specialist	4101 Jefferson Plaza NE Albuquerque, NM 87109-3435
Colorado Department of Public Health and Environment	--	--	4300 Cherry Creek Drive South Denver, CO 80246-1530
Oklahoma Department of Environmental Quality	--	--	P. O. Box 1677 Oklahoma City, OK 73101-1677
Texas Department of Health	--	--	1100 West 49th Street Austin, TX 78756-3199
Texas Department of Transportation, Environmental Affairs Division	--	Anne Irwin	125 East 11th Street Austin, TX 78701-2483
New Mexico Department of Transportation Environmental Section		Steve Reed	P. O. Box 1149 Santa Fe, NM 87504-1149
New Mexico Department of Cultural Affairs	Historic Preservation Division	Michael L. Elliott, Archaeologist for NM State Historic Preservation Officer	228 East Palace Avenue, Room 320 Santa Fe, NM 87501
Colorado Department of Transportation	Environmental Programs Branch	Brad Beckham	4201 E. Arkansas Avenue Denver, CO 80222

Agency	Office	Contact	Address
Texas Historical Commission	--	Lawrence Oaks, State Historic Preservation Officer	P. O. Box 12276 Capitol Station Austin, TX 78711-2276
Oklahoma Historical Society Architectural	State Historic Preservation Office, Architectural/Historic Surveys	Jim Gabbert	2704 Villa Prom Shepherd Mall Oklahoma City, OK 73107
Oklahoma Historical Society Archaeological	State Historic Preservation Office, Archaeological Surveys	Charles Wallis, RPA, Historical Archeologist & Section 106 Coordinator	2704 Villa Prom Shepherd Mall Oklahoma City, OK 73107
Colorado Office of Archaeology and Historic Preservation	State Historic Preservation Officer	Georgianna Contiguglia	1300 Broadway Denver, CO 80203-2137

SAMPLE AGENCY COORDINATION LETTER

DATE*

AGENCY CONTACT

AGENCY

STREET ADDRESS

CITY, STATE, ZIP CODE

A Corridor Development Plan for the Ports to Plains Corridor is being prepared by the Colorado Department of Transportation, the New Mexico Department of Transportation, the Oklahoma Department of Transportation, and the Texas Department of Transportation. To be complete, the Corridor Development Plan requires a systematic and detailed inventory of baseline data for major environmental disciplines and other areas of special concern. The current Ports to Plains Corridor map is enclosed to show you the extent of the project and some of the existing transportation conditions.

We are contacting the AGENCY NAME to inform you about this project, to coordinate with you regarding the corridor's environment in the vicinity of the project, and to acquire the related and available environmental data you may have regarding ENVIRONMENTAL AREA OF CONCERN in STATE AND COUNTIES. Our inventory is not part of a NEPA process for environmental documentation (EA or EIS). It will, however, help determine what environmental process will be required in the future. To date, the inventory effort has included a windshield survey, and a search of databases including your agency's and others.

In this early stage of the Ports to Plains project, we hope that you will inform us of any environmental concerns you may have and open a line of communication to the project. At this time, we are paying particular attention to environmental data along segments of the corridor where two-lane roadways will be expanded to four lanes. As shown on the enclosed map, in STATE this includes SPECIFIC PORTS TO PLAINS CORRIDOR SECTIONS.

As each section of the project is developed, detailed environmental studies will be conducted based on the alternative engineering plans. We will contact your department again to apprise you of the project's progress and request your review of any environmental issues raised and potential mitigation strategies if required. If you have any questions, please call me at TELEPHONE NUMBER, or send me an email at EMAIL ADDRESS.

Thank you very much for your assistance,

PORTS TO PLAINS CONSULTANT ENVIRONMENTAL RESEARCHER.

C: PORTS TO PLAINS CONSULTANT PROJECT MANAGER

** CAPS indicate what information was inserted*

Substantive Comments Received

1. U.S. Fish and Wildlife Service (USFWS), Ecological Service, Colorado Field Office

This office of the USFWS responded regarding federal endangered, threatened, proposed and candidate species for Baca, Prowers, Kiowa, Cheyenne, and Lincoln counties in Colorado. Five species of birds, 1 mammal, and 1 fish were noted as federal endangered.

Specific mention was made of existing or new water depletions of the Platte River system that may affect protected species in the critical habitat of the whooping crane and piping plover in the central Platte River in Nebraska. "Project elements that could be associated with depletions to the Platte River system include, but are not limited to, ponds (detention / recreation / irrigation storage), lakes (recreation / irrigation storage / municipal storage / power generation), reservoirs (recreation / irrigation storage / municipal storage / power generation), pipelines, and water treatment facilities, dust control, and soil compaction." In addition, 3 candidate species were listed "that may occur in or visit the project area: Lesser prairie-chicken, Black-tailed prairie dog, and Arkansas darter. It is recommended that the project become familiar with the Central Shortgrass Prairie Initiative, however, the USFWS is uncertain whether the project will fall under the umbrella of this Initiative…" The USFWS also recommends that the findings (as yet incomplete) of the Connectivity Campaign headed by the Southern Rockies Ecosystem Project be incorporated into the project design and impact analysis.

This office of the USFWS also is concerned that the project will "induce considerable commercial and residential development," and that the effects, mitigation strategies, and commitments to implement the strategies be thoroughly addressed in NEPA documents.

An information document on the shortgrass Prairie Initiative and American Association of State Highway & Transportation Officials (AASHTO) Environmental Stewardship Program was enclosed with the letter. More information on the Shortgrass Prairie Initiative and the AASHTO Environmental Stewardship Program can be found at www.stewardship.transportation.org.

ACTION: Include the Central Shortgrass Prairie Initiative, Connectivity Campaign, and cumulative impacts/induced growth impacts concerns in the Environmental Consideration sections for Colorado sections. The species listed have been included in the summary tables herein.

2. USFWS, Oklahoma Ecological Services Field Office

No response.

3. USFWS, New Mexico Ecological Services Field Office

This agency recommends that species-specific surveys be conducted (during the flowering season for plants and at the appropriate time for wildlife) to evaluate any possible project-related impacts, that the roadway and structures be designed to allow for wildlife movement across the roadway, that old bridges be inspected for bat roosts prior to removal or modification, and that the U.S. Army Corps of Engineers and New Mexico Department of Game and Fish be consulted. Enclosed were copies of a current list of federally endangered, threatened, proposed, and candidate species and species of concern that may be found in Union and Colfax Counties, New Mexico. The Ports to Plains Corridor Development Plan was assigned Consultation #2-22-04-I-0572.

ACTION: Species listed are included in summary tables herein.

4. USFWS, Ecological Services, Arlington, Texas

This office has responsibility for the portion of the project occurring in Dallam, Dawson, Hale, Hartley, Lubbock, Lynn, Moore, Potter, Randall, Sherman, and Swisher counties, Texas. Five species are noted in the letter with information regarding the counties where they may occur and their habitat: Arkansas River shiner (threatened), bald eagle (threatened), interior least tern (endangered), whooping crane (endangered), and black-tailed prairie dog (candidate). Special note was made of the crossing of the Canadian River, numerous streams and playas, because the wetlands and riparian corridors are high priority fish and wildlife habitat and resources of national concern. The Ports to Plains Corridor Development Plan was assigned consultation number 2-12-04-I-475.

ACTION: Species listed are included in summary tables herein.

5. USFWS, Ecological Services Field Office, Southwest Region 2, Austin, Texas

This office responded for the following Texas counties: Coke, Edwards, Glasscock, Howard, Kinney, Martin, Midland, Schleicher, Sterling, Sutton, Tom Green, and Val Verde (central and west Texas). While the letter recommends accessing the USFWS website for a species list, it makes particular reference to the threatened Concho water snake because the project appears to be located within designated critical habitat. Citing sections 7 and 10 of the Endangered Species Act of 1973, as amended, it recommends presence/absence surveys for endangered species with further consultation if suitable habitat is found. USFWS also recommends consideration of candidate species and Texas protected species, and contact with the Army Corps of Engineers regarding wetlands and riparian areas. Construction practices and mitigation measures are suggested. The Ports to Plains Corridor Development Plan was assigned Consultation Number 2-15-04-I-0267.

ACTION: Species from the recommended database and contact with the Texas Department of Parks & Wildlife have been included in the summary tables, and in each Texas section with a river/creek crossing or potential impacts to wetlands, the Army Corps has been noted as a coordination agency.

6. Oklahoma Department of Wildlife Conservation (ODWC)

“Based on an intensive review of the Project boundaries, ODWC has concluded that [there are] six species of Special Concern Category 1 (SS1), one of which is federally listed as Proposed as threatened (PT).” Four species are listed in this letter: Interior Least Tern, Bald Eagle, Mountain Plover, and Lesser Prairie Chicken. Of specific concern to ODWC is disturbance of breeding grounds resulting from road construction. ODWC suggests that further information regarding locations of the species be gathered from the Oklahoma Natural Heritage Inventory and the USFWS, Ecological Services. Seven “general guidelines” to reduce the impact of highway construction of local wildlife populations through the alteration or loss of habitat are listed including the use of best management practices.

ACTION: Species listed are included in summary tables herein.

7. Colorado Division of Wildlife (CDOW), Southeast Region (Area 14)

The CDOW is concerned about an increase in collisions with wildlife, “particularly large mammals such as deer and antelope,” and restricted travel corridors. “Any travel lanes or highway structures crossing rivers, creeks, or drainages should be built in a manner that allows wildlife to cross under the roadway rather than over it.” Right-of-way fencing specifications are included as well as a list of species of

concern. "Wildlife habitat issues that need to be addressed during construction include minimizing and mitigating impacts to native habitats such as sand-sage, shortgrass prairie, riparian and wetland areas." Recommendations are included for reseeding and minimizing noxious weed growth. In addition, lists of potential species in the Colorado counties of the Ports to Plains Corridor were provided via email from a CDOW Habitat Biologist.

ACTION: Species listed are included in summary tables herein.

8. Colorado Division of Wildlife, Area 12 (CDOW)

No response.

9. Texas Parks and Wildlife Department (TPWD), Wildlife Habitat Assessment Program, Threatened and Endangered Species

Acreage estimates of right-of-way requirements and potentially impacted fish and wildlife habitat for both the Ports to Plains and Trans Texas Corridor (TTC) (if applicable) should be provided in the environmental document if the right of way acquisition would include additional acreage to accommodate future TTC build-out. If so, overall impacts should be considered. TPWD is seriously concerned with cumulative and secondary impacts associated with large scale transportation projects. The environmental document should address both cumulative and secondary impacts to fish and wildlife resources and use appropriate ecosystem based mitigation. Impacts for regulated and unregulated habitats should be included. The environmental document should justify the economics of developing the proposed project including avoidance, minimization, and compensation of adverse impacts to fish and wildlife resources. TPWD recommends close coordination with their agency. It was noted that the TPWD recently submitted its Land and Water Resources Conservation and Recreation Plan (LWRCRP) to the legislature in which they reported that native prairies, grassland habitats, and riparian habitats are considered the most threatened in the state and are listed as the highest priority to be conserved by TPWD.

Several suggestions were included to minimize impacts to fish and wildlife including: restricting project activities to existing right of way, minimizing the project footprint, leaving natural buffers contiguous to wetlands and aquatic systems undisturbed, using bridge crossings, maintaining the continuity of riparian corridors, treatment of isolated wetlands (playa lakes) to the same extent as jurisdictional wetlands, and providing for compensatory mitigation for areas that are impacted by project activities.

Lists of rare, threatened, and endangered species that may occur in the counties within the project Corridor were included with the caution that they are not intended as a substitute for comprehensive on-site evaluations by competent biologists.

ACTION: Species listed are included in summary tables herein.

10. Texas Parks and Wildlife Department (TPWD), Resource Protection Division

No response.

11. New Mexico Department of Game & Fish, Conservation Services Division

The Department strongly recommends that its recommendations from the US Highway 64-87 Environmental Assessment (Project Number NH-064-9(37)349, CN 3423), concerning maintenance of habitat connectivity at key locations and to reduce the potential for wildlife/vehicle collisions, be acknowledged and implemented throughout the planning and construction processes of the Ports to Plains Corridor. Copies of comments made and a list of New Mexico Wildlife of Concern for Union and Colfax Counties were included. The Ports to Plains Corridor Development Plan letter is reference NMGF Doc. 9486.

ACTION: Species listed are included in summary tables herein.

12. U.S. Environmental Protection Agency, Region 6 Main Office

No response.

13. U.S. Environmental Protection Agency, Region 8

No response.

14. U.S. Army Corps of Engineers (USACE), Fort Worth District

No response.

15. U.S. Army Corps of Engineers (USACE), Albuquerque District, Southern Colorado Regulatory Office

Environmental concerns of this office are Section 404 discharges into waters of the United States, including wetlands. Many, if not all, of the waterway crossings in the Ports to Plains Corridor under the jurisdiction of this office "can probably be authorized by nationwide permits." The Ports to Plains Corridor Development Plan was assigned Action No. 2004 00427.

ACTION: In southern Colorado sections with floodplains, river and creek crossings and potential wetland impacts, coordination with the USACE is noted in this document.

16. U.S. Army Corps of Engineers (USACE), Albuquerque District

The response letter states that the proposed action is regulated under the provisions of Section 404 of the Clean Water Act and a Department of the Army Permit will be required for the project. The proposed project *may* (emphasis by the USACE) be authorized under Nationwide Permit No. 14 for Linear Transportation Projects. Enclosures include a copy of the Corps's jurisdictional determination letter to the New Mexico Department of Transportation (NMDOT), a copy of the response letter to NMDOT regarding the *Draft Environmental Assessment of US Highway 64-87 from Raton to Clayton, Colfax and Union Counties, New Mexico*, and a copy of the database listing the waters of the United States that may be affected by the discharge of dredged or fill materials. The Ports to Plains Corridor Development Plan was assigned Action No. 2003 00393.

ACTION: Information regarding waters of the US and wetlands in New Mexico sections from the *Draft Environmental Assessment of US Highway 64-87 from Raton to Clayton, Colfax and Union Counties, New Mexico* is noted herein.

17. U.S. Army Corps of Engineers (USACE), Tulsa District

"The crossings of the Beaver and Cimarron Rivers by the proposed project are candidates for authorization of General Permit Number OKOOG30014 for Linear Transportation Crossings (GP-14). The other crossings of Waters of the United States (WOUS) will be subject to the Nationwide Permit for linear transportation crossings provided the information required in Condition 13 [of the Nationwide Permit] is met." This would include impacts to "Special Aquatic Sites" such as wetlands, riffle and pool complexes, etc. Information enclosed included GP-14 Notification Procedures and a list of wetland consultants. "If the terms and conditions of the GP-14 cannot be complied with, it may be necessary to initiate the application process for a Standard Individual Department of the Army Permit." The Ports to Plains Corridor Development Plan was assigned Identification Number 13466.

ACTION: In Oklahoma sections with floodplains, river and creek crossings and potential wetland impacts, coordination with the Army Corps is noted.

18. Colorado Department of Public Health and Environment

No response.

19. Oklahoma Department of Environmental Quality

No response.

20. Texas Department of Health

No response.

21. Texas Department of Transportation, Environmental Affairs Division

The coordination request letter was responded to by a telephone call from Anne Irwin. The letter was passed on to all divisions, and the Corridor Development Plan team was requested to use the environmental material in the *Ports to Plains Feasibility Study,* 2001.

ACTION: Extensive use of the *Ports to Plains Feasibility Study,* 2001 has been made.

22. New Mexico Department of Transportation, Environmental Section

No response.

23. New Mexico Department of Cultural Affairs, Historic Preservation Division (HPD)

The HPD recommended that the project consult with and involve Native American tribes during all stages of the planning process, and that Ports to Plains Corridor Development Plan contract with qualified professional archaeologists to conduct cultural resources inventory work. The Ports to Plains Corridor Development Plan response is HPD log 71977.

ACTION: None needed. The EA has been completed for the New Mexico sections, including the cultural resources investigations and clearances.

24. Texas Historical Commission (THC)

"Because the THC has a programmatic agreement with TxDOT and the Federal Highway Administration, and a memorandum of understanding with TxDOT which both provide for cultural resource coordination through the Environmental Division of TxDOT, it is inappropriate for us to respond to you directly concerning potential cultural resources associated with the above referenced proposed highway improvements. Please refer all such inquiries to TxDOT ENV."

ACTION: None needed at this time.

25. Oklahoma Historical Society Architectural (OHSA)

No response.

26. Oklahoma Historical Society Archaeological (OHSA)

A cultural resource survey has already been conducted on the section of the Ports to Plains Corridor "starting from Boise City north to the Colorado State line and should have available the information you requested for that section. The southern reach of the Oklahoma Corridor from Boise City south however, still needs similar investigations which will be scheduled by ODOT when such studies become necessary." ODOT Planning and Research Division should be contacted about ODOT's involvement with the transportation Corridor. The Ports to Plains Corridor Development Plan was given File #2400-04.

ACTION: None needed.

27. Colorado Historical Society, Office of Archaeology and Historic Preservation (SHPO is the preferred acronym)

The SHPO "would like to express our concern regarding the 200-foot from centerline survey corridor for the proposed project" and that "NEPA and Section 106 of the National Historic Preservation Act are separate regulations with different requirements." In its opinion, "the collection of survey information for identification is part of the scoping process in Section 106 of the National Historic Preservation Act. As defined in 36 CFR 800.4(a), the lead agency is to determine the scope of identification efforts in consultation with SHPO. Also, the lead agency in consultation with the SHPO should determine and document the Area of Potential Effect (APE). We would like to further discuss these issues with you." The Ports to Plains Corridor Development Plan response is CHS #43812.

ACTION: Note in Section 3.2 that all cultural resource studies include specific language regarding consultation with the appropriate historic preservation agencies and SHPO.

3.4 Methodology and Information Sources

Introduction to Key Environmental Elements

This section describes the environmental elements that have been assessed in this study, along with the sources of the information. The topics include: rivers, streams and reservoirs (water quality issues); wetlands; riparian habitat; floodplains; protected species (Threatened and Endangered Species); air quality; cultural resources; low-income and minority populations; noise; potential relocations; public lands and community facilities; irrigated farmlands; and hazardous materials. In each case it is important to remember that all environmental reviews will follow the guidelines and requirements of each state during final design activities. In addition, the information provided here is not the final comprehensive environmental document for this corridor. Each section will undergo its own study; only then can determinations be made regarding the full inventory, potential impacts, Section 106 compliance and National Environmental Policy Act (NEPA) documentation compliance. (Section 106 of the National Historic Preservation Act of 1966 governs federal actions that could affect historic properties. Implementing regulations for the Act define historic property as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior.")

Definition and Measurement of Environmental Impacts

To provide a thorough assessment of specific impacts, many of the environmental elements discussed above were divided into subcategories representing specific resources. The definition, area, and measurement of impact differ by resource. For example, the zone of possible impact to wetlands consists of the area within 200 feet of the roadway centerline, but Superfund sites may be impacted if they are as far as 500 feet from the centerline. Similarly, the measurement of impact may be a number of occurrences, percent, acres or linear feet, depending on the resource being evaluated.

Exhibit 3.4-1 provides environmental element categories, resource subcategories, definitions used for potential impacts, and the units of measurement for each. Data were collected and logged in each category according to the following limits. The limits were selected according to the type of resource and the type and potential intensity of impacts.

- Two-hundred feet is frequently used in relation to natural and built resources because of the size and nature of construction equipment and the area needed to widen the roadways in question. Construction can leave soils vulnerable to erosion damaging water resources, can disturb dry and wet habitats causing injury to wildlife resources, and can cause damage to cultural resources. For cultural resources, however, this does not take into account impacts to visual quality that could be degraded by implementation of a Ports to Plains Corridor project. Decisions regarding the area of potential effect, impacts and mitigation must be done in consultation with the appropriate State Historic Preservation Office (SHPO). Otherwise, knowledge of resources within 200 feet of the existing centerline will improve strategies for avoiding the resources. This distance may be adjusted at different places along the route to account for the types of facilities being constructed and the type of topography in which it is being planned. For example, an interchange or bridge would have different effects when compared to a simple addition of lanes to the roadway.
- It is important to know if any water resources are crossed because of their relationship to wetland and upland wildlife habitats (wildlife often use drainage ways to travel) and need to keep water quality high. Knowledge of crossings will improve implementation planning for bridges that will keep the habitats intact. This distance may be adjusted at different places along the route to account for the types of facilities being constructed and the type of topography and ecology in which it is being planned.
- Noise impacts were estimated to be possible up to 300 feet from the Corridor centerline. This distance is sometimes used to estimate the 66 decibel noise contour for residential impacts. However, noise may travel much farther than 300 feet and this should be considered a general starting point before noise studies are conducted. This distance is likely to be adjusted at different places along the route to account for the types of facilities being constructed and the type of topography or built environment in which it is being planned.

- A populated area within 100 feet was used because of the potential of impacting a home or business. As discussed above, because of the size and nature of construction equipment and the area needed to widen the roadways in question, an inventory of structures will help in planning for a relocation of the building(s) within 100 feet, or the avoidance of it.
- For low income and minority populations, no distance was used because of the variety of impacts that could occur and because detailed local studies will need to be conducted for each project to assess the type and level of impacts, if any, and if the impacts are disproportionate to the impacts of other populations. The variety of impacts could include relocation, noise, visual quality degradation, air quality degradation, a break in community cohesion, disruption of transportation corridors (especially pedestrian corridors), and similar quality of life impacts.
- Hazardous materials sites were inventoried up to 500 feet from the centerline because of the potential for the hazardous substances to "migrate" some distance from the site in the case of a spill or leak. Knowing that a site exists assists in planning for avoidance or mitigation.

Exhibit 3.4-1 Definition of Potential Impacts by Resource

Environmental Category Topic	Subcategory	Definition of potential impact	Units
Rivers	Wild and scenic	For each subcategory:	
	High quality streams	Crossings	Number
	All other streams	Parallels Corridor within 200 feet of centerline	Linear feet
Wetlands	Not applicable	Within 200 feet of centerline	Acres
Riparian Habitat	Not applicable	Crossings	Number
Floodplains	Not applicable	Within 200 feet of centerline	Acres
Protected Species	Designated critical habitat	Within distance from centerline per U.S. Fish & Wildlife Service (USFWS) Recovery Plan for a Threatened or Endangered Species	Number
	Management areas	Within 200 feet of centerline	Number
	Known sites	Within distance from centerline established by USFWS which is specific to the species and location	Number
	Potential habitat	Within 200 feet of centerline	Number
Air Quality	Not applicable	**See footnote.	Concentrations of specific pollutants
Archaeological Resources (potential 4(f)/6(f))	Known sites	To be initially defined and determined by FHWA and DOT*	Number
	High probability areas	To be initially defined and determined by FHWA and DOT*	Number
Cemeteries	Proximity impact	To be initially defined and determined by FHWA and DOT*	Number
	Direct impact	To be initially defined and determined by FHWA and DOT*	Number
Historic Structures	Proximity impact	To be initially defined and determined by FHWA and DOT*	Number
	Direct impact	To be initially defined and determined by FHWA and DOT*	Number
Sites on the National Register of Historic Places (potential 4(f)/6(f))	Proximity impact	To be initially defined and determined by FHWA and DOT*	Number
	Direct impact	To be initially defined and determined by FHWA and DOT*	Number

Environmental Category Topic	Subcategory	Definition of potential impact	Units
Historic bridges	Direct impact	On Corridor routes	Number
Low-Income and Minority Populations	Low-income	Individuals under federal poverty level within cities, towns, and/or counties crossed by the project route	Percent
	Hispanic or Latino of any race	Individuals within cities, towns, and/or counties crossed by the project route	Percent
	Black or African American	Individuals within cities, towns, and/or counties crossed by the project route	Percent
	Asian	Individuals within cities, towns, and/or counties crossed by the project route	Percent
	American Indian and Alaska Native	Individuals within cities, towns, and/or counties crossed by the project route	Percent
Noise and Potential Relocations	Potential for increased noise	Populated areas within 300 feet of the centerline (noise contours for 66 decibels (dBA) to be determined at the project level)	Number
	Potential relocations	Within 100 feet of centerline	Number
Public Lands (potential 4(f)/6(f))	National parks, monuments and recreation areas	For each subcategory: Adjacent to Corridor Crossed	Number
	National recreation trails	Adjacent to Corridor Crossed	Number
	State parks	Adjacent to Corridor Crossed	Number
	National forests	Adjacent to Corridor Crossed	Number
	Local publicly owned parks	Adjacent to Corridor Crossed	Number
	Local trails	Adjacent to Corridor Crossed	Number
Irrigated Farmland		Adjacent to Corridor	Number
Public Buildings	Schools	Adjacent to Corridor	Number
	Places of worship	Adjacent to Corridor	Number
	Post offices	Adjacent to Corridor	Number
	Community centers	Adjacent to Corridor	Number
Hazardous Materials	Superfund sites	Within 500 feet of centerline	Number
	Leaking Petroleum Storage Tanks, and Leaking Underground Storage Tanks	Within 200 feet of centerline	Number
	Landfills	Within 200 feet of centerline	Number
	Oil wells	Within 500 feet of centerline	Number
	Gas wells	Within 500 feet of centerline	Number

- For purposes of this inventory, proximity impacts were measured at a minimum of 200 feet from the centerline of the existing roadway, and direct impacts were limited to those sites that are adjacent to the roadway. Decisions regarding the area of potential effect, impacts and mitigation must be done in consultation with the appropriate State Historic Preservation Office (SHPO).
- ** With the exception of Denver, the entire Ports to Plains Corridor is currently in attainment or unclassifiable with respect to all pollutants for which a National Ambient Air Quality Standard (NAAQS) exists, including Lamar, Colorado, which was approved by the air Quality Control Commission as an attainment area for the federal particulate matter standard in 2001.

Sources of Environmental Data

This section provides sources of information collected for the study on each of these environmental topics or elements. With the exception of photos taken along the Corridor, no field work was completed to identify the resources or hazards listed. All of the data collected were available from existing sources in a readily usable format, and no new prediction models or forecasts were completed. To meet the requirement for federal and state funding under NEPA, each section will undergo a detailed environmental study in the future. Existing data presented here will need to be confirmed and new data will need to be collected on each resource. The analysis in this Corridor Development Study is being done only to identify areas of potential concerns, areas of environmental complexity that may lengthen the process, and order of magnitude of costs associated with potential environmental mitigation.

Electronic data from various sources (listed below) were directly downloaded into the Ports to Plains Geographic Information System (GIS) database for use by the project team. This included such data as watersheds, National Land Cover Data (NLCD) wetlands, major rivers/streams, and the availability of FEMA floodplain designations. Data provided on paper or by Internet were studied, and notes were entered into a Master Matrix of environmental conditions for each section proposed for a construction project (widening or relief route). These data are digitized and are included in the Ports to Plains GIS system.

In every resource area previous studies consulted include the *Ports to Plains Feasibility Study* (Wilbur Smith, 2001), *Eagle Pass Outer Loop Environmental Assessment*, and *US 64-87 Environmental Assessment*.

Rivers, Streams and Reservoirs

- Colorado State University – Arkansas River Basin – http://waterknowledge.coloradostate.edu/arkansas.htm
- City and County of Denver Division of Environmental Protection – Water Quality Menu – The South Platte River – http://www.denvergov.org/Environmental_Protection/template21290.asp
- DeLorme Mapping Atlas & Gazetteers for Colorado, New Mexico and Texas. U.S. Geological Survey (USGS) maps were used for Oklahoma.
- National Wetland Inventory (NWI) maps for Colorado, Oklahoma and Texas collected from the agencies responsible for their distribution. (NWI maps for New Mexico were not available and the information is given in the *US 64-87 Environmental Assessment)*
- Environmental Systems Research Institute (ESRI) data (for the Geographic Information System (GIS) database on water resources in the Corridor)
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM)
- Previous studies.
- U.S. Army Corps of Engineers – Agency coordination letters
- U.S. Geological Survey (USGS) maps

Wetlands

- Colorado Riparian Association – Status of Colorado Natural Heritage Program Wetlands Projects – http://coloradoriparian.org
- High Plains Underground Water Conservation District – www.hpwd.com
- Previous studies listed and summarized in Section 3.1
- National Land Cover Data–-data layer for Ports to Plains GIS mapping
- New Mexico State Parks, Northeast Region – New Mexico Department of Tourism – www.newmexico.org/outdoors/northeast.html

- NWI maps for Colorado, Oklahoma and Texas collected from the agencies responsible for their distribution. (NWI maps for New Mexico were not available and the information is given in the *US 64-87 Environmental Assessment)*
- Texas Parks & Wildlife Department – Agency coordination letter and www.tpwd.state.tx.us/wetlands/ecology/wetland_types/htm
- University of New Mexico – New Mexico Natural Heritage Program (NMNHP)– http://nmnhp.unm.edu (NMNHP Map – New Mexico Ecoregions)

Riparian Habitat

- Photographs taken for this study during a windshield survey
- Previous studies

Floodplains

- FEMA Flood Insurance Rate Maps
- Previous studies

Protected Species

- Colorado Division of Wildlife - Natural Diversity Information Source – http://ndis/nrel.colostate.edu/wildlifespx.asp
- Colorado Division of Wildlife – Staff communications, agency coordination letter and http://wildlife.state.co.us/species_profiles
- Colorado State Parks – Natural Areas Program – www.parks.state.co.us/cnap
- Colorado State University - Rare Plants of Colorado by County – http://hervarium.biology.colostate.edu/rare.htm
- New Mexico Department of Game and Fish – Conservation Services Division *Draft Threatened and Endangered Species of New Mexico: Biennial Review and Recommendations* – October 2002 Draft, and agency coordination letter
- Northern Prairie Wildlife Research Center – http://npwrc/usgs.gov/resource/othrdata/curlew/map3.htm
- Oklahoma Department of Wildlife Conservation – http://www.wildlifedepartment.com, and agency coordination letter
- Oklahoma Museum of Natural History – www.snomnh.ou.edu
- Previous studies
- Texas Memorial Museum at University of Texas (UT) Austin, UT College of Natural Sciences – www.zo.utexas.edu/research/txherps/turtles.html
- Texas Parks and Wildlife – Staff communications, agency coordination letter and http://www.tpwd.state.tx.us/nature/endang/
- The Nature Conservancy - Black Mesa, Oklahoma – http://nature.org
- U.S. Department of Agriculture – Forest Service – Region 2 – www.fx.fed.us/r2.html, http://plants.usda.gov:8080/plants/ThreatenedServlet?txtparm=&fedlist=fed&statelist-state, http://ifw1es.fws.gov/Oklahoma/cytspp.htm
- U.S. Department of the Interior, Bureau of Land Management - www.co.blm.gov/botany/listedtb.html
- U.S. Geological Survey http://www.fort.usgs.gov/products/Publications/555/maps/dist_maps/map-tables/snpl/html

- University of New Mexico - New Mexico Rare Plants by County – http://nmrareplants.unm.edu/nmrptc/county.htm
- University of Oklahoma, Geo Information Systems – Cimarron County Plant Species – http://goe.ou.edu
- State of Colorado – State Wildlife Areas - http://wildlife.state.co.us/swa
- Oklahoma Natural Heritage Inventory – a Program of the Oklahoma Biological Survey - www.biosurvey.ou.edu/heritage/registry/registryMap.html
- US Fish and Wildlife Service agency coordination letters
- US Fish & Wildlife Service Threatened and Endangered Species System: Listings by State and Territory – Oklahoma; listings by State and Territory – New Mexico; listings for Texas by county; and Mountain-Prairie Region Endangered Species Program (Colorado – County Lists)

Air Quality

- Colorado Air Quality Control Commission, *Report to the Public 2002-2003,* Colorado Department of Public Health and Environment, October 1, 2003.
- New Mexico Air Quality Data: http://encarta.msn.com/encyclopedia_761572098_2/New_Mexico.html and http://www.eere.energy.gov/cleancities/international/laredo.shtml
- Previous studies
- State of Oklahoma Air Quality Planning Regions –http://www.deq.state.ok.us/
- State of Texas Air Quality Planning Regions - http://www.tceq.state.tx.us/

Cultural Resources

- *A Profile of the Cultural Resources of Colorado 2003*, and Directory of Colorado State Register Properties - http://www.coloradohistory-oahp.org
- Cimarron County Chamber of Commerce – Santa Fe Trail - www.ccccok.org/sante_fe_trail.htm
- Colorado Historical Society – COMPASS database http://www.coloradohistory-oahp.org/programareas/register/1503/cty.htm, and technical assistance call
- Cretaceous Fossils – *Introduction to the Cretaceous Geology of Texas and Other States* – http://www.cretaceousfillisl.com/invertebrates/corals/coelosmilia_texana.htm
- Cretaceous Fossils – *Areal Extent of the Surficial Cretaceous Rocks in New Mexico* – http://www.cretaceousfillisl.com/new_mexico/cretaceous_surface_geology.htm
- Cretaceous Fossils – *Areal Extent of the Surficial Cretaceous Rocks in Oklahoma* – http://www.cretaceousfillisl.com/oklahoma/cretaceous_surface_geology.htm
- Historic Bridge Foundation - http://www.historicbridgefoundation.com/ipages/texas/panhandle/tomgreen/oakeast/htm
- National Park Service Paleontology Research Abstract Volume – *Amistad National Recreation Area: Stratigraphy and Paleontology* – http://www2.nature.nps.gov/geology/paleontology/pub/nps_paleo_vol1/amis.htm
- National Register of Historic Places: Known historic, archaeological, and cultural resources in Colorado, New Mexico, Oklahoma and Texas - http://www.nationalregisterofhistoricplaces.com
- New Mexico Museum of Natural History & Science – Dinosaurs in New Mexico – http://www.museums.state.nm.us/nmmnh/sci_main.html
- Oklahoma Geological Survey – General Geology of Oklahoma – http://www.ogs.ou.edu/education/intgeol/index.htm

- Oklahoma National Register Properties – Known historic, archaeological, and cultural resources in Cimarron County, Oklahoma http://www.ok-history.mus.ok.us/shpo/NRHANDBK.htm
- Old Santa Fe Trail - U.S. Department of the Interior, National Park Service http://www.nps.gov/safe/
- Panhandle Nation Information Systems – *Paleontology of The Lake Meredith Area* – http://www.panhandlenation.com/explore/meredith1.htm
- Previous studies
- Texas Historical Commission – Known historic, archaeological, and cultural resources in Texas - http://atlas.thc.state.tx.us/Atlas/atlas_search_frame.html
- Town of Morrison – Morrison Geology – *The Morrison Formation* – http://town.morrison.co.us/geology/morrform/html
- University of Texas at Austin – "*Vertebrate Paleontology*." The Handbook of Texas Online. <http://www.tsha.utexas.edu/handbook/online/articles/view/VV/bfv1.html.
- University of Texas at Austin – "*Palo Duro Canyon*." The Handbook of Texas Online. <http://www.tsha.utexas.edu/handbook/online/articles/view/PP/rkp4.html.
- USDA Forest Service, Pike & San Isabel National Forests – Picketwire Canyonlands Dinosaur Tracksite (Cimarron & Comanche National Grasslands – http://www.fs.fed.us/r2/psicc/coma/palo/links.shtml

Low-Income and Minority Populations

- Previous studies
- U.S. Census Bureau, 2000 Census
- U.S. Department of Agriculture, Economic Research Service- County-Level Poverty Rates for New Mexico http://www.ers.usda.gov/data/povertyrates/PovListpct.asp?st=NM&view=Percent
- U.S. Department of Agriculture, County-level poverty rates for Texas - http://www.ers.usda.gov/data/povertyrates/PovListpct.asp?st=TX&view=Percent

Noise and Potential Relocations

- Previous studies
- USGS maps

Public Lands and Community Facilities

- Colorado Division of Wildlife - Queens State Wildlife Area - http://parks.state.co.us/home/kids/publications/Lakes%20and%20Reservoirs%20Q.htm
- DeLorme Mapping Atlas & Gazetteers for Colorado, New Mexico and Texas (USGS maps were used for Oklahoma)
- ESRI data
- Audubon Colorado - Great Plains Reservoir System (Queens State Wildlife Area) - http://www.audubon.org/chapter/co/co/IBA/41.htm
- National Park Service - Amistad National Recreation Area –http://www.nps.gov/amis/
- Previous studies
- Texas State Parks – Texas Parks and Wildlife Department – http://WWW.tpwd.state.tx.us/park
- U.S. Forest Service – Comanche National Grasslands - http://www.fs.fed.us/r2/psicc/coma/
- USGS maps

Hazardous Materials

- Agency for Toxic Substances and Disease Registry – Internet HazMat – Site Activity Query Map – Texas – www.atsdr.cdc.gov
- Colorado Department of Public Health and Environment - Colorado Active Solid Waste Facilities - http://www.cdphe.state.co.us/hm/lflist.pdf
- Colorado Department of Labor and Employment - Colorado Storage Tank Information System (COSTIS) http://costis.cdle.state.co.us/ois2000/home.asp
- Environmental Protection Agency - EPA List of Municipal Solid Waste Landfills, Prepared for: U.S. Environmental Protection Agency, Office of Solid Waste, Municipal and Industrial Solid Waste Division, Industrial Solid Waste Branch, Washington, DC 20460, March, 1996 (Updated 2003) - http://www.epa.gov/epaoswer/non-hw/muncpl/landfill/mswlflst.txt
- New Mexico Environment Department – LUST Sites by City - www.nmenv.state.nm.us/ust/docs/reports/lustcity/txt
- Previous studies
- Texas Natural Resource Conservation Commission – Leaking Petroleum Storage Tank (LPST) Sites - http://www.tnrcc.state.tx.us/cgi-bin/waste/rpr/lpstquery.pl
- The Oklahoma LUST database was taken off of the internet for security reasons.

3.5 Inventory of Protected Plants and Animals

Protected plants and animals, their status, and the locations along the Ports to Plains Corridor in which they could reasonably be found are listed in the exhibits 3.5-1 through 3.5-4 below.

Exhibit 3.5-1 Protected Species in Colorado

Status	Common Name	Scientific Name	County of Potential Occurrence
AMPHIBIANS			
Colorado Special Concern	Northern Leopard Frog	Rana pipiens	Adams, Arapahoe, **Cheyenne,** Denver, Elbert, **Kiowa, Lincoln, Prowers**
Colorado Special Concern	Plains Leopard Frog	Rana blairi	Adams, Arapahoe, Cheyenne, Denver, **Lincoln**
BIRDS			
Federally Threatened, Colorado Threatened	Bald Eagle	Haliaeetus leucocephalus	Adams, Arapahoe, Denver, Elbert, **Lincoln, Prowers**
Colorado Special Concern	Ferruginous Hawk	Buteo regalis	Adams, Arapahoe, **Baca, Cheyenne**, Denver, Elbert, **Kiowa, Lincoln, Prowers**
Colorado Special Concern	Greater Sandhill Crane	Grus canadensis tabida	Adams, Arapahoe, Denver
Federally Endangered, Colorado Endangered	Interior Least Tern	Sterna antillarum athalassos	Adams, Arapahoe, Denver, Elbert
Federal Candidate Species, Colorado Threatened	Lesser Prairie Chicken	Tymanuchus pallidicinctus	Arapahoe, **Baca, Cheyenne, Kiowa, Lincoln, Prowers**
Colorado Special Concern	Long-billed Curlew	Numenius americanus	Adams, Arapahoe, **Baca, Cheyenne,** Denver, Elbert, **Kiowa, Lincoln, Prowers**
Federally Threatened, Colorado Threatened	Mexican Spotted Owl	Strix occidentalis	Adams, Arapahoe
Colorado Special Concern	Mountain Plover	Charadrius montanus	Adams, Arapahoe, **Baca, Cheyenne**, Elbert, **Kiowa, Lincoln, Prowers**
Federally Threatened, Colorado Threatened	Piping Plover	Caradrius melodus	Adams, Arapahoe, Denver, Elbert

Exhibit 3.5-1 Protected Species in Colorado

Status	Common Name	Scientific Name	County of Potential Occurrence
Colorado Endangered	Plaines Sharp-tailed Grouse	Tympanuchus phasianellus jamesii	Adams, Arapahoe, Denver
Federally Endangered, Colorado Endangered	Southwestern Willow Flycatcher	Empidonax traillii extimus	Adams, Arapahoe
Colorado Threatened	Western Burrowing Owl	Athene cunicularia	Adams, Arapahoe, **Baca, Cheyenne,** Denver, Elbert, **Kiowa, Lincoln, Prowers**
Colorado Special Concern	Western Snowy Plover	Charadrius alexandrinus nivosus	Adams, Arapahoe, Denver
Federally Endangered, Colorado Endangered	Whooping Crane	Grus Americana	Adams, Arapahoe, Denver, Elbert
Federal Candidate Species	Yellow-billed Cuckoo	Coccyzus americanus	Adams, Arapahoe, Denver, Elbert
FISHES			
Federal Candidate Species, Colorado Threatened	Arkansas darter	Etheostoma cragini	**Baca**, Elbert, **Kiowa, Lincoln, Prowers**
Federal Endangered	Pallid Sturgeon	Scaphirhynchus albus	Adams, Arapahoe, Denver
MAMMALS			
Federally Endangered, Colorado Endangered	Black-footed Ferret	Mustela nigripes	Adams, **Lincoln**
Federal Candidate Species, Colorado Special Concern	Black-tailed Prairie Dog	Cynomys ludovicianus	Adams, Arapahoe, **Baca, Cheyenne,** Denver, Elbert, **Kiowa, Lincoln, Prowers**
Colorado Special Concern	Northern Pocket Gopher	Thomomys talpoides	Arapahoe, Elbert, Lincoln
Federally Threatened, Colorado Threatened	Preble's Meadow Jumping Mouse	Zapus hudsonius preblei	Adams, Arapahoe, Denver, Elbert
Colorado Special Concern	Swift Fox	Vulpes velox	Adams, Arapahoe, **Baca, Cheyenne,** Denver, Elbert, **Kiowa, Lincoln, Prowers**
Colorado Endangered	Wolverine	Gulo gulo	Arapahoe
REPTILES			
Colorado Special Concern	Common Garter Snake	Thamnophis sirtalis	Adams, Arapahoe, Denver
Colorado Special Concern	Massasauga	Sistrurus catenatus	**Cheyenne**, Elbert, **Kiowa, Lincoln**
Colorado Special Concern	Texas Horned Lizard	Phrynosoma cornutum	**Baca, Kiowa, Prowers**
Colorado Special Concern	Yellow Mud Turtle	Kinosternon flavescens	**Baca, Prowers**
PLANTS			
Federal Threatened	Colorado Butterfly Plant	Gaura neomexicana var. coloradensis	Adams, Arapahoe, Denver
Federal Threatened	Ute Ladies'-tresses	Spiranthes diluvialis	Adams, Arapahoe, Denver

Note: Bold typeface indicates that Colorado Division of Wildlife identified these species (in an agency coordination contact) during a rough examination of species that had potential to be impacted by highway widening in these counties. The rough examination was based on the habitat and range of the species. Impacts associated with the Ports to Plains Corridor will be further examined as more information of each project is developed in the future.

Exhibit 3.5-2 Protected Species in New Mexico

Status	Common Name	Scientific Name	County of Potential Occurrence
BIRDS			
Federal Species of Concern, New Mexico Threatened	American Peregrine Falcon	Falco Peregrinus	Colfax, Union
Federal Species of Concern, New Mexico Threatened	Arctic Peregrine Falcon	Falco peregrinus tundrius	Colfax, Union
Federally Threatened, New Mexico Threatened	Bald Eagle	Haliaeetus leucocephalus	Colfax, Union
Federal Species of Concern, New Mexico Threatened	Baird's sparrow	Ammodramus bairdii	Colfax, Union
Federal Species of Concern	Black Tern	Chlidonias niger surinamensis	**Colfax**
New Mexico Threatened	Bell's Verio	Vireo bellii	Colfax
Federal Candidate Species	Lesser Prairie Chicken	Tymanuchus pallidicinctus	Union
Federal Threatened	Mexican Spotted Owl	Strix occidentalis lucida	Colfax
Federal Species of Concern, New Mexico Special Concern	Mountain Plover	Charadrius montanus	Colfax, Union
Federal Species of Concern	Northern Goshawk	Accipiter gentilis	Colfax, Union
Federally Threatened, New Mexico Endangered	Piping Plover	Caradrius melodus	Colfax
Federally Endangered	Southwestern Willow Flycatcher	Empidonax traillii extimus	Colfax
Federal Species of Concern	Western Burrowing Owl	Athene cunicularia hypugaea	Colfax, **Union**
Federally Endangered, New Mexico Threatened	Whooping Crane	Grus Americana	Union
Federal Species of Concern	Yellow-billed Cuckoo	Coccyzus americanus	Colfax, Union
FISHES			
Federal Threatened	Arkansas River Shiner	Notropis girardi	Colfax, Union
Federal Species of Concern	Rio Grande Cutthroat Trout	Oncorhynchus clarki virginalis	Colfax
New Mexico Threatened	Suckermouth Minnow	Phenacobius mirabilis	Colfax, Union
INVERTEBRATES			
New Mexico Threatened	Long fingernailclam	Musculium transversum	Colfax, Union
Federal Species of Concern	Regal Silverpot Butterfly	Speyeria idalia	Union
MAMMALS			
Federally Endangered	Black-footed Ferret	Mustela nigripes	Colfax, Union
Federal Candidate Species	Black-tailed Prairie Dog	Cynomys ludovicianus	Colfax, **Union**
Federal Species of Concern	New Mexico Meadow Jumping Mouse	Zapus hudson	Colfax, Union
Federal Species of Concern	Swift Fox	Vulpes velox	**Colfax,** Union
Federal Species of Concern	Townsend's Big-Eared Bat	Corynorhinus townsendii pallescens	Colfax, Union

Exhibit 3.5-2 Protected Species in New Mexico

Status	Common Name	Scientific Name	County of Potential Occurrence
REPTILES			
New Mexico Threatened	Arid Land Ribbon Snake	Thamnophis proximus diabolicus	Colfax, Union
Federal Species of Concern	Dwarf Milkweed	Asclepias uncialis var uncialis	Colfax
Federal Species of Concern	Texas Horned Lizard	Phrynosoma cornutum	Colfax, Union
PLANTS			
New Mexico Species of Concern	Cimarron wild buckwheat	Eriogonum aliquantum	Colfax, Union
Federal Species of Concern	Dwarf Milkweed	Asclepias uncialis	Colfax, Union
New Mexico Species of Concern	One-flowered milkvetch	Astragalus wittmannii	Colfax, Union
New Mexico Species of Concern	Spiny aster	Eurybia horrida	Colfax, Union
New Mexico Species of Concern	Spellenberg's groundsel	Packera spellenbergii	Colfax, Union

Note: Bold typeface indicates that these species were observed (present) during recent field surveys (Source: *US 64-87 Environmental Assessment)*

Exhibit 3.5-3 Protected Species in Oklahoma

Status	Common Name	Scientific Name	County of Potential Occurrence
BIRDS			
Federally Threatened, Oklahoma Endangered	Bald Eagle	Haliaeetus leucocephalus	**Cimarron**
Oklahoma Special Concern	Ferruginous Hawk	Buteo regalis	Cimarron
Oklahoma Special Concern	Golden Eagle	Aquila chrysaetos	Cimarron
Federally Endangered, Oklahoma Endangered	Interior Least Tern	Sterna antillarum athalassos	**Cimarron**
Federal Candidate Species	Lesser Prairie Chicken	Tymanuchus pallidicinctus	**Cimarron**
Oklahoma Special Concern	Long-billed Curlew	Numenius americanus	Cimarron
Oklahoma Special Concern	Migrant Loggerhead Shrike	Lanius ludovicianus migrans	Cimarron
Proposed as Threatened, Rule proposed to be withdrawn	Mountain Plover	Charadrius montanus	**Cimarron**
Federally Threatened, Oklahoma Threatened	Piping Plover	Caradrius melodus	Cimarron
Oklahoma Special Concern	Prairie Falcon	Falco mexicanus	Cimarron
Oklahoma Special Concern	Swainson's hawk	Buteo swainsoni	Cimarron
Oklahoma Special Concern	Western Burrowing Owl	Athene cunicularia	Cimarron
FISHES			
Oklahoma Special Concern	Flathead Chub	Hybopsis gracilis	Cimmaron
MAMMALS			
Federally Endangered	Black-footed Ferret	Mustela nigripes	Cimarron

Exhibit 3.5-3 Protected Species in Oklahoma

Status	Common Name	Scientific Name	County of Potential Occurrence
Federal Candidate Species, Oklahoma Special Concern	Black-tailed Prairie Dog	Cynomys ludovicianus	Cimarron
Oklahoma Special Concern	Desert Shrew	Notiosorex	Cimarron
Oklahoma Special Concern	Ringtail	Bassariscus astutus	Cimarron
Oklahoma Special Concern	Hog-nosed Skunk	Conepatus mesoleucus	Cimarron
Oklahoma Special Concern	Swift Fox	Vulpes velox	Cimarron
REPTILES			
Oklahoma Special Concern	Earless Lizard	Holbrookia maculate	Cimarron
Oklahoma Special Concern	Texas Horned Lizard	Phrynosoma cornutum	Cimarron
Oklahoma Special Concern	Texas Longnosed Snake	Rinocheilus lecontei tessellates	Cimarron
PLANTS			
Oklahoma Species of Special Concern	Wheel milkweek	Asclepias uncialis	Cimarron

Note: Bold typeface indicates that the Oklahoma Department of Wildlife Conservation identified these species of special concern may be vulnerable to impacts within the project area in an agency coordination letter. Impacts associated with the Ports to Plains Corridor will be further examined as more information of each project is developed in the future.

Exhibit 3.5-4 Protected Species in Texas

Status	Common Name	Scientific Name	County of Potential Occurrence
AMPHIBIANS			
Federal Threatened~	San Marcos Salamander	Eurycea nana	Kinney*
Texas Threatened	South Texas Siren	Siren sp. 1	Coke, Dimmit, Maverick, Webb
Federal Endangered	Texas Blind Salamander	Typhlomolge rathbuni	Kinney*
BIRDS			
Texas Endangered	American Peregrine Falcon	Falco peregrinus anatum	Coke, Dallam, Hale, Hartley, Howard, Dawson, Dimmit, Edwards, Glasscock. Kinney, Lubbock, Lynn, Martin, Maverick, Midland, Moore, Potter, Randall, Schleicher, Sherman, Sterling, Sutton, Swisher, Tom Green, Val Verde, Webb
Texas Threatened	Arctic Peregrine Falcon	Falco peregrinus tundrius	Dallam, Hale, Hartley, Dawson, Dimmit, Edwards, Glasscock, Howard, Kinney, Lubbock, Lynn, Martin, Maverick, Midland, Moore, Potter, Randall, Schleicher, Sherman, Sterling, Sutton, Swisher, Tom Green, Val Verde, Webb
Federal Threatened, Texas Threatened	Bald Eagle	Haliaeetus leucocephalus	Coke, Dallam, Dawson, Edwards, Glasscock, Hale, Hartley, Howard, Lubbock, Lynn, Martin, Midland, Moore, Potter, Randall, Schleicher, Sherman, Sterling, Sutton, Swisher, Tom Green, Val Verde
Federal Endangered	Black-capped Vireo	Verio atricapilus	Coke, Edwards, Kinney, Midland, Schleicher, Sutton, Tom Green, Val Verde

Exhibit 3.5-4 Protected Species in Texas

Status	Common Name	Scientific Name	County of Potential Occurrence
Federal Endangered	Brown Pelican	Pelecanus occidentalis	Val Verde
Texas Threatened	Cactus Ferruginous Pygmy-owl	Glaucidium brasilianum cactorum	Maverick, Webb
Texas Threatened	Common Black Hawk	Buteogallus anthracinus	Kinney, Maverick, Tom Green, Webb
Federal Endangered	Golden-cheeked Warbler	Dendroica chrysoparia	Edwards, Kinney
Texas Threatened	Gray Hawk	Asturina nitidus	Kinney, Maverick, Val Verde, Webb
Federally Endangered, Texas Endangered	Interior Least Tern	Sterna antillarum athalassos	Dallam, Dimmit, Edwards, Hale, Hartley, Kinney, Maverick, Moore, Potter, Randall, Schleicher, Sherman, Sutton, Tom Green, Val Verde, Webb
Federal Candidate	Lesser Prairie Chicken	Tympanuchus pallidicinctus	Coke, Dallam, Dawson, Glasscock, Hale, Hartley, Howard, Lubbock, Lynn, Martin, Midland, Moore, Potter, Randall, Sherman, Sterling, Swisher, Tom Green
Federal Threatened, Texas Threatened	Mexican Spotted Owl	Strix occidentalis lucida	Val Verde
Federal Endangered~	Piping Plover	Charadrius melodus	Migratory species common to many or all counties~
Texas Threatened	White-tailed Hawk	Beteo albicaudatus	Maverick, Webb
Federally Endangered, Texas Endangered	Whooping Crane	Grus americana	Coke, Dallam, Dawson, Glasscock, Hale, Hartley, Howard, Lubbock, Lynn, Martin, Midland, Moore, Potter, Randall, Schleicher, Sherman, Sterling, Sutton, Swisher, Tom Green
Texas Threatened	Wood Stork	Mycteria americana	Maverick, Val Verde, Webb
Texas Threatened	Zone-tailed Hawk	Buteo albonotatus	Coke, Edwards, Kinney, Schleicher, Sutton, Tom Green, Val Verde
FISHES			
Federally Threatened, Texas Threatened	Arkansas River Shiner	Notropis girardi	Potter
Texas Threatened	Blotched Gambusia	Gambusia senilis	Val Verde
Texas Threatened	Blue Sucker	Cycleptus elongatus	Kinney, Maverick, Val Verde, Webb
Texas Threatened	Bluntnose Shiner	Notropis simus	Webb
Texas Threatened	Conchos Pupfish	Cyprinodon eximius	Val Verde
Federal Threatened, Texas Threatened	Devils River Minnow	Dionda diaboli	Kinney, Val Verde
Federal Endangered~	Fountain Darter	Etheostoma fonticola	Kinney*
Texas Threatened	Pecos Pupfish	Cyprinodon eximius	Val Verde
Texas Threatened	Proserpine Shiner	Cyprinella proserpina	Kinney, Maverick , Val Verde
Texas Threatened	Rio Grande Darter	Etheostoma grahami	Kinney, Maverick , Val Verde, Webb
Federal Endangered, Texas Endangered	Rio Grande Silvery Minnow	Hybognathus amarus	Kinney, Maverick, Val Verde, Webb
Federal Endangered~	San Marcos Gambusia	Gambusia Geogei	Kinney*
MAMMALS			
Federal Threatened, Texas Threatened	Black Bear	Ursus americanus	Dallam, Dimmit, Edwards, Hartley, Kinney, Maverick, Moore, Potter, Randall, Schleicher, Sherman, Sutton, Val Verde, Webb
Federally Endangered, Texas Endangered	Black-footed Ferret	Mustela nigripes	Dallam, Dawson, Glasscock, Hale, Hartley, Howard, Martin, Midland, Moore, Potter, Randall, Sherman, Sterling, Swisher, Lubbock, Lynn, Val Verde

Exhibit 3.5-4 Protected Species in Texas

Status	Common Name	Scientific Name	County of Potential Occurrence
Federal Candidate	Black-tailed Prairie Dog	Cynomys ludovicianus	Coke, Dallam, Dawson, Glasscock, Hale, Hartley, Howard, Lubbock, Lynn, Martin, Midland, Moore, Potter, Randall, Schleicher, Sherman, Sterling, Sutton, Swisher, Tom Green, Val Verde
Federal Endangered, Texas Endangered	Gray Wolf	Canis lupus	Dimmit, Edwards, Kinney, Maverick, Schleicher, Tom Green, Val Verde, Webb
Federal Endangered	Jaguarundi	Felis pardalis	Dimmit, Kinney, Maverick, Webb
Federal Endangered, Texas Endangered	Margay	Leopardus weidii	Maverick
Federal Endangered, Texas Endangered	Ocelot	Leopardus pardalis	Kinney, Maverick, Dimmit, Webb
Texas Threatened	Palo Duro Mouse	Peromyscus truei comanche	Randall
Federal Endangered, Texas Endangered	Red Wolf		Edwards, Schleicher
Texas Threatened	White-nosed Coati	Nasua narica	Dimmit, Maverick, Webb
INVERTEBRATES			
Federal Endangered	Comel Springs Riffle Beetle	Heterelmis Comalensis	Kinney*
Federal Endangered	Comal Springs Dryopid Beetle	Stygoparnus comalensis	Kinney*
Federal Endangered	Peck's Cave Amphipod	Stgobromus (=Stygonectes) pecki	Kinney*
Federal Candidate	Texas Hornshell	Popenaias popeii	Kinney, Maverick, Tom Green, Val Verde, Webb
REPTILES			
Federal Threatened	Concho Water Snake	Nerodia paucimaculata	Coke~, Tom Green~
Texas Threatened	Indigo Snake	Drymarchon corais	Dimmit, Edwards, Kinney, Maverick, Val Verde, Webb
Texas Threatened	Reticulate Collared Lizard	Crotaphytus reticulates	Dimmit, Maverick, Val Verde, Webb
Texas Threatened	Texas Horned Lizard	Phrynosoma cornutum	Coke, Dallam, Dawson, Dimmit, Edwards, Glasscock, Hale, Hartley, Howard, Kinney, Lubbock, Lynn, Martin, Maverick, Midland, Moore, Potter, Randall, Schleicher, Sherman, Sterling, Sutton, Swisher, Tom Green, Val Verde, Webb
Texas Threatened	Texas Tortoise	Gopherus Berlandieri	Dimmit, Kinney, Maverick, Sutton, Val Verde, Webb
Texas Threatened	Trans-Pecos Black-headed Snake	Tantilla cucullata	Val Verde
PLANTS			
Federal Endangered, Texas Endangered	Ashy Dogweed	Thymophylla tephroleuca	Webb
Federal Endangered (proposed to be delisted), Texas Endangered	Johnston's Frankenia	Frankenia johnstonii	Webb
Federal Endangered, Texas Endangered	Tobusch Fishhook Cactus	Sclerocactus brevihamatus var. tobuschii	Edwards, Kinney, Val Verde
Federal Endangered, Texas Endangered	Texas Poppy-mallow	Callirhoe scabriuscula	Coke

Exhibit 3.5-4 Protected Species in Texas

Status	Common Name	Scientific Name	County of Potential Occurrence
Federal Endangered, Texas Endangered	Texas Snowbells	Styrax platanifolius spp. texanus	Edwards, Val Verde
Federal Endangered~	Texas Wild-rice	Zizania texana	Kinney*

* Edwards Aquifer species: refers to those six counties underlain by the Edwards Aquifer, including Kinney County (Source: USFWS coordination letter)

~ indicates Critical Habitat in Texas (Source: USFWS coordination letter)

3.6 Low Income and Minority Populations in Corridor States

Exact locations of minority and low-income populations that could be impacted will need to be determined at the project level with screening studies to determine the location of potentially affected populations, followed by a determination of whether the possibility of disproportionate impacts exists. If any disproportionate impacts are found, it will be necessary to determine the type of mitigation that is necessary and reasonable for each section. Exhibit 3.6-1 provides data for each state so that it is possible to compare them to the data provided for each section along the Corridor, Exhibit 3.6-2 shows low income and minority populations in Corridor sections and along relief routes. Poverty and racial data are from Census 2000.

Exhibit 3.6-1 Low Income and Minority Populations in Corridor States

Population	Percent Low-Income and Minorities in Corridor States				
	United States	Colorado	New Mexico	Oklahoma	Texas
Hispanic or Latino of any race	12.5	17.1	57.9	5.2	32
Black or African American	12.3	3.7	1.7	7.5	11.3
Asian	3.6	2.2	1.0	1.3	2.5
American Indian and Alaska Native	0.9	0.7	8.9	7.7	0.3
Two or more races	12.5	0.1	0.2	0.1	0.1
Individuals Below Poverty Level	12.4	9.3	18.4	14.7	15.4

Exhibit 3.6-2 Low Income and Minority Populations in Corridor Sections with Widening Projects and Relief Routes Summary Table

Section			Population						
Roadway	From	To	Percent Individuals Below Poverty Level	Percent Hispanic or Latino of Any Race	Percent Black or African American	Percent Asian	Percent American Indian or Alaska Native	Percent Two or More Races	County and State
US 83	I-35	Webb/Dimmit county line	31.2	94.3	0.2	0.4	0	0.1	Webb, Texas
US 83	Webb/Dimmit county line	Catarina	33.2	85.0	0.7	0.7	0	0.5	Dimmit, Texas
US 83	Catarina	Carrizo Springs Relief Route	33.2	85.0	0.7	0.7	0.2	0.3	Dimmit, Texas

Section			Population						
Roadway	From	To	Percent Individuals Below Poverty Level	Percent Hispanic or Latino of Any Race	Percent Black or African American	Percent Asian	Percent American Indian or Alaska Native	Percent Two or More Races	County and State
US 277	Carrizo Springs Relief Route	Dimmit/ Maverick county line	33.2	85.0	0.7	0.7	0.2	0.3	Dimmit, Texas
US 277	Dimmit/ Maverick county line	Eagle Pass Relief Route	34.2	50.5	1.3	0.1	0.9	0.2	Maverick, Texas
US 277	Eagle Pass Relief Route	Maverick/ Kinney County line	34.2	50.5	1.3	0.1	0.9	0.2	Maverick, Texas
US 277	Maverick/ Kinney County line	Kinney/ Val Verde county line	24.0	50.5	1.3	0.1	0.1	0.9	Kinney, Texas
US 277	Kinney/Val Verde county line	Del Rio Relief Route	26.1	75.5	1.4	0.5	0.3	0.6	Val Verde, Texas
US 277	Del Rio Relief Route	Val Verde/ Edwards county line	26.1	75.5	1.4	0.5	0.3	0.6	Val Verde, Texas
US 277	Val Verde/ Edwards county line	Edwards/ Sutton county line	31.6	45.1	0.1	0	0.5	0.6	Edwards, Texas
US 277	Edwards/ Sutton county line	Sonora Relief Route	18.0	51.7	0.2	0.2	0.3	0.3	Sutton, Texas
US 277	Sonora Relief Route	Sutton/ Schleicher county line	18.0	51.7	0.2	0.2	0.3	0.3	Sutton, Texas
US 277	Sutton/ Schleicher county line	Schleicher/ Tom Green county line	21.5	43.5	1.1	0.2	0	0.5	Schleicher, Texas
US 277	Schleicher/ Tom Green county line	San Angelo Relief Route	15.2	30.7	4.0	0.8	0.4	1.0	Tom Green, Texas
SH (Texas) 158	Sterling City	Sterling/ Glasscock county line	16.8	31.0	0.1	0	0.2	0	Sterling, Texas
SH (Texas) 158	Sterling/ Glasscock county line	Glasscock/ Midland county line	14.7	29.9	0.4	0	0.1	1.7	Glasscock, Texas
SH (Texas) 349	Midland	Midland/ Martin county line	12.9	29	8.2	0.9	0.4	0.7	Midland, Texas
SH (Texas) 349	Midland/ Martin county line	Martin/ Dawson county line	18.7	40.6	1.6	0.2	0.2	0.7	Martin, Texas

Section			Population						
Roadway	From	To	Percent Individuals Below Poverty Level	Percent Hispanic or Latino of Any Race	Percent Black or African American	Percent Asian	Percent American Indian or Alaska Native	Percent Two or More Races	County and State
SH (Texas) 349	Martin/ Dawson county line	FM 2052	19.7	48.2	8.8	0.2	0.2	0.4	Dawson, Texas
FM 2052	SH 349	US 87	19.7	48.2	8.8	0.2	0.2	0.4	Dawson, Texas
US 287	Stratford	Sherman/ Dallam county line	16.1	27.4	0.5	0	0.5	0.6	Sherman, Texas
US 287	Sherman/ Dallam county line	OK/TX Border	14.1	28.4	1.6	0.2	0.6	0.8	Dallam, Texas
US 287	OK/TX Border	Boise City Relief Route	17.6	15.4	0.5	0.2	1.0	1.9	Cimarron, Oklahoma
US 287	Boise City Relief Route	Ok/CO Border	17.6	15.4	0.5	0.2	1.0	1.9	Cimarron, Oklahoma
US 287	OK/CO Border	Springfield	16.9	7.0	0	0.2	1.0	1.3	Baca, Colorado
US 287	Springfield	Baca/ Prowers county line	16.9	7.0	0	0.2	1.0	1.3	Baca, Colorado
US 287	Baca/ Prowers county line	Lamar Relief Route	19.5	32.9	0.2	0.3	0.5	0.8	Prowers County
US 287	Lamar Relief Route	Prowers/ Kiowa county line	19.5	32.9	0.2	0.3	0.5	0.8	Prowers County
US 287	Prowers/ Kiowa county line	Eads	11.1	3.1	0.5	0	1.1	0.7	Kiowa, Colorado
US 287	Eads	Kiowa/ Cheyenne county line	11.1	3.1	0.5	0	1.1	0.7	Kiowa, Colorado
US 287	Kiowa/ Cheyenne county line	Kit Carson	11.1	8.1	0.4	0.1	0.4	0.4	Cheyenne, Colorado
US 40	Kit Carson	Wild Horse	11.1	8.1	0.4	0.1	0.4	0.4	Cheyenne, Colorado
US 40	Wild Horse	Cheyenne/ Lincoln county line	11.1	8.1	0.4	0.1	0.4	0.4	Cheyenne, Colorado
US 40	Cheyenne/ Lincoln county line	Hugo	11.7	8.5	4.9	0.5	0.8	1.0	Lincoln, Colorado
US 40	Hugo	Limon	11.7	8.5	4.9	0.5	0.8	1.0	Lincoln, Colorado

Section			Population						
Roadway	From	To	Percent Individuals Below Poverty Level	Percent Hispanic or Latino of Any Race	Percent Black or African American	Percent Asian	Percent American Indian or Alaska Native	Percent Two or More Races	County and State
US 87	Dumas	Moore/ Hartley county line	13.5	47.5	0.4	0.8	0.4	0.8	Moore, Texas
US 87	Moore/ Hartley county line	Hartley interchange with US 385	6.6	13.7	8.0	0.3	0.3	0.6	Hartley, Texas
US 87	Dalhart Relief Route	TX/NM Border	14.1	28.4	1.6	0.2	0.6	0.8	Dallam, Texas
US 64	Clayton	Capulin	18.1	35.1	0	0.3	0.3	1.2	Union, New Mexico
US 64	Capulin	Union/Colfax county line	18.1	35.1	0	0.3	0.3	1.2	Union, New Mexico
US 64	Union/ Colfax county line	Raton/I-25	14.8	47.5	0.3	0.3	0.8	1.0	Colfax, New Mexico
Carrizo Springs Relief Route	South of Asherton	North of Carrizo Springs	33.2	85	0.7	0.7	0.2	0.3	Dimmit, Texas
Eagle Pass Relief Route	Eagle Pass International Bridge	US 277 east of Eagle Pass	34.2	50.5	1.3	0.1	0.9	0.2	Maverick, Texas
Eagle Pass Relief Route	US 277 east of Eagle Pass	US 277 north of Eagle Pass	34.2	50.5	1.3	0.1	0.9	0.2	Maverick, Texas
Del Rio Relief Route	US 277 east of Del Rio	US 277 north of Del Rio	26.1	75.5	1.4	0.5	0.3	0.6	Val Verde, Texas
Sonora Relief Route	US 277 south of Sonora	US 277 north of Sonora	18.0	51.7	0.2	0.2	0.3	0.3	Sutton, Texas
San Angelo Relief Route	US 277 south of San Angelo	US 87 north of San Angelo	15.2	30.7	4.0	0.8	0.4	1.0	Tom Green, Texas
Big Spring Relief Route	US 87 south of Big Spring	US 87 north of Big Spring	18.6	37.5	3.8	0.6	0.4	0.9	Howard, Texas
Midland Relief Route	IH 20 west of Midland	SH 349 north of Midland	12.9	29.0	8.2	0.9	0.4	0.7	Midland, Texas
Lamesa Relief Route	US 87 south of Lamesa	US 87 north of Lamesa	19.7	48.2	8.8	0.2	0.2	0.4	Dawson, Texas
Dumas Relief Route	US 287 south of Dumas	US 287 north of Dumas	13.5	47.5	0.4	0.8	0.4	0.8	Moore, Texas
Stratford Relief Route	US 287 south of Stratford	US 287 north of Stratford	16.1	27.4	0.5	0	0.5	0.6	Sherman, Texas
Boise City Relief Route	US 287 south of Boise City	US 287 north of Boise City	17.6	15.4	0.5	0.2	1.0	1.9	Cimarron, Oklahoma

Section			Population						
Roadway	From	To	Percent Individuals Below Poverty Level	Percent Hispanic or Latino of Any Race	Percent Black or African American	Percent Asian	Percent American Indian or Alaska Native	Percent Two or More Races	County and State
Lamar Relief Route	US 287 south of Lamar	US 50 north of Lamar	19.5	32.9	0.2	0.3	0.5	0.8	Prowers, Colorado
Dalhart Relief Route	US 87 south of Dalhart	US 87 north of Dalhart	14.1	28.4	1.6	0.2	0.6	0.8	Dallam, Texas
Clayton Relief Route	US 87 east of Clayton	US 64 west of Clayton	18.1	35.1	0	0.3	0.3	1.2	Union, New Mexico

This page intentionally left blank.

Maintenance & Operation
Supporting Technical Analysis

Table of Contents

4.1 Maintenance and Operations Cost Estimates

The following Exhibits 4.1-1 to 4.1-6 provide the assumptions and calculations used in determining the cost of maintaining and operating the existing and improved Ports to Plains Corridor. The cost of Routine maintenance is based upon an average yearly cost per lane mile. The cost of Preventive maintenance is based upon the cost for sealing or overlaying the road based upon a schedule that includes a seal after five years of new construction, then an overlay five years after the seal coat, and so on.

This page was intentionally left blank.

Exhibit 4.1-1 Routine Maintenance Cost on Existing System

ROUTINE MAINTENANCE
(Existing System)

Section	Description	Roadway	District	From	To	Length	Existing Pvmnt Type	Existing Pvmnt Cond	Existing Lanes	Costs/Time Span					TOTAL $ PER SECTION
										2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	
1	Build 2 new lanes in Asphalt	US 83	Laredo	I35	Webb/Dimmit County Line	34	Asphalt	Fair	2	$ 1,581,000	$ 1,317,500	$ 1,317,500	$ 1,317,500	$ 1,317,500	**$ 6,851,000**
2	Build 2 new lanes in Asphalt	US 83	Laredo	Webb/Dimmit County Line	FM 133, just south of Asherton	9	Asphalt	Fair	2	$ 418,500	$ 348,750	$ 348,750	$ 348,750	$ 348,750	**$ 1,813,500**
3	Build 2 new lanes in Asphalt	US 83	Laredo	FM 133, just south of Asherton	Carrizo Springs Relief Route	9	Asphalt	Fair	2	$ 418,500	$ 348,750	$ 348,750	$ 348,750	$ 348,750	**$ 1,813,500**
4	Build 2 new lanes in Asphalt	US 83	Laredo	Asherton	Carrizo Springs	11	Asphalt	Fair	2	$ 511,500	$ 426,250	$ 426,250	$ 426,250	$ 426,250	**$ 2,216,500**
5	Build 2 new lanes in Asphalt	US 277	Laredo	Carrizo Springs Relief Route	Dimmit/Maverick County Line	17	Asphalt	Good	2	$ 790,500	$ 658,750	$ 658,750	$ 658,750	$ 658,750	**$ 3,425,500**
6	Build 2 new lanes in Asphalt	US 277	Laredo	Dimmit/Maverick County Line	Eagle Pass Relief Route	19	Asphalt	Good	2	$ 883,500	$ 736,250	$ 736,250	$ 736,250	$ 736,250	**$ 3,828,500**
7	Build 2 new lanes in Asphalt	US 277	Laredo	Eagle Pass Relief Route	Maverick/Kinney County line	23	Asphalt	Poor	2	$ 1,069,500	$ 891,250	$ 891,250	$ 891,250	$ 891,250	**$ 4,634,500**
8	Build 2 new lanes in Asphalt	US 277	Laredo	Maverick/Kinney County line	Kinney/Val Verde County Line	14	Asphalt	Poor	2	$ 651,000	$ 542,500	$ 542,500	$ 542,500	$ 542,500	**$ 2,821,000**
9	Build 2 new lanes in Asphalt	US 277	Laredo	Kinney/Val Verde County Line	Del Rio Relief Route	8	Asphalt	Poor	2	$ 372,000	$ 310,000	$ 310,000	$ 310,000	$ 310,000	**$ 1,612,000**
10	Build 2 new lanes in Asphalt	US 277	Laredo	Del Rio Relief Route	Val Verde/Edwards County Line	55	Asphalt	Good	2	$ 2,557,500	$ 2,131,250	$ 2,131,250	$ 2,131,250	$ 2,131,250	**$ 11,082,500**
11	Build 2 new lanes in Asphalt	US 277	San Angelo	Val Verde/Edwards County Line	Edwards/Sutton County Line	10	Asphalt	Good	2	$ 402,000	$ 335,000	$ 335,000	$ 335,000	$ 335,000	**$ 1,742,000**
12	Build 2 new lanes in Asphalt	US 277	San Angelo	Edwards/Sutton County Line	Sonora Relief Route	20	Asphalt	Fair	2	$ 804,000	$ 670,000	$ 670,000	$ 670,000	$ 670,000	**$ 3,484,000**
13	Build 2 new lanes in Asphalt	US 277	San Angelo	Sonora Relief Route	Sutton/Schleicher County Line	8	Asphalt	Good	2	$ 321,600	$ 268,000	$ 268,000	$ 268,000	$ 268,000	**$ 1,393,600**
14	Build 2 new lanes in Asphalt	US 277	San Angelo	Sutton/Schleicher County Line	Schleicher/Tom Green County Line	30	Asphalt	Good	2	$ 1,206,000	$ 1,005,000	$ 1,005,000	$ 1,005,000	$ 1,005,000	**$ 5,226,000**
15	Build 2 new lanes in Asphalt	US 277	San Angelo	Schleicher/Tom Green County Line	San Angelo Relief Route	22	Asphalt	Good	2	$ 884,400	$ 737,000	$ 737,000	$ 737,000	$ 737,000	**$ 3,832,400**
16	Existing 4 lane divided highway	US 87	San Angelo	San Angelo Relief Route	Tom Green/Coke County Line	20	Asphalt	Fair	4	$ 1,320,000	$ 1,100,000	$ 1,100,000	$ 1,100,000	$ 1,100,000	**$ 5,720,000**
17	Existing 4 lane divided highway	US 87	San Angelo	Tom Green/Coke County Line	Coke/Sterling County Line	4	Asphalt	Fair	4	$ 264,000	$ 220,000	$ 220,000	$ 220,000	$ 220,000	**$ 1,144,000**
18	Existing 4 lane divided highway	US 87	San Angelo	Coke/Sterling County Line	Sterling/Glasscock County Line	32	Asphalt	Fair	4	$ 2,112,000	$ 1,760,000	$ 1,760,000	$ 1,760,000	$ 1,760,000	**$ 9,152,000**
19	Existing 4 lane divided highway	US 87	San Angelo	Sterling/Glasscock County Line	Glasscock/Howard County Line	11	Asphalt	Fair	4	$ 726,000	$ 605,000	$ 605,000	$ 605,000	$ 605,000	**$ 3,146,000**
20	Existing 4 lane divided highway	US 87	Abilene	Glasscock/Howard County Line	Big Spring Relief Route	6	Asphalt	Fair	4	$ 288,000	$ 240,000	$ 240,000	$ 240,000	$ 240,000	**$ 1,248,000**
21	Existing 4 lane divided highway	US 87	Abilene	Big Spring Relief Route	Howard/Martin County Line	19	Asphalt	Fair	4	$ 912,000	$ 760,000	$ 760,000	$ 760,000	$ 760,000	**$ 3,952,000**
22	Existing 4 lane divided highway	US 87	Odessa	Howard/Martin County Line	Martin/Dawson County Line	1	Asphalt	Fair	4	$ 48,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	**$ 208,000**
23	Existing 4 lane divided highway	US 87	Lubbock	Martin/Dawson County Line	Lamesa Relief Route	18	Asphalt	Fair	4	$ 918,000	$ 765,000	$ 765,000	$ 765,000	$ 765,000	**$ 3,978,000**
24	Build 2 new lanes in Asphalt	Texas 158	San Angelo	Sterling City	Sterling/Glasscock County Line	14	Asphalt	Fair	2	$ 336,000	$ 280,000	$ 280,000	$ 280,000	$ 280,000	**$ 1,456,000**

Exhibit 4.1-1 Routine Maintenance Cost on Existing System (continued)

ROUTINE MAINTENANCE
(Existing System)

Section	Description	Roadway	District	From	To	Length	Existing Pvmnt Type	Existing Pvmnt Cond	Existing Lanes	Costs/Time Span					TOTAL $ PER SECTION
										2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	
25	Build 2 new lanes in Asphalt	Texas 158	San Angelo	Sterling/Glasscock County Line	Glasscock/Midland County Line	30	Asphalt	Fair	2	$ 720,000	$ 600,000	$ 600,000	$ 600,000	$ 600,000	**$ 3,120,000**
26	Existing 4 lane undivided highway	Texas 158	Odessa	Glasscock/Midland County Line	Midland	16	Asphalt	Fair	4	$ 768,000	$ 640,000	$ 640,000	$ 640,000	$ 640,000	**$ 3,328,000**
27	Build 2 new lanes in Asphalt	Texas 349	Odessa	Midland	Midland/Martin County Line	7	Asphalt	Fair	2	$ 252,000	$ 210,000	$ 210,000	$ 210,000	$ 210,000	**$ 1,092,000**
28	Build 2 new lanes in Asphalt	Texas 349	Odessa	Midland/Martin County Line	Martin/Dawson County Line	34	Asphalt	Poor	2	$ 1,224,000	$ 1,020,000	$ 1,020,000	$ 1,020,000	$ 1,020,000	**$ 5,304,000**
29	Build 2 new lanes in Asphalt	Texas 349	Lubbock	Martin/Dawson County Line	FM 2052	13	Asphalt	Fair	2	$ 468,000	$ 390,000	$ 390,000	$ 390,000	$ 390,000	**$ 2,028,000**
30	Build 2 new lanes in Asphalt	FM 2052	Lubbock	Texas 349	US 87	2	Asphalt	Fair	2	$ 72,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	**$ 312,000**
31	Existing 4 lane divided highway	US 87	Lubbock	Texas 349	Lamesa Relief Route	3	Asphalt	Poor	4	$ 153,000	$ 127,500	$ 127,500	$ 127,500	$ 127,500	**$ 663,000**
32	Existing 4 lane divided highway	US 87	Lubbock	Lamesa Relief Route	Dawson/Lynn County Line	14	Asphalt	Poor	4	$ 714,000	$ 595,000	$ 595,000	$ 595,000	$ 595,000	**$ 3,094,000**
33	Existing 4 lane divided highway	US 87	Lubbock	Dawson/Lynn County Line	Lynn/Lubbock County Line	32	Asphalt	Poor	4	$ 1,632,000	$ 1,360,000	$ 1,360,000	$ 1,360,000	$ 1,360,000	**$ 7,072,000**
34	Existing 4 lane divided highway	US 87	Lubbock	Lynn/Lubbock County Line	I 27	10	Asphalt	Fair	4	$ 510,000	$ 425,000	$ 425,000	$ 425,000	$ 425,000	**$ 2,210,000**
35	Existing 4 land divided Interstate	I 27	Lubbock	US 87	Lubbock/Hale County Line	24	Concrete	Good	4	$ 1,224,000	$ 1,020,000	$ 1,020,000	$ 1,020,000	$ 1,020,000	**$ 5,304,000**
36	Existing 4 land divided Interstate	I 27	Lubbock	Lubbock/Hale County Line	Hale/Swisher County Line	38	Concrete	Good	4	$ 1,938,000	$ 1,615,000	$ 1,615,000	$ 1,615,000	$ 1,615,000	**$ 8,398,000**
37	Existing 4 land divided Interstate	I 27	Lubbock	Hale/Swisher County Line	Swisher/Randall County Line	33	Concrete	Good	4	$ 1,683,000	$ 1,402,500	$ 1,402,500	$ 1,402,500	$ 1,402,500	**$ 7,293,000**
38	Existing 4 land divided Interstate	I 27	Amarillo	Swisher/Randall County Line	Randall/Potter County Line	34	Concrete	Fair	4	$ 1,734,000	$ 1,445,000	$ 1,445,000	$ 1,445,000	$ 1,445,000	**$ 7,514,000**
39	Existing 4 land divided Interstate	I 27	Amarillo	Randall/Potter County Line	I 40	1	Asphalt	Fair	4	$ 51,000	$ 42,500	$ 42,500	$ 42,500	$ 42,500	**$ 221,000**
40	Existing 4 lane divided highway	US 87	Amarillo	I 40	Potter/Moore County Line	33	Asphalt	Good	4	$ 1,683,000	$ 1,402,500	$ 1,402,500	$ 1,402,500	$ 1,402,500	**$ 7,293,000**
41	Existing 4 lane divided highway	US 87	Amarillo	Potter/Moore County Line	Dumas Relief Route	16	Asphalt	Good	4	$ 816,000	$ 680,000	$ 680,000	$ 680,000	$ 680,000	**$ 3,536,000**
42	Existing 4 lane divided highway	US 287	Amarillo	Dumas Relief Route	Moore/Sherman County Line	12	Asphalt	Fair	4	$ 612,000	$ 510,000	$ 510,000	$ 510,000	$ 510,000	**$ 2,652,000**
43	Existing 4 lane divided highway	US 287	Amarillo	Moore/Sherman County Line	Stratford	21	Asphalt	Poor	4	$ 1,071,000	$ 892,500	$ 892,500	$ 892,500	$ 892,500	**$ 4,641,000**
44	Build 2 new lanes in Asphalt	US 287	Amarillo	Stratford	Sherman/Dallam County Line	9	Asphalt	Fair	2	$ 324,000	$ 270,000	$ 270,000	$ 270,000	$ 270,000	**$ 1,404,000**
45	Build 2 new lanes in Asphalt	US 287	Amarillo	Sherman/Dallam County Line	Ok/Tx Border	7	Asphalt	Poor	2	$ 252,000	$ 210,000	$ 210,000	$ 210,000	$ 210,000	**$ 1,092,000**
46	Build 2 new lanes in Asphalt	US 287	Oklahoma	Ok/Tx Border	Boise City Relief Route	21	Asphalt	Good	2	$ 667,800	$ 556,500	$ 556,500	$ 556,500	$ 556,500	**$ 2,893,800**
47	Build 2 new lanes in Asphalt	US 287	Oklahoma	Boise City Relief Route	Ok/Co Border	19	Asphalt	Good	2	$ 604,200	$ 503,500	$ 503,500	$ 503,500	$ 503,500	**$ 2,618,200**
48	Build 2 new lanes in Concrete	US 287	Colorado	Ok/Co Border	Springfield	32	Concrete	Good	2	$ 1,017,600	$ 848,000	$ 848,000	$ 848,000	$ 848,000	**$ 4,409,600**

Exhibit 4.1-1 Routine Maintenance Cost on Existing System (continued)

ROUTINE MAINTENANCE
(Existing System)

Section	Description	Roadway	District	From	To	Length	Existing Pvmnt Type	Existing Pvmnt Cond	Existing Lanes	Costs/Time Span					TOTAL $ PER SECTION
										2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	
49	Build 2 new lanes in Concrete	US 287	Colorado	Springfield	Baca/Prowers County Line	18	Concrete	Good	2	$ 572,400	$ 477,000	$ 477,000	$ 477,000	$ 477,000	**$ 2,480,400**
50	Build 2 new lanes in Concrete	US 287	Colorado	Baca/Prowers County Line	Lamar Relief Route	28	Concrete	Good	2	$ 890,400	$ 742,000	$ 742,000	$ 742,000	$ 742,000	**$ 3,858,400**
51	Build 2 new lanes in Concrete	US 287	Colorado	Lamar Relief Route	Prowers/Kiowa County Line	16	Asphalt	Poor	2	$ 508,800	$ 424,000	$ 424,000	$ 424,000	$ 424,000	**$ 2,204,800**
52	Build 2 new lanes in Concrete	US 287	Colorado	Prowers/Kiowa County Line	Eads	19	Concrete	Good	2	$ 604,200	$ 503,500	$ 503,500	$ 503,500	$ 503,500	**$ 2,618,200**
53	Build 2 new lanes in Concrete	US 287	Colorado	Eads	Kiowa/Cheyenne County Line	10	Concrete	Good	2	$ 318,000	$ 265,000	$ 265,000	$ 265,000	$ 265,000	**$ 1,378,000**
54	Build 2 new lanes in Concrete	US 287	Colorado	Kiowa/Cheyenne County Line	Kit Carson	12	Concrete	Good	2	$ 381,600	$ 318,000	$ 318,000	$ 318,000	$ 318,000	**$ 1,653,600**
55	Build 2 new lanes in Concrete	US 40	Colorado	Kit Carson	Wild Horse	13	Asphalt	Fair	2	$ 413,400	$ 344,500	$ 344,500	$ 344,500	$ 344,500	**$ 1,791,400**
56	Build 2 new lanes in Concrete	US 40	Colorado	Wild Horse	Cheyenne/Lincoln County Line	10	Concrete	Good	2	$ 318,000	$ 265,000	$ 265,000	$ 265,000	$ 265,000	**$ 1,378,000**
57	Build 2 new lanes in Concrete	US 40	Colorado	Cheyenne/Lincoln County Line	Hugo	23	Asphalt	Poor	2	$ 731,400	$ 609,500	$ 609,500	$ 609,500	$ 609,500	**$ 3,169,400**
58	Build 2 new lanes in Concrete	US 40	Colorado	Hugo	Limon	16	Concrete	Good	2	$ 508,800	$ 424,000	$ 424,000	$ 424,000	$ 424,000	**$ 2,204,800**
59	Existing 4 land divided Interstate	I 70	Colorado	Limon	Lincoln/Elbert County Line	4	Concrete	Good	4	$ 153,600	$ 128,000	$ 128,000	$ 128,000	$ 128,000	**$ 665,600**
60	Existing 4 land divided Interstate	I 70	Colorado	Lincoln/Elbert County Line	Elbert/Arapahoe County Line	27	Concrete	Good	4	$ 1,036,800	$ 864,000	$ 864,000	$ 864,000	$ 864,000	**$ 4,492,800**
61	Existing 4 land divided Interstate	I 70	Colorado	Elbert/Arapahoe County Line	Denver	56	Concrete	Good	4	$ 2,150,400	$ 1,792,000	$ 1,792,000	$ 1,792,000	$ 1,792,000	**$ 9,318,400**
62	Build 2 new lanes in Asphalt	US 87	Amarillo	Dumas	Moore/Hartley County Line	9	Asphalt	Fair	2	$ 324,000	$ 270,000	$ 270,000	$ 270,000	$ 270,000	**$ 1,404,000**
63	Build 2 new lanes in Asphalt	US 87	Amarillo	Moore/Hartley County Line	Hartley/Interchange with US 385	12	Asphalt	Fair	2	$ 432,000	$ 360,000	$ 360,000	$ 360,000	$ 360,000	**$ 1,872,000**
64	Existing 4 lane divided highway	US 87	Amarillo	Hartley/Interchange with US 385	Dalhart Relief Route	15	Asphalt	Poor	4	$ 765,000	$ 637,500	$ 637,500	$ 637,500	$ 637,500	**$ 3,315,000**
65	Build 2 new lanes in Asphalt	US 87	Amarillo	Dalhart Relief Route	Tx/NM Border	35	Asphalt	Fair	2	$ 1,260,000	$ 1,050,000	$ 1,050,000	$ 1,050,000	$ 1,050,000	**$ 5,460,000**
66	Build 2 new lanes in Asphalt	US 64	New Mexico	Tx/NM Border	Capulin	53	Asphalt	Fair	2	$ 1,908,000	$ 1,590,000	$ 1,590,000	$ 1,590,000	$ 1,590,000	**$ 8,268,000**
67	Build 2 new lanes in Asphalt	US 64	New Mexico	Capulin	Union/Colfax County Line	1	Asphalt	Good	2	$ 36,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	**$ 156,000**
68	Build 2 new lanes in Asphalt	US 64	New Mexico	Union/Colfax County Line	Raton/I-25	26	Asphalt	Good	2	$ 936,000	$ 780,000	$ 780,000	$ 780,000	$ 780,000	**$ 4,056,000**
69	Carrizo Springs	On-Existing Bus. Route	Laredo	South of Asherton	North of Carrizo Springs	8.6	Asphalt	Good	4	$ 531,480	$ 442,900	$ 442,900	$ 442,900	$ 442,900	**$ 2,303,080**
70	Eagle Pass	On-Existing Bus. Route	Laredo	Eagle Pass International Bridge	US 277 East of Eagle Pass	9.3	Asphalt	Good	4	$ 574,740	$ 478,950	$ 478,950	$ 478,950	$ 478,950	**$ 2,490,540**
71	Eagle Pass	On-Existing Bus. Route	Laredo	US 277 East of Eagle Pass	US 277 North of Eagle Pass	8.4	Asphalt	Good	4	$ 519,120	$ 432,600	$ 432,600	$ 432,600	$ 432,600	**$ 2,249,520**

Exhibit 4.1-1 Routine Maintenance Cost on Existing System (continued)

ROUTINE MAINTENANCE
(Existing System)

Section	Description	Roadway	District	From	To	Length	Existing Pvmnt Type	Existing Pvmnt Cond	Existing Lanes	Costs/Time Span					TOTAL $ PER SECTION
										2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	
72	Del Rio	On-Existing Bus. Route	Laredo	US 277 East of Del Rio	US 277 North of Del Rio	12	Asphalt	Good	4	$ 741,600	$ 618,000	$ 618,000	$ 618,000	$ 618,000	**$ 3,213,600**
73	Sonora	On-Existing Bus. Route	San Angelo	US 277 South of Sonora	US 277 North of Sonora	4.8	Asphalt	Good	4	$ 316,800	$ 264,000	$ 264,000	$ 264,000	$ 264,000	**$ 1,372,800**
74	San Angelo	On-Existing Bus. Route	San Angelo	US 277 South of San Angelo	US 87 North of San Angelo	21.3	Asphalt	Good	4	$ 1,405,800	$ 1,171,500	$ 1,171,500	$ 1,171,500	$ 1,171,500	**$ 6,091,800**
75	Big Spring	On-Existing Bus. Route	Abilene	US 87 South of Big Spring	US 87 North of Big Spring	13	Asphalt	Good	4	$ 624,000	$ 520,000	$ 520,000	$ 520,000	$ 520,000	**$ 2,704,000**
76	Lamesa	On-Existing Bus. Route	Lubbock	US 87 South of Lamesa	US 87 North of Lamesa	5.8	Asphalt	Good	4	$ 295,800	$ 246,500	$ 246,500	$ 246,500	$ 246,500	**$ 1,281,800**
77	Dumas	On-Existing Bus. Route	Lubbock	US 287 South of Dumas	US 287 North of Dumas	5	Asphalt	Good	4	$ 255,000	$ 212,500	$ 212,500	$ 212,500	$ 212,500	**$ 1,105,000**
78	Boise City	On-Existing Bus. Route	Oklahoma	US 287 South of Boise City	US 287 North of Boise City	3.5	Asphalt	Good	4	$ 134,400	$ 112,000	$ 112,000	$ 112,000	$ 112,000	**$ 582,400**
79	Lamar	On-Existing Bus. Route	Colorado	US 287 South of Lamar	US 287 North of Lamar	9	Asphalt	Good	4	$ 345,600	$ 288,000	$ 288,000	$ 288,000	$ 288,000	**$ 1,497,600**
80	Stratford	On-Existing Bus. Route	Amarillo	US 287 South of Stratford	US 287 North of Stratford	5.2	Asphalt	Good	4	$ 265,200	$ 221,000	$ 221,000	$ 221,000	$ 221,000	**$ 1,149,200**
81	Midland	On-Existing Bus. Route	Odessa	I 20 on West	Texas 349 on North	21	Asphalt	Good	4	$ 1,008,000	$ 840,000	$ 840,000	$ 840,000	$ 840,000	**$ 4,368,000**
82	Clayton	On-Existing Bus. Route	New Mexico	US 87 East of Clayton	US 64 West of Clayton	3.8	Asphalt	Good	4	$ 193,800	$ 161,500	$ 161,500	$ 161,500	$ 161,500	**$ 839,800**
83	Dalhart	On-Existing Bus. Route	Amarillo	US 87 South of Dalhart	US 87 North of Dalhart	6.6	Asphalt	Good	4	$ 336,600	$ 280,500	$ 280,500	$ 280,500	$ 280,500	**$ 1,458,600**
							TOTAL $ FOR TIMESPAN			**$ 61,782,840**	**$ 51,485,700**	**$ 51,485,700**	**$ 51,485,700**	**$ 51,485,700**	**$ 267,725,640**

Exhibit 4.1-2 Preventive Maintenance Cost on Existing System

PREVENTIVE MAINTENANCE COST
(Existing System)

Section	Description	Roadway	District	From	To	Length	Existing Pvmnt Type	Existing Pvmnt Cond	Existing Lanes	2005-2010			2011-2015			2016-2020			2021-2025			2026-2030			TOTAL $ FOR SECTION
										No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	
1	Build 2 new lanes in Asphalt	US 83	Laredo	I35	Webb/Dimmit County Line	34	Asphalt	Fair	2	2	SEAL	$ 340,000	2	ACP	$ 10,200,000	2	NA	$ -		SEAL	$ 340,000	2	ACP	$ 10,200,000	**$ 21,080,000**
2	Build 2 new lanes in Asphalt	US 83	Laredo	Webb/Dimmit County Line	FM 133, just south of Asherton	9	Asphalt	Fair	2	2	SEAL	$ 90,000	2	ACP	$ 2,700,000	2	NA	$ -		SEAL	$ 90,000	2	ACP	$ 2,700,000	**$ 5,580,000**
3	Build 2 new lanes in Asphalt	US 83	Laredo	FM 133, just south of Asherton	Carrizo Springs Relief Route	9	Asphalt	Fair	2	2	SEAL	$ 90,000	2	ACP	$ 2,700,000	2	NA	$ -		SEAL	$ 90,000	2	ACP	$ 2,700,000	**$ 5,580,000**
4	Build 2 new lanes in Asphalt	US 83	Laredo	Asherton	Carrizo Springs	11	Asphalt	Fair	2	2	SEAL	$ 110,000	2	ACP	$ 3,300,000	2	NA	$ -		SEAL	$ 110,000	2	ACP	$ 3,300,000	**$ 6,820,000**
5	Build 2 new lanes in Asphalt	US 277	Laredo	Carrizo Springs Relief Route	Dimmit/Maverick County Line	17	Asphalt	Good	2	2	NA	$ -		SEAL	$ 170,000	2	ACP	$ 5,100,000	2	NA	$ -		SEAL	$ 170,000	**$ 5,440,000**
6	Build 2 new lanes in Asphalt	US 277	Laredo	Dimmit/Maverick County Line	Eagle Pass Relief Route	19	Asphalt	Good	2	2	NA	$ -		SEAL	$ 190,000	2	ACP	$ 5,700,000	2	NA	$ -		SEAL	$ 190,000	**$ 6,080,000**
7	Build 2 new lanes in Asphalt	US 277	Laredo	Eagle Pass Relief Route	Maverick/Kinney County line	23	Asphalt	Poor	2	2	ACP	$ 6,900,000	2	NA	$ -		SEAL	$ 230,000	2	ACP	$ 6,900,000	2	NA	$ -	**$ 14,030,000**
8	Build 2 new lanes in Asphalt	US 277	Laredo	Maverick/Kinney County line	Kinney/Val Verde County Line	14	Asphalt	Poor	2	2	ACP	$ 4,200,000	2	NA	$ -		SEAL	$ 140,000	2	ACP	$ 4,200,000	2	NA	$ -	**$ 8,540,000**
9	Build 2 new lanes in Asphalt	US 277	Laredo	Kinney/Val Verde County Line	Del Rio Relief Route	8	Asphalt	Poor	2	2	ACP	$ 2,400,000	2	NA	$ -		SEAL	$ 80,000	2	ACP	$ 2,400,000	2	NA	$ -	**$ 4,880,000**
10	Build 2 new lanes in Asphalt	US 277	Laredo	Del Rio Relief Route	Val Verde/Edwards County Line	55	Asphalt	Good	2	2	NA	$ -		SEAL	$ 550,000	2	ACP	$ 16,500,000	2	NA	$ -		SEAL	$ 550,000	**$ 17,600,000**
11	Build 2 new lanes in Asphalt	US 277	San Angelo	Val Verde/Edwards County Line	Edwards/Sutton County Line	10	Asphalt	Good	2	2	NA	$ -		SEAL	$ 100,000	2	ACP	$ 3,000,000	2	NA	$ -		SEAL	$ 100,000	**$ 3,200,000**
12	Build 2 new lanes in Asphalt	US 277	San Angelo	Edwards/Sutton County Line	Sonora Relief Route	20	Asphalt	Fair	2	2	SEAL	$ 200,000	2	ACP	$ 6,000,000	2	NA	$ -		SEAL	$ 200,000	2	ACP	$ 6,000,000	**$ 12,400,000**
13	Build 2 new lanes in Asphalt	US 277	San Angelo	Sonora Relief Route	Sutton/Schleicher County Line	8	Asphalt	Good	2	2	NA	$ -		SEAL	$ 80,000	2	ACP	$ 2,400,000	2	NA	$ -		SEAL	$ 80,000	**$ 2,560,000**
14	Build 2 new lanes in Asphalt	US 277	San Angelo	Sutton/Schleicher County Line	Schleicher/Tom Green County Line	30	Asphalt	Good	2	2	NA	$ -		SEAL	$ 300,000	2	ACP	$ 9,000,000	2	NA	$ -		SEAL	$ 300,000	**$ 9,600,000**
15	Build 2 new lanes in Asphalt	US 277	San Angelo	Schleicher/Tom Green County Line	San Angelo Relief Route	22	Asphalt	Good	2	2	NA	$ -		SEAL	$ 220,000	2	ACP	$ 6,600,000	2	NA	$ -		SEAL	$ 220,000	**$ 7,040,000**
16	Existing 4 lane divided highway	US 87	San Angelo	San Angelo Relief Route	Tom Green/Coke County Line	20	Asphalt	Fair	4	4	SEAL	$ 400,000	4	ACP	$ 12,000,000	4	NA	$ -		SEAL	$ 400,000	4	ACP	$ 12,000,000	**$ 24,800,000**
17	Existing 4 lane divided highway	US 87	San Angelo	Tom Green/Coke County Line	Coke/Sterling County Line	4	Asphalt	Fair	4	4	SEAL	$ 80,000	4	ACP	$ 2,400,000	4	NA	$ -		SEAL	$ 80,000	4	ACP	$ 2,400,000	**$ 4,960,000**
18	Existing 4 lane divided highway	US 87	San Angelo	Coke/Sterling County Line	Sterling/Glasscock County Line	32	Asphalt	Fair	4	4	SEAL	$ 640,000	4	ACP	$ 19,200,000	4	NA	$ -		SEAL	$ 640,000	4	ACP	$ 19,200,000	**$ 39,680,000**
19	Existing 4 lane divided highway	US 87	San Angelo	Sterling/Glasscock County Line	Glasscock/Howard County Line	11	Asphalt	Fair	4	4	SEAL	$ 220,000	4	ACP	$ 6,600,000	4	NA	$ -		SEAL	$ 220,000	4	ACP	$ 6,600,000	**$ 13,640,000**
20	Existing 4 lane divided highway	US 87	Abilene	Glasscock/Howard County Line	Big Spring Relief Route	6	Asphalt	Fair	4	4	SEAL	$ 120,000	4	ACP	$ 3,600,000	4	NA	$ -		SEAL	$ 120,000	4	ACP	$ 3,600,000	**$ 7,440,000**
21	Existing 4 lane divided highway	US 87	Abilene	Big Spring Relief Route	Howard/Martin County Line	19	Asphalt	Fair	4	4	SEAL	$ 380,000	4	ACP	$ 11,400,000	4	NA	$ -		SEAL	$ 380,000	4	ACP	$ 11,400,000	**$ 23,560,000**
22	Existing 4 lane divided highway	US 87	Odessa	Howard/Martin County Line	Martin/Dawson County Line	1	Asphalt	Fair	4	4	SEAL	$ 20,000	4	ACP	$ 600,000	4	NA	$ -		SEAL	$ 20,000	4	ACP	$ 600,000	**$ 1,240,000**
23	Existing 4 lane divided highway	US 87	Lubbock	Martin/Dawson County Line	Lamesa Relief Route	18	Asphalt	Fair	4	4	SEAL	$ 360,000	4	ACP	$ 10,800,000	4	NA	$ -		SEAL	$ 360,000	4	ACP	$ 10,800,000	**$ 22,320,000**
24	Build 2 new lanes in Asphalt	Texas 158	San Angelo	Sterling City	Sterling/Glasscock County Line	14	Asphalt	Fair	2	2	SEAL	$ 140,000	2	ACP	$ 4,200,000	2	NA	$ -		SEAL	$ 140,000	2	ACP	$ 4,200,000	**$ 8,680,000**
25	Build 2 new lanes in Asphalt	Texas 158	San Angelo	Sterling/Glasscock County Line	Glasscock/Midland County Line	30	Asphalt	Fair	2	2	SEAL	$ 300,000	2	ACP	$ 9,000,000	2	NA	$ -		SEAL	$ 300,000	2	ACP	$ 9,000,000	**$ 18,600,000**
26	Existing 4 lane undivided highway	Texas 158	Odessa	Glasscock/Midland County Line	Midland	16	Asphalt	Fair	4	4	SEAL	$ 320,000	4	ACP	$ 9,600,000	4	NA	$ -		SEAL	$ 320,000	4	ACP	$ 9,600,000	**$ 19,840,000**
27	Build 2 new lanes in Asphalt	Texas 349	Odessa	Midland	Midland/Martin County Line	7	Asphalt	Fair	2	2	SEAL	$ 70,000	2	ACP	$ 2,100,000	2	NA	$ -		SEAL	$ 70,000	2	ACP	$ 2,100,000	**$ 4,340,000**
28	Build 2 new lanes in Asphalt	Texas 349	Odessa	Midland/Martin County Line	Martin/Dawson County Line	34	Asphalt	Poor	2	2	ACP	$ 10,200,000	2	NA	$ -		SEAL	$ 340,000	2	ACP	$ 10,200,000	2	NA	$ -	**$ 20,740,000**
29	Build 2 new lanes in Asphalt	Texas 349	Lubbock	Martin/Dawson County Line	FM 2052	13	Asphalt	Fair	2	2	SEAL	$ 130,000	2	ACP	$ 3,900,000	2	NA	$ -		SEAL	$ 130,000	2	ACP	$ 3,900,000	**$ 8,060,000**
30	Build 2 new lanes in Asphalt	FM 2052	Lubbock	Texas 349	US 87	2	Asphalt	Fair	2	2	SEAL	$ 20,000	2	ACP	$ 600,000	2	NA	$ -		SEAL	$ 20,000	2	ACP	$ 600,000	**$ 1,240,000**
31	Existing 4 lane divided highway	US 87	Lubbock	Texas 349	Lamesa Relief Route	3	Asphalt	Poor	4	4	ACP	$ 1,800,000	4	NA	$ -		SEAL	$ 60,000	4	ACP	$ 1,800,000	4	NA	$ -	**$ 3,660,000**
32	Existing 4 lane divided highway	US 87	Lubbock	Lamesa Relief Route	Dawson/Lynn County Line	14	Asphalt	Poor	4	4	ACP	$ 8,400,000	4	NA	$ -		SEAL	$ 280,000	4	ACP	$ 8,400,000	4	NA	$ -	**$ 17,080,000**
33	Existing 4 lane divided highway	US 87	Lubbock	Dawson/Lynn County Line	Lynn/Lubbock County Line	32	Asphalt	Poor	4	4	ACP	$ 19,200,000	4	NA	$ -		SEAL	$ 640,000	4	ACP	$ 19,200,000	4	NA	$ -	**$ 39,040,000**
34	Existing 4 lane divided highway	US 87	Lubbock	Lynn/Lubbock County Line	I 27	10	Asphalt	Fair	4	4	SEAL	$ 200,000	4	ACP	$ 6,000,000	4	NA	$ -		SEAL	$ 200,000	4	ACP	$ 6,000,000	**$ 12,400,000**

Exhibit 4.1-2 Preventive Maintenance Cost on Existing System (continued)

PREVENTIVE MAINTENANCE COST
(Existing System)

Section	Description	Roadway	District	From	To	Length	Existing Pvmnt Type	Existing Pvmnt Cond	Existing Lanes	2005-2010			2011-2015			2016-2020			2021-2025			2026-2030			TOTAL $ FOR SECTION
										No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	
35	Existing 4 land divided Interstate	I 27	Lubbock	US 87	Lubbock/Hale County Line	24	Concrete	Poor	4	4	ACP	$ 14,400,000	4	NA	$ -4		SEAL	$ 480,000	4	ACP	$ 14,400,000	4	NA	$ -	**$ 29,280,000**
36	Existing 4 land divided Interstate	I 27	Lubbock	Lubbock/Hale County Line	Hale/Swisher County Line	38	Concrete	Poor	4	4	ACP	$ 22,800,000	4	NA	$ -4		SEAL	$ 760,000	4	ACP	$ 22,800,000	4	NA	$ -	**$ 46,360,000**
37	Existing 4 land divided Interstate	I 27	Lubbock	Hale/Swisher County Line	Swisher/Randall County Line	33	Concrete	Poor	4	4	ACP	$ 19,800,000	4	NA	$ -4		SEAL	$ 660,000	4	ACP	$ 19,800,000	4	NA	$ -	**$ 40,260,000**
38	Existing 4 land divided Interstate	I 27	Amarillo	Swisher/Randall County Line	Randall/Potter County Line	34	Concrete	Poor	4	4	ACP	$ 20,400,000	4	NA	$ -4		SEAL	$ 680,000	4	ACP	$ 20,400,000	4	NA	$ -	**$ 41,480,000**
39	Existing 4 land divided Interstate	I 27	Amarillo	Randall/Potter County Line	I 40	1	Asphalt	Poor	4	4	ACP	$ 600,000	4	NA	$ -4		SEAL	$ 20,000	4	ACP	$ 600,000	4	NA	$ -	**$ 1,220,000**
40	Existing 4 lane divided highway	US 87	Amarillo	I 40	Potter/Moore County Line	33	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 660,000	4	ACP	$ 19,800,000	4	NA	$ -4		SEAL	$ 660,000	**$ 21,120,000**
41	Existing 4 lane divided highway	US 87	Amarillo	Potter/Moore County Line	Dumas Relief Route	16	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 320,000	4	ACP	$ 9,600,000	4	NA	$ -4		SEAL	$ 320,000	**$ 10,240,000**
42	Existing 4 lane divided highway	US 287	Amarillo	Dumas Relief Route	Moore/Sherman County Line	12	Asphalt	Fair	4	4	SEAL	$ 240,000	4	ACP	$ 7,200,000	4	NA	$ -4		SEAL	$ 240,000	4	ACP	$ 7,200,000	**$ 14,880,000**
43	Existing 4 lane divided highway	US 287	Amarillo	Moore/Sherman County Line	Stratford	21	Asphalt	Poor	4	4	ACP	$ 12,600,000	4	NA	$ -4		SEAL	$ 420,000	4	ACP	$ 12,600,000	4	NA	$ -	**$ 25,620,000**
44	Build 2 new lanes in Asphalt	US 287	Amarillo	Stratford	Sherman/Dallam County Line	9	Asphalt	Fair	2	2	SEAL	$ 90,000	2	ACP	$ 2,700,000	2	NA	$ -2		SEAL	$ 90,000	2	ACP	$ 2,700,000	**$ 5,580,000**
45	Build 2 new lanes in Asphalt	US 287	Amarillo	Sherman/Dallam County Line	Ok/Tx Border	7	Asphalt	Poor	2	2	ACP	$ 2,100,000	2	NA	$ -2		SEAL	$ 70,000	2	ACP	$ 2,100,000	2	NA	$ -	**$ 4,270,000**
46	Build 2 new lanes in Asphalt	US 287	Oklahoma	Ok/Tx Border	Boise City Relief Route	21	Asphalt	Good	2	2	NA	$ -2		SEAL	$ 210,000	2	ACP	$ 6,300,000	2	NA	$ -2		SEAL	$ 210,000	**$ 6,720,000**
47	Build 2 new lanes in Asphalt	US 287	Oklahoma	Boise City Relief Route	Ok/Co Border	19	Asphalt	Good	2	2	NA	$ -2		SEAL	$ 190,000	2	ACP	$ 5,700,000	2	NA	$ -2		SEAL	$ 190,000	**$ 6,080,000**
48	Build 2 new lanes in Concrete	US 287	Colorado	Ok/Co Border	Springfield	32	Concrete	Good	2	2	NA	$ -2		NA	$ -2		ACP	$ 9,600,000	2	NA	$ -2		SEAL	$ 320,000	**$ 9,920,000**
49	Build 2 new lanes in Concrete	US 287	Colorado	Springfield	Baca/Prowers County Line	18	Concrete	Good	2	2	NA	$ -2		NA	$ -2		ACP	$ 5,400,000	2	NA	$ -2		SEAL	$ 180,000	**$ 5,580,000**
50	Build 2 new lanes in Concrete	US 287	Colorado	Baca/Prowers County Line	Lamar Relief Route	28	Concrete	Good	2	2	NA	$ -2		NA	$ -2		ACP	$ 8,400,000	2	NA	$ -2		SEAL	$ 280,000	**$ 8,680,000**
51	Build 2 new lanes in Concrete	US 287	Colorado	Lamar Relief Route	Prowers/Kiowa County Line	16	Asphalt	Poor	2	2	ACP	$ 4,800,000	2	NA	$ -2		SEAL	$ 160,000	2	ACP	$ 4,800,000	2	NA	$ -	**$ 9,760,000**
52	Build 2 new lanes in Concrete	US 287	Colorado	Prowers/Kiowa County Line	Eads	19	Concrete	Good	2	2	NA	$ -2		NA	$ -2		ACP	$ 5,700,000	2	NA	$ -2		SEAL	$ 190,000	**$ 5,890,000**
53	Build 2 new lanes in Concrete	US 287	Colorado	Eads	Kiowa/Cheyenne County Line	10	Concrete	Good	2	2	NA	$ -2		NA	$ -2		ACP	$ 3,000,000	2	NA	$ -2		SEAL	$ 100,000	**$ 3,100,000**
54	Build 2 new lanes in Concrete	US 287	Colorado	Kiowa/Cheyenne County Line	Kit Carson	12	Concrete	Good	2	2	NA	$ -2		NA	$ -2		ACP	$ 3,600,000	2	NA	$ -2		SEAL	$ 120,000	**$ 3,720,000**
55	Build 2 new lanes in Concrete	US 40	Colorado	Kit Carson	Wild Horse	13	Asphalt	Fair	2	2	SEAL	$ 130,000	2	ACP	$ 3,900,000	2	NA	$ -2		SEAL	$ 130,000	2	ACP	$ 3,900,000	**$ 8,060,000**
56	Build 2 new lanes in Concrete	US 40	Colorado	Wild Horse	Cheyenne/Lincoln County Line	10	Concrete	Good	2	2	NA	$ -2		NA	$ -2		ACP	$ 3,000,000	2	NA	$ -2		SEAL	$ 100,000	**$ 3,100,000**
57	Build 2 new lanes in Concrete	US 40	Colorado	Cheyenne/Lincoln County Line	Hugo	23	Asphalt	Poor	2	2	ACP	$ 6,900,000	2	NA	$ -2		SEAL	$ 230,000	2	ACP	$ 6,900,000	2	NA	$ -	**$ 14,030,000**
58	Build 2 new lanes in Concrete	US 40	Colorado	Hugo	Limon	16	Concrete	Good	2	2	NA	$ -2		NA	$ -2		ACP	$ 4,800,000	2	NA	$ -2		SEAL	$ 160,000	**$ 4,960,000**
59	Existing 4 land divided Interstate	I 70	Colorado	Limon	Lincoln/Elbert County Line	4	Concrete	Good	4	4	NA	$ -4		ACP	$ 2,400,000	4	NA	$ -4		SEAL	$ 80,000	4	ACP	$ 2,400,000	**$ 4,880,000**
60	Existing 4 land divided Interstate	I 70	Colorado	Lincoln/Elbert County Line	Elbert/Arapahoe County Line	27	Concrete	Good	4	4	NA	$ -4		ACP	$ 16,200,000	4	NA	$ -4		SEAL	$ 540,000	4	ACP	$ 16,200,000	**$ 32,940,000**
61	Existing 4 land divided Interstate	I 70	Colorado	Elbert/Arapahoe County Line	Denver	56	Concrete	Good	4	4	NA	$ -4		ACP	$ 33,600,000	4	NA	$ -4		SEAL	$ 1,120,000	4	ACP	$ 33,600,000	**$ 68,320,000**
62	Build 2 new lanes in Asphalt	US 87	Amarillo	Dumas	Moore/Hartley County Line	9	Asphalt	Fair	2	2	SEAL	$ 90,000	2	ACP	$ 2,700,000	2	NA	$ -2		SEAL	$ 90,000	2	ACP	$ 2,700,000	**$ 5,580,000**
63	Build 2 new lanes in Asphalt	US 87	Amarillo	Moore/Hartley County Line	Hartley/Interchange with US 385	12	Asphalt	Fair	2	2	SEAL	$ 120,000	2	ACP	$ 3,600,000	2	NA	$ -2		SEAL	$ 120,000	2	ACP	$ 3,600,000	**$ 7,440,000**
64	Existing 4 lane divided highway	US 87	Amarillo	Hartley/Interchange with US 385	Dalhart Relief Route	15	Asphalt	Poor	4	4	ACP	$ 9,000,000	4	NA	$ -4		SEAL	$ 300,000	4	ACP	$ 9,000,000	4	NA	$ -	**$ 18,300,000**
65	Build 2 new lanes in Asphalt	US 87	Amarillo	Dalhart Relief Route	Tx/NM Border	35	Asphalt	Fair	2	2	SEAL	$ 350,000	2	ACP	$ 10,500,000	2	NA	$ -2		SEAL	$ 350,000	2	ACP	$ 10,500,000	**$ 21,700,000**
66	Build 2 new lanes in Asphalt	US 64	New Mexico	Tx/NM Border	Capulin	53	Asphalt	Fair	2	2	SEAL	$ 530,000	2	ACP	$ 15,900,000	2	NA	$ -2		SEAL	$ 530,000	2	ACP	$ 15,900,000	**$ 32,860,000**
67	Build 2 new lanes in Asphalt	US 64	New Mexico	Capulin	Union/Colfax County Line	1	Asphalt	Good	2	2	NA	$ -2		SEAL	$ 10,000	2	ACP	$ 300,000	2	NA	$ -2		SEAL	$ 10,000	**$ 320,000**
68	Build 2 new lanes in Asphalt	US 64	New Mexico	Union/Colfax County Line	Raton/I-25	26	Asphalt	Good	2	2	NA	$ -2		SEAL	$ 260,000	2	ACP	$ 7,800,000	2	NA	$ -2		SEAL	$ 260,000	**$ 8,320,000**

Exhibit 4.1-2 Preventive Maintenance Cost on Existing System (continued)

PREVENTIVE MAINTENANCE COST
(Existing System)

Section	Description	Roadway	District	From	To	Length	Existing Pvmnt Type	Existing Pvmnt Cond	Existing Lanes	2005-2010			2011-2015			2016-2020			2021-2025			2026-2030			TOTAL $ FOR SECTION
										No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	
69	Carrizo Springs	On-Existing Bus. Route	Laredo	South of Asherton	North of Carrizo Springs	8.6	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 172,000	4	ACP	$ 5,160,000	4	NA	$ -4		SEAL	$ 172,000	**$ 5,504,000**
70	Eagle Pass	On-Existing Bus. Route	Laredo	Eagle Pass International Bridge	US 277 East of Eagle Pass	9.3	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 186,000	4	ACP	$ 5,580,000	4	NA	$ -4		SEAL	$ 186,000	**$ 5,952,000**
71	Eagle Pass	On-Existing Bus. Route	Laredo	US 277 East of Eagle Pass	US 277 North of Eagle Pass	8.4	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 168,000	4	ACP	$ 5,040,000	4	NA	$ -4		SEAL	$ 168,000	**$ 5,376,000**
72	Del Rio	On-Existing Bus. Route	Laredo	US 277 East of Del Rio	US 277 North of Del Rio	12	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 240,000	4	ACP	$ 7,200,000	4	NA	$ -4		SEAL	$ 240,000	**$ 7,680,000**
73	Sonora	On-Existing Bus. Route	San Angelo	US 277 South of Sonora	US 277 North of Sonora	4.8	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 96,000	4	ACP	$ 2,880,000	4	NA	$ -4		SEAL	$ 96,000	**$ 3,072,000**
74	San Angelo	On-Existing Bus. Route	San Angelo	US 277 South of San Angelo	US 87 North of San Angelo	21.3	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 426,000	4	ACP	$ 12,780,000	4	NA	$ -4		SEAL	$ 426,000	**$ 13,632,000**
75	Big Spring	On-Existing Bus. Route	Abilene	US 87 South of Big Spring	US 87 North of Big Spring	13	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 260,000	4	ACP	$ 7,800,000	4	NA	$ -4		SEAL	$ 260,000	**$ 8,320,000**
76	Lamesa	On-Existing Bus. Route	Lubbock	US 87 South of Lamesa	US 87 North of Lamesa	5.8	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 116,000	4	ACP	$ 3,480,000	4	NA	$ -4		SEAL	$ 116,000	**$ 3,712,000**
77	Dumas	On-Existing Bus. Route	Lubbock	US 287 South of Dumas	US 287 North of Dumas	5	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 100,000	4	ACP	$ 3,000,000	4	NA	$ -4		SEAL	$ 100,000	**$ 3,200,000**
78	Boise City	On-Existing Bus. Route	Oklahoma	US 287 South of Boise City	US 287 North of Boise City	3.5	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 70,000	4	ACP	$ 2,100,000	4	NA	$ -4		SEAL	$ 70,000	**$ 2,240,000**
79	Lamar	On-Existing Bus. Route	Colorado	US 287 South of Lamar	US 287 North of Lamar	9	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 180,000	4	ACP	$ 5,400,000	4	NA	$ -4		SEAL	$ 180,000	**$ 5,760,000**
80	Stratford	On-Existing Bus. Route	Amarillo	US 287 South of Stratford	US 287 North of Stratford	5.2	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 104,000	4	ACP	$ 3,120,000	4	NA	$ -4		SEAL	$ 104,000	**$ 3,328,000**
81	Midland	On-Existing Bus. Route	Odessa	I 20 on West	Texas 349 on North	21	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 420,000	4	ACP	$ 12,600,000	4	NA	$ -4		SEAL	$ 420,000	**$ 13,440,000**
82	Clayton	On-Existing Bus. Route	New Mexico	US 87 East of Clayton	US 64 West of Clayton	3.8	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 76,000	4	ACP	$ 2,280,000	4	NA	$ -4		SEAL	$ 76,000	**$ 2,432,000**
83	Dalhart	On-Existing Bus. Route	Amarillo	US 87 South of Dalhart	US 87 North of Dalhart	6.6	Asphalt	Good	4	4	NA	$ -4		SEAL	$ 132,000	4	ACP	$ 3,960,000	4	NA	$ -4		SEAL	$ 132,000	**$ 4,224,000**
							TOTAL $ FOR TIMESPAN					**$ 172,280,000**			**$ 231,606,000**			**$ 229,230,000**			**$ 174,020,000**			**$ 233,056,000**	**$ 1,040,192,000**

Exhibit 4.1-3 Total Maintenance Costs on Existing System

TOTAL ROUTINE AND PREVENTIVE COSTS
(Existing System)

							COST/TIMESPAN					
Section	Description	Roadway	District	From	To	Length	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	**TOTAL PER SECTION**
1	Build 2 new lanes in Asphalt	US 83	Laredo	I35	Webb/Dimmit County Line	34	$ 1,921,000	$ 11,517,500	$ 1,317,500	$ 1,657,500	$ 11,517,500	**$ 27,931,000**
2	Build 2 new lanes in Asphalt	US 83	Laredo	Webb/Dimmit County Line	FM 133, just south of Asherton	9	$ 508,500	$ 3,048,750	$ 348,750	$ 438,750	$ 3,048,750	**$ 7,393,500**
3	Build 2 new lanes in Asphalt	US 83	Laredo	FM 133, just south of Asherton	Carrizo Springs Relief Route	9	$ 508,500	$ 3,048,750	$ 348,750	$ 438,750	$ 3,048,750	**$ 7,393,500**
4	Build 2 new lanes in Asphalt	US 83	Laredo	Asherton	Carrizo Springs	11	$ 621,500	$ 3,726,250	$ 426,250	$ 536,250	$ 3,726,250	**$ 9,036,500**
5	Build 2 new lanes in Asphalt	US 277	Laredo	Carrizo Springs Relief Route	Dimmit/Maverick County Line	17	$ 790,500	$ 828,750	$ 5,758,750	$ 658,750	$ 828,750	**$ 8,865,500**
6	Build 2 new lanes in Asphalt	US 277	Laredo	Dimmit/Maverick County Line	Eagle Pass Relief Route	19	$ 883,500	$ 926,250	$ 6,436,250	$ 736,250	$ 926,250	**$ 9,908,500**
7	Build 2 new lanes in Asphalt	US 277	Laredo	Eagle Pass Relief Route	Maverick/Kinney County line	23	$ 7,969,500	$ 891,250	$ 1,121,250	$ 7,791,250	$ 891,250	**$ 18,664,500**
8	Build 2 new lanes in Asphalt	US 277	Laredo	Maverick/Kinney County line	Kinney/Val Verde County Line	14	$ 4,851,000	$ 542,500	$ 682,500	$ 4,742,500	$ 542,500	**$ 11,361,000**
9	Build 2 new lanes in Asphalt	US 277	Laredo	Kinney/Val Verde County Line	Del Rio Relief Route	8	$ 2,772,000	$ 310,000	$ 390,000	$ 2,710,000	$ 310,000	**$ 6,492,000**
10	Build 2 new lanes in Asphalt	US 277	Laredo	Del Rio Relief Route	Val Verde/Edwards County Line	55	$ 2,557,500	$ 2,681,250	$ 18,631,250	$ 2,131,250	$ 2,681,250	**$ 28,682,500**
11	Build 2 new lanes in Asphalt	US 277	San Angelo	Val Verde/Edwards County Line	Edwards/Sutton County Line	10	$ 402,000	$ 435,000	$ 3,335,000	$ 335,000	$ 435,000	**$ 4,942,000**
12	Build 2 new lanes in Asphalt	US 277	San Angelo	Edwards/Sutton County Line	Sonora Relief Route	20	$ 1,004,000	$ 6,670,000	$ 670,000	$ 870,000	$ 6,670,000	**$ 15,884,000**
13	Build 2 new lanes in Asphalt	US 277	San Angelo	Sonora Relief Route	Sutton/Schleicher County Line	8	$ 321,600	$ 348,000	$ 2,668,000	$ 268,000	$ 348,000	**$ 3,953,600**
14	Build 2 new lanes in Asphalt	US 277	San Angelo	Sutton/Schleicher County Line	Schleicher/Tom Green County Line	30	$ 1,206,000	$ 1,305,000	$ 10,005,000	$ 1,005,000	$ 1,305,000	**$ 14,826,000**
15	Build 2 new lanes in Asphalt	US 277	San Angelo	Schleicher/Tom Green County Line	San Angelo Relief Route	22	$ 884,400	$ 957,000	$ 7,337,000	$ 737,000	$ 957,000	**$ 10,872,400**
16	Existing 4 lane divided highway	US 87	San Angelo	San Angelo Relief Route	Tom Green/Coke County Line	20	$ 1,720,000	$ 13,100,000	$ 1,100,000	$ 1,500,000	$ 13,100,000	**$ 30,520,000**
17	Existing 4 lane divided highway	US 87	San Angelo	Tom Green/Coke County Line	Coke/Sterling County Line	4	$ 344,000	$ 2,620,000	$ 220,000	$ 300,000	$ 2,620,000	**$ 6,104,000**
18	Existing 4 lane divided highway	US 87	San Angelo	Coke/Sterling County Line	Sterling/Glasscock County Line	32	$ 2,752,000	$ 20,960,000	$ 1,760,000	$ 2,400,000	$ 20,960,000	**$ 48,832,000**
19	Existing 4 lane divided highway	US 87	San Angelo	Sterling/Glasscock County Line	Glasscock/Howard County Line	11	$ 946,000	$ 7,205,000	$ 605,000	$ 825,000	$ 7,205,000	**$ 16,786,000**
20	Existing 4 lane divided highway	US 87	Abilene	Glasscock/Howard County Line	Big Spring Relief Route	6	$ 408,000	$ 3,840,000	$ 240,000	$ 360,000	$ 3,840,000	**$ 8,688,000**
21	Existing 4 lane divided highway	US 87	Abilene	Big Spring Relief Route	Howard/Martin County Line	19	$ 1,292,000	$ 12,160,000	$ 760,000	$ 1,140,000	$ 12,160,000	**$ 27,512,000**
22	Existing 4 lane divided highway	US 87	Odessa	Howard/Martin County Line	Martin/Dawson County Line	1	$ 68,000	$ 640,000	$ 40,000	$ 60,000	$ 640,000	**$ 1,448,000**
23	Existing 4 lane divided highway	US 87	Lubbock	Martin/Dawson County Line	Lamesa Relief Route	18	$ 1,278,000	$ 11,565,000	$ 765,000	$ 1,125,000	$ 11,565,000	**$ 26,298,000**
24	Build 2 new lanes in Asphalt	Texas 158	San Angelo	Sterling City	Sterling/Glasscock County Line	14	$ 476,000	$ 4,480,000	$ 280,000	$ 420,000	$ 4,480,000	**$ 10,136,000**

Exhibit 4.1-3 Total Maintenance Costs on Existing System (continued)

TOTAL ROUTINE AND PREVENTIVE COSTS
(Existing System)

							COST/TIMESPAN					
Section	Description	Roadway	District	From	To	Length	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	**TOTAL PER SECTION**
25	Build 2 new lanes in Asphalt	Texas 158	San Angelo	Sterling/Glasscock County Line	Glasscock/Midland County Line	30	$ 1,020,000	$ 9,600,000	$ 600,000	$ 900,000	$ 9,600,000	**$ 21,720,000**
26	Existing 4 lane undivided highway	Texas 158	Odessa	Glasscock/Midland County Line	Midland	16	$ 1,088,000	$ 10,240,000	$ 640,000	$ 960,000	$ 10,240,000	**$ 23,168,000**
27	Build 2 new lanes in Asphalt	Texas 349	Odessa	Midland	Midland/Martin County Line	7	$ 322,000	$ 2,310,000	$ 210,000	$ 280,000	$ 2,310,000	**$ 5,432,000**
28	Build 2 new lanes in Asphalt	Texas 349	Odessa	Midland/Martin County Line	Martin/Dawson County Line	34	$ 11,424,000	$ 1,020,000	$ 1,360,000	$ 11,220,000	$ 1,020,000	**$ 26,044,000**
29	Build 2 new lanes in Asphalt	Texas 349	Lubbock	Martin/Dawson County Line	FM 2052	13	$ 598,000	$ 4,290,000	$ 390,000	$ 520,000	$ 4,290,000	**$ 10,088,000**
30	Build 2 new lanes in Asphalt	FM 2052	Lubbock	Texas 349	US 87	2	$ 92,000	$ 660,000	$ 60,000	$ 80,000	$ 660,000	**$ 1,552,000**
31	Existing 4 lane divided highway	US 87	Lubbock	Texas 349	Lamesa Relief Route	3	$ 1,953,000	$ 127,500	$ 187,500	$ 1,927,500	$ 127,500	**$ 4,323,000**
32	Existing 4 lane divided highway	US 87	Lubbock	Lamesa Relief Route	Dawson/Lynn County Line	14	$ 9,114,000	$ 595,000	$ 875,000	$ 8,995,000	$ 595,000	**$ 20,174,000**
33	Existing 4 lane divided highway	US 87	Lubbock	Dawson/Lynn County Line	Lynn/Lubbock County Line	32	$ 20,832,000	$ 1,360,000	$ 2,000,000	$ 20,560,000	$ 1,360,000	**$ 46,112,000**
34	Existing 4 lane divided highway	US 87	Lubbock	Lynn/Lubbock County Line	I 27	10	$ 710,000	$ 6,425,000	$ 425,000	$ 625,000	$ 6,425,000	**$ 14,610,000**
35	Existing 4 land divided Interstate	I 27	Lubbock	US 87	Lubbock/Hale County Line	24	$ 15,624,000	$ 1,020,000	$ 1,500,000	$ 15,420,000	$ 1,020,000	**$ 34,584,000**
36	Existing 4 land divided Interstate	I 27	Lubbock	Lubbock/Hale County Line	Hale/Swisher County Line	38	$ 24,738,000	$ 1,615,000	$ 2,375,000	$ 24,415,000	$ 1,615,000	**$ 54,758,000**
37	Existing 4 land divided Interstate	I 27	Lubbock	Hale/Swisher County Line	Swisher/Randall County Line	33	$ 21,483,000	$ 1,402,500	$ 2,062,500	$ 21,202,500	$ 1,402,500	**$ 47,553,000**
38	Existing 4 land divided Interstate	I 27	Amarillo	Swisher/Randall County Line	Randall/Potter County Line	34	$ 22,134,000	$ 1,445,000	$ 2,125,000	$ 21,845,000	$ 1,445,000	**$ 48,994,000**
39	Existing 4 land divided Interstate	I 27	Amarillo	Randall/Potter County Line	I 40	1	$ 651,000	$ 42,500	$ 62,500	$ 642,500	$ 42,500	**$ 1,441,000**
40	Existing 4 lane divided highway	US 87	Amarillo	I 40	Potter/Moore County Line	33	$ 1,683,000	$ 2,062,500	$ 21,202,500	$ 1,402,500	$ 2,062,500	**$ 28,413,000**
41	Existing 4 lane divided highway	US 87	Amarillo	Potter/Moore County Line	Dumas Relief Route	16	$ 816,000	$ 1,000,000	$ 10,280,000	$ 680,000	$ 1,000,000	**$ 13,776,000**
42	Existing 4 lane divided highway	US 287	Amarillo	Dumas Relief Route	Moore/Sherman County Line	12	$ 852,000	$ 7,710,000	$ 510,000	$ 750,000	$ 7,710,000	**$ 17,532,000**
43	Existing 4 lane divided highway	US 287	Amarillo	Moore/Sherman County Line	Stratford	21	$ 13,671,000	$ 892,500	$ 1,312,500	$ 13,492,500	$ 892,500	**$ 30,261,000**
44	Build 2 new lanes in Asphalt	US 287	Amarillo	Stratford	Sherman/Dallam County Line	9	$ 414,000	$ 2,970,000	$ 270,000	$ 360,000	$ 2,970,000	**$ 6,984,000**
45	Build 2 new lanes in Asphalt	US 287	Amarillo	Sherman/Dallam County Line	Ok/Tx Border	7	$ 2,352,000	$ 210,000	$ 280,000	$ 2,310,000	$ 210,000	**$ 5,362,000**
46	Build 2 new lanes in Asphalt	US 287	Oklahoma	Ok/Tx Border	Boise City Relief Route	21	$ 667,800	$ 766,500	$ 6,856,500	$ 556,500	$ 766,500	**$ 9,613,800**
47	Build 2 new lanes in Asphalt	US 287	Oklahoma	Boise City Relief Route	Ok/Co Border	19	$ 604,200	$ 693,500	$ 6,203,500	$ 503,500	$ 693,500	**$ 8,698,200**
48	Build 2 new lanes in Concrete	US 287	Colorado	Ok/Co Border	Springfield	32	$ 1,017,600	$ 848,000	$ 10,448,000	$ 848,000	$ 1,168,000	**$ 14,329,600**

Exhibit 4.1-3 Total Maintenance Costs on Existing System (continued)

TOTAL ROUTINE AND PREVENTIVE COSTS
(Existing System)

							COST/TIMESPAN					
Section	Description	Roadway	District	From	To	Length	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	**TOTAL PER SECTION**
49	Build 2 new lanes in Concrete	US 287	Colorado	Springfield	Baca/Prowers County Line	18	$ 572,400	$ 477,000	$ 5,877,000	$ 477,000	$ 657,000	**$ 8,060,400**
50	Build 2 new lanes in Concrete	US 287	Colorado	Baca/Prowers County Line	Lamar Relief Route	28	$ 890,400	$ 742,000	$ 9,142,000	$ 742,000	$ 1,022,000	**$ 12,538,400**
51	Build 2 new lanes in Concrete	US 287	Colorado	Lamar Relief Route	Prowers/Kiowa County Line	16	$ 5,308,800	$ 424,000	$ 584,000	$ 5,224,000	$ 424,000	**$ 11,964,800**
52	Build 2 new lanes in Concrete	US 287	Colorado	Prowers/Kiowa County Line	Eads	19	$ 604,200	$ 503,500	$ 6,203,500	$ 503,500	$ 693,500	**$ 8,508,200**
53	Build 2 new lanes in Concrete	US 287	Colorado	Eads	Kiowa/Cheyenne County Line	10	$ 318,000	$ 265,000	$ 3,265,000	$ 265,000	$ 365,000	**$ 4,478,000**
54	Build 2 new lanes in Concrete	US 287	Colorado	Kiowa/Cheyenne County Line	Kit Carson	12	$ 381,600	$ 318,000	$ 3,918,000	$ 318,000	$ 438,000	**$ 5,373,600**
55	Build 2 new lanes in Concrete	US 40	Colorado	Kit Carson	Wild Horse	13	$ 543,400	$ 4,244,500	$ 344,500	$ 474,500	$ 4,244,500	**$ 9,851,400**
56	Build 2 new lanes in Concrete	US 40	Colorado	Wild Horse	Cheyenne/Lincoln County Line	10	$ 318,000	$ 265,000	$ 3,265,000	$ 265,000	$ 365,000	**$ 4,478,000**
57	Build 2 new lanes in Concrete	US 40	Colorado	Cheyenne/Lincoln County Line	Hugo	23	$ 7,631,400	$ 609,500	$ 839,500	$ 7,509,500	$ 609,500	**$ 17,199,400**
58	Build 2 new lanes in Concrete	US 40	Colorado	Hugo	Limon	16	$ 508,800	$ 424,000	$ 5,224,000	$ 424,000	$ 584,000	**$ 7,164,800**
59	Existing 4 land divided Interstate	I 70	Colorado	Limon	Lincoln/Elbert County Line	4	$ 153,600	$ 2,528,000	$ 128,000	$ 208,000	$ 2,528,000	**$ 5,545,600**
60	Existing 4 land divided Interstate	I 70	Colorado	Lincoln/Elbert County Line	Elbert/Arapahoe County Line	27	$ 1,036,800	$ 17,064,000	$ 864,000	$ 1,404,000	$ 17,064,000	**$ 37,432,800**
61	Existing 4 land divided Interstate	I 70	Colorado	Elbert/Arapahoe County Line	Denver	56	$ 2,150,400	$ 35,392,000	$ 1,792,000	$ 2,912,000	$ 35,392,000	**$ 77,638,400**
62	Build 2 new lanes in Asphalt	US 87	Amarillo	Dumas	Moore/Hartley County Line	9	$ 414,000	$ 2,970,000	$ 270,000	$ 360,000	$ 2,970,000	**$ 6,984,000**
63	Build 2 new lanes in Asphalt	US 87	Amarillo	Moore/Hartley County Line	Hartley/Interchange with US 385	12	$ 552,000	$ 3,960,000	$ 360,000	$ 480,000	$ 3,960,000	**$ 9,312,000**
64	Existing 4 lane divided highway	US 87	Amarillo	Hartley/Interchange with US 385	Dalhart Relief Route	15	$ 9,765,000	$ 637,500	$ 937,500	$ 9,637,500	$ 637,500	**$ 21,615,000**
65	Build 2 new lanes in Asphalt	US 87	Amarillo	Dalhart Relief Route	Tx/NM Border	35	$ 1,610,000	$ 11,550,000	$ 1,050,000	$ 1,400,000	$ 11,550,000	**$ 27,160,000**
66	Build 2 new lanes in Asphalt	US 64	New Mexico	Tx/NM Border	Capulin	53	$ 2,438,000	$ 17,490,000	$ 1,590,000	$ 2,120,000	$ 17,490,000	**$ 41,128,000**
67	Build 2 new lanes in Asphalt	US 64	New Mexico	Capulin	Union/Colfax County Line	1	$ 36,000	$ 40,000	$ 330,000	$ 30,000	$ 40,000	**$ 476,000**
68	Build 2 new lanes in Asphalt	US 64	New Mexico	Union/Colfax County Line	Raton/I-25	26	$ 936,000	$ 1,040,000	$ 8,580,000	$ 780,000	$ 1,040,000	**$ 12,376,000**
69	Carrizo Springs	On-Existing Bus. Route	Laredo	South of Asherton	North of Carrizo Springs	8.6	$ 531,480	$ 614,900	$ 5,602,900	$ 442,900	$ 614,900	**$ 7,807,080**
70	Eagle Pass	On-Existing Bus. Route	Laredo	Eagle Pass International Bridge	US 277 East of Eagle Pass	9.3	$ 574,740	$ 664,950	$ 6,058,950	$ 478,950	$ 664,950	**$ 8,442,540**
71	Eagle Pass	On-Existing Bus. Route	Laredo	US 277 East of Eagle Pass	US 277 North of Eagle Pass	8.4	$ 519,120	$ 600,600	$ 5,472,600	$ 432,600	$ 600,600	**$ 7,625,520**
72	Del Rio	On-Existing Bus. Route	Laredo	US 277 East of Del Rio	US 277 North of Del Rio	12	$ 741,600	$ 858,000	$ 7,818,000	$ 618,000	$ 858,000	**$ 10,893,600**

Exhibit 4.1-3 Total Maintenance Costs on Existing System (continued)

TOTAL ROUTINE AND PREVENTIVE COSTS

(Existing System)

							COST/TIMESPAN					
Section	Description	Roadway	District	From	To	Length	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	TOTAL PER SECTION
73	Sonora	On-Existing Bus. Route	San Angelo	US 277 South of Sonora	US 277 North of Sonora	4.8	$ 316,800	$ 360,000	$ 3,144,000	$ 264,000	$ 360,000	**$ 4,444,800**
74	San Angelo	On-Existing Bus. Route	San Angelo	US 277 South of San Angelo	US 87 North of San Angelo	21.3	$ 1,405,800	$ 1,597,500	$ 13,951,500	$ 1,171,500	$ 1,597,500	**$ 19,723,800**
75	Big Spring	On-Existing Bus. Route	Abilene	US 87 South of Big Spring	US 87 North of Big Spring	13	$ 624,000	$ 780,000	$ 8,320,000	$ 520,000	$ 780,000	**$ 11,024,000**
76	Lamesa	On-Existing Bus. Route	Lubbock	US 87 South of Lamesa	US 87 North of Lamesa	5.8	$ 295,800	$ 362,500	$ 3,726,500	$ 246,500	$ 362,500	**$ 4,993,800**
77	Dumas	On-Existing Bus. Route	Lubbock	US 287 South of Dumas	US 287 North of Dumas	5	$ 255,000	$ 312,500	$ 3,212,500	$ 212,500	$ 312,500	**$ 4,305,000**
78	Boise City	On-Existing Bus. Route	Oklahoma	US 287 South of Boise City	US 287 North of Boise City	3.5	$ 134,400	$ 182,000	$ 2,212,000	$ 112,000	$ 182,000	**$ 2,822,400**
79	Lamar	On-Existing Bus. Route	Colorado	US 287 South of Lamar	US 287 North of Lamar	9	$ 345,600	$ 468,000	$ 5,688,000	$ 288,000	$ 468,000	**$ 7,257,600**
80	Stratford	On-Existing Bus. Route	Amarillo	US 287 South of Stratford	US 287 North of Stratford	5.2	$ 265,200	$ 325,000	$ 3,341,000	$ 221,000	$ 325,000	**$ 4,477,200**
81	Midland	On-Existing Bus. Route	Odessa	I 20 on West	Texas 349 on North	21	$ 1,008,000	$ 1,260,000	$ 13,440,000	$ 840,000	$ 1,260,000	**$ 17,808,000**
82	Clayton	On-Existing Bus. Route	New Mexico	US 87 East of Clayton	US 64 West of Clayton	3.8	$ 193,800	$ 237,500	$ 2,441,500	$ 161,500	$ 237,500	**$ 3,271,800**
83	Dalhart	On-Existing Bus. Route	Amarillo	US 87 South of Dalhart	US 87 North of Dalhart	6.6	$ 336,600	$ 412,500	$ 4,240,500	$ 280,500	$ 412,500	**$ 5,682,600**
					TOTAL FOR TIMESPAN		**$ 234,062,840**	**$ 283,091,700**	**$ 280,715,700**	**$ 225,505,700**	**$ 284,541,700**	**$ 1,307,917,640**

Texas	$ 997,710,440
Oklahoma	$ 21,134,400
Colorado	$ 231,821,000
New Mexico	$ 57,251,800
Total	$ 1,307,917,640

Exhibit 4.1-4 Routine Maintenance Costs on Improved System

ROUTINE MAINTENANCE
(Improved System)

Section	Description	Roadway	District	From	To	Length	Existing Pvmnt Type	Existing Pvmnt Cond	Existing Lanes	Time Span										TOTAL $ PER SECTION
										2005-2010	Lanes	2011-2015	Lanes	2016-2020	Lanes	2021-2025	Lanes	2026-2030	
1	Build 2 new lanes in Asphalt	US 83	Laredo	I 35	Webb/Dimmit County Line	34	Asphalt	Fair	2	$ 1,581,000	4	$ 1,751,000	4	$ 1,751,000	4	$ 1,751,000	4	$ 1,751,000	**$ 8,585,000**
2	Build 2 new lanes in Asphalt	US 83	Laredo	Webb/Dimmit County Line	FM 133, just south of Asherton	9	Asphalt	Fair	2	$ 418,500	2	$ 348,750	4	$ 463,500	4	$ 463,500	4	$ 463,500	**$ 2,157,750**
3	Build 2 new lanes in Asphalt	US 83	Laredo	FM 133, just south of Asherton	Carrizo Springs Relief Route	9	Asphalt	Fair	2	$ 418,500	2	$ 348,750	4	$ 463,500	4	$ 463,500	4	$ 463,500	**$ 2,157,750**
4	Remains 2-lanes	US 83	Laredo	Asherton	Carrizo Springs	11	Asphalt	Fair	2	$ 511,500	2	$ 426,250	2	$ 426,250	2	$ 426,250	2	$ 426,250	**$ 2,216,500**
5	Build 2 new lanes in Asphalt	US 277	Laredo	Carrizo Springs Relief Route	Dimmit/Maverick County Line	17	Asphalt	Good	2	$ 790,500	2	$ 658,750	2	$ 658,750	4	$ 875,500	4	$ 875,500	**$ 3,859,000**
6	Build 2 new lanes in Asphalt	US 277	Laredo	Dimmit/Maverick County Line	Eagle Pass Relief Route	19	Asphalt	Good	2	$ 883,500	2	$ 736,250	2	$ 736,250	4	$ 978,500	4	$ 978,500	**$ 4,313,000**
7	Build 2 new lanes in Asphalt	US 277	Laredo	Eagle Pass Relief Route	Maverick/Kinney County line	23	Asphalt	Poor	2	$ 1,069,500	4	$ 1,184,500	4	$ 1,184,500	4	$ 1,184,500	4	$ 1,184,500	**$ 5,807,500**
8	Build 2 new lanes in Asphalt	US 277	Laredo	Maverick/Kinney County line	Kinney/Val Verde County Line	14	Asphalt	Poor	2	$ 651,000	2	$ 542,500	4	$ 721,000	4	$ 721,000	4	$ 721,000	**$ 3,356,500**
9	Build 2 new lanes in Asphalt	US 277	Laredo	Kinney/Val Verde County Line	Del Rio Relief Route	8	Asphalt	Poor	2	$ 372,000	4	$ 412,000	4	$ 412,000	4	$ 412,000	4	$ 412,000	**$ 2,020,000**
10	Build 2 new lanes in Asphalt	US 277	Laredo	Del Rio Relief Route	Val Verde/Edwards County Line	55	Asphalt	Good	2	$ 2,557,500	2	$ 2,131,250	2	$ 2,131,250	2	$ 2,131,250	4	$ 2,832,500	**$ 11,783,750**
11	Build 2 new lanes in Asphalt	US 277	San Angelo	Val Verde/Edwards County Line	Edwards/Sutton County Line	10	Asphalt	Good	2	$ 402,000	2	$ 335,000	2	$ 335,000	2	$ 335,000	4	$ 550,000	**$ 1,957,000**
12	Build 2 new lanes in Asphalt	US 277	San Angelo	Edwards/Sutton County Line	Sonora Relief Route	20	Asphalt	Fair	2	$ 804,000	2	$ 670,000	2	$ 670,000	2	$ 670,000	4	$ 1,100,000	**$ 3,914,000**
13	Build 2 new lanes in Asphalt	US 277	San Angelo	Sonora Relief Route	Sutton/Schleicher County Line	8	Asphalt	Good	2	$ 321,600	2	$ 268,000	2	$ 268,000	2	$ 268,000	4	$ 440,000	**$ 1,565,600**
14	Build 2 new lanes in Asphalt	US 277	San Angelo	Sutton/Schleicher County Line	Schleicher/Tom Green County Line	30	Asphalt	Good	2	$ 1,206,000	2	$ 1,005,000	2	$ 1,005,000	4	$ 1,650,000	4	$ 1,650,000	**$ 6,516,000**
15	Build 2 new lanes in Asphalt	US 277	San Angelo	Schleicher/Tom Green County Line	San Angelo Relief Route	22	Asphalt	Good	2	$ 884,400	2	$ 737,000	2	$ 737,000	4	$ 1,210,000	4	$ 1,210,000	**$ 4,778,400**
16	Existing 4 lane divided highway	US 87	San Angelo	San Angelo Relief Route	Tom Green/Coke County Line	20	Asphalt	Fair	4	$ 1,320,000	4	$ 1,100,000	4	$ 1,100,000	4	$ 1,100,000	4	$ 1,100,000	**$ 5,720,000**
17	Existing 4 lane divided highway	US 87	San Angelo	Tom Green/Coke County Line	Coke/Sterling County Line	4	Asphalt	Fair	4	$ 264,000	4	$ 220,000	4	$ 220,000	4	$ 220,000	4	$ 220,000	**$ 1,144,000**
18	Existing 4 lane divided highway	US 87	San Angelo	Coke/Sterling County Line	Sterling/Glasscock County Line	32	Asphalt	Fair	4	$ 2,112,000	4	$ 1,760,000	4	$ 1,760,000	4	$ 1,760,000	4	$ 1,760,000	**$ 9,152,000**
19	Existing 4 lane divided highway	US 87	San Angelo	Sterling/Glasscock County Line	Glasscock/Howard County Line	11	Asphalt	Fair	4	$ 726,000	4	$ 605,000	4	$ 605,000	4	$ 605,000	4	$ 605,000	**$ 3,146,000**
20	Existing 4 lane divided highway	US 87	Abilene	Glasscock/Howard County Line	Big Spring Relief Route	6	Asphalt	Fair	4	$ 288,000	4	$ 240,000	4	$ 240,000	4	$ 240,000	4	$ 240,000	**$ 1,248,000**
21	Existing 4 lane divided highway	US 87	Abilene	Big Spring Relief Route	Howard/Martin County Line	19	Asphalt	Fair	4	$ 912,000	4	$ 760,000	4	$ 760,000	4	$ 760,000	4	$ 760,000	**$ 3,952,000**
22	Existing 4 lane divided highway	US 87	Odessa	Howard/Martin County Line	Martin/Dawson County Line	1	Asphalt	Fair	4	$ 48,000	4	$ 40,000	4	$ 40,000	4	$ 40,000	4	$ 40,000	**$ 208,000**
23	Existing 4 lane divided highway	US 87	Lubbock	Martin/Dawson County Line	Lamesa Relief Route	18	Asphalt	Fair	4	$ 918,000	4	$ 765,000	4	$ 765,000	4	$ 765,000	4	$ 765,000	**$ 3,978,000**
24	Build 2 new lanes in Asphalt	Texas 158	San Angelo	Sterling City	Sterling/Glasscock County Line	14	Asphalt	Fair	2	$ 336,000	4	$ 448,000	4	$ 448,000	4	$ 448,000	4	$ 448,000	**$ 2,128,000**
25	Build 2 new lanes in Asphalt	Texas 158	San Angelo	Sterling/Glasscock County Line	Glasscock/Midland County Line	30	Asphalt	Fair	2	$ 720,000	4	$ 960,000	4	$ 960,000	4	$ 960,000	4	$ 960,000	**$ 4,560,000**
26	Existing 4 lane undivided highway	Texas 158	Odessa	Glasscock/Midland County Line	Midland	16	Asphalt	Fair	4	$ 768,000	4	$ 640,000	4	$ 640,000	4	$ 640,000	4	$ 640,000	**$ 3,328,000**
27	Build 2 new lanes in Asphalt	Texas 349	Odessa	Midland	Midland/Martin County Line	7	Asphalt	Fair	2	$ 252,000	2	$ 210,000	2	$ 210,000	2	$ 210,000	4	$ 280,000	**$ 1,162,000**
28	Build 2 new lanes in Asphalt	Texas 349	Odessa	Midland/Martin County Line	Martin/Dawson County Line	34	Asphalt	Poor	2	$ 1,224,000	2	$ 1,020,000	2	$ 1,020,000	4	$ 1,360,000	4	$ 1,360,000	**$ 5,984,000**
29	Build 2 new lanes in Asphalt	Texas 349	Lubbock	Martin/Dawson County Line	FM 2052	13	Asphalt	Fair	2	$ 468,000	2	$ 390,000	2	$ 390,000	2	$ 390,000	4	$ 552,500	**$ 2,190,500**
30	Build 2 new lanes in Asphalt	FM 2052	Lubbock	Texas 349	US 87	2	Asphalt	Fair	2	$ 72,000	2	$ 60,000	2	$ 60,000	2	$ 60,000	4	$ 85,000	**$ 337,000**
31	Existing 4 lane divided highway	US 87	Lubbock	Texas 349	Lamesa Relief Route	3	Asphalt	Poor	4	$ 153,000	4	$ 127,500	4	$ 127,500	4	$ 127,500	4	$ 127,500	**$ 663,000**

Exhibit 4.1-4 Routine Maintenance Costs on Improved System (continued)

ROUTINE MAINTENANCE
(Improved System)

Section	Description	Roadway	District	From	To	Length	Existing Pvmnt Type	Existing Pvmnt Cond	Existing Lanes	Time Span 2005-2010	Lanes	2011-2015	Lanes	2016-2020	Lanes	2021-2025	Lanes	2026-2030	TOTAL $ PER SECTION
32	Existing 4 lane divided highway	US 87	Lubbock	Lamesa Relief Route	Dawson/Lynn County Line	14	Asphalt	Poor	4	$ 714,000	4	$ 595,000	4	$ 595,000	4	$ 595,000	4	$ 595,000	**$ 3,094,000**
33	Existing 4 lane divided highway	US 87	Lubbock	Dawson/Lynn County Line	Lynn/Lubbock County Line	32	Asphalt	Poor	4	$ 1,632,000	4	$ 1,360,000	4	$ 1,360,000	4	$ 1,360,000	4	$ 1,360,000	**$ 7,072,000**
34	Existing 4 lane divided highway	US 87	Lubbock	Lynn/Lubbock County Line	I 27	10	Asphalt	Fair	4	$ 510,000	4	$ 425,000	4	$ 425,000	4	$ 425,000	4	$ 425,000	**$ 2,210,000**
35	Existing 4 land divided Interstate	I 27	Lubbock	US 87	Lubbock/Hale County Line	24	Concrete	Good	4	$ 1,224,000	4	$ 1,020,000	4	$ 1,020,000	4	$ 1,020,000	4	$ 1,020,000	**$ 5,304,000**
36	Existing 4 land divided Interstate	I 27	Lubbock	Lubbock/Hale County Line	Hale/Swisher County Line	38	Concrete	Good	4	$ 1,938,000	4	$ 1,615,000	4	$ 1,615,000	4	$ 1,615,000	4	$ 1,615,000	**$ 8,398,000**
37	Existing 4 land divided Interstate	I 27	Lubbock	Hale/Swisher County Line	Swisher/Randall County Line	33	Concrete	Good	4	$ 1,683,000	4	$ 1,402,500	4	$ 1,402,500	4	$ 1,402,500	4	$ 1,402,500	**$ 7,293,000**
38	Existing 4 land divided Interstate	I 27	Amarillo	Swisher/Randall County Line	Randall/Potter County Line	34	Concrete	Fair	4	$ 1,734,000	4	$ 1,445,000	4	$ 1,445,000	4	$ 1,445,000	4	$ 1,445,000	**$ 7,514,000**
39	Existing 4 land divided Interstate	I 27	Amarillo	Randall/Potter County Line	I 40	1	Asphalt	Fair	4	$ 51,000	4	$ 42,500	4	$ 42,500	4	$ 42,500	4	$ 42,500	**$ 221,000**
40	Existing 4 lane divided highway	US 87	Amarillo	I 40	Potter/Moore County Line	33	Asphalt	Good	4	$ 1,683,000	4	$ 1,402,500	4	$ 1,402,500	4	$ 1,402,500	4	$ 1,402,500	**$ 7,293,000**
41	Existing 4 lane divided highway	US 87	Amarillo	Potter/Moore County Line	Dumas Relief Route	16	Asphalt	Good	4	$ 816,000	4	$ 680,000	4	$ 680,000	4	$ 680,000	4	$ 680,000	**$ 3,536,000**
42	Existing 4 lane divided highway	US 287	Amarillo	Dumas Relief Route	Moore/Sherman County Line	12	Asphalt	Fair	4	$ 612,000	4	$ 510,000	4	$ 510,000	4	$ 510,000	4	$ 510,000	**$ 2,652,000**
43	Existing 4 lane divided highway	US 287	Amarillo	Moore/Sherman County Line	Stratford	21	Asphalt	Poor	4	$ 1,071,000	4	$ 892,500	4	$ 892,500	4	$ 892,500	4	$ 892,500	**$ 4,641,000**
44	Build 2 new lanes in Asphalt	US 287	Amarillo	Stratford	Sherman/Dallam County Line	9	Asphalt	Fair	2	$ 324,000	2	$ 270,000	4	$ 382,500	4	$ 382,500	4	$ 382,500	**$ 1,741,500**
45	Build 2 new lanes in Asphalt	US 287	Amarillo	Sherman/Dallam County Line	Ok/Tx Border	7	Asphalt	Poor	2	$ 252,000	4	$ 297,500	4	$ 297,500	4	$ 297,500	4	$ 297,500	**$ 1,442,000**
46	Build 2 new lanes in Asphalt	US 287	Oklahoma	Ok/Tx Border	Boise City Relief Route	21	Asphalt	Good	2	$ 667,800	2	$ 556,500	4	$ 672,000	4	$ 672,000	4	$ 672,000	**$ 3,240,300**
47	Build 2 new lanes in Asphalt	US 287	Oklahoma	Boise City Relief Route	Ok/Co Border	19	Asphalt	Good	2	$ 604,200	4	$ 608,000	4	$ 608,000	4	$ 608,000	4	$ 608,000	**$ 3,036,200**
48	Build 2 new lanes in Concrete	US 287	Colorado	Ok/Co Border	Springfield	32	Concrete	Good	2	$ 1,017,600	2	$ 848,000	2	$ 848,000	2	$ 848,000	4	$ 1,024,000	**$ 4,585,600**
49	Build 2 new lanes in Concrete	US 287	Colorado	Springfield	Baca/Prowers County Line	18	Concrete	Good	2	$ 572,400	2	$ 477,000	2	$ 477,000	2	$ 477,000	4	$ 576,000	**$ 2,579,400**
50	Build 2 new lanes in Concrete	US 287	Colorado	Baca/Prowers County Line	Lamar Relief Route	28	Concrete	Good	2	$ 890,400	2	$ 742,000	4	$ 896,000	4	$ 896,000	4	$ 896,000	**$ 4,320,400**
51	Build 2 new lanes in Concrete	US 287	Colorado	Lamar Relief Route	Prowers/Kiowa County Line	16	Asphalt	Poor	2	$ 508,800	4	$ 512,000	4	$ 512,000	4	$ 512,000	4	$ 512,000	**$ 2,556,800**
52	Build 2 new lanes in Concrete	US 287	Colorado	Prowers/Kiowa County Line	Eads	19	Concrete	Good	2	$ 604,200	2	$ 503,500	2	$ 503,500	4	$ 608,000	4	$ 608,000	**$ 2,827,200**
53	Build 2 new lanes in Concrete	US 287	Colorado	Eads	Kiowa/Cheyenne County Line	10	Concrete	Good	2	$ 318,000	2	$ 265,000	2	$ 265,000	4	$ 320,000	4	$ 320,000	**$ 1,488,000**
54	Build 2 new lanes in Concrete	US 287	Colorado	Kiowa/Cheyenne County Line	Kit Carson	12	Concrete	Good	2	$ 381,600	2	$ 318,000	2	$ 318,000	4	$ 384,000	4	$ 384,000	**$ 1,785,600**
55	Build 2 new lanes in Concrete	US 40	Colorado	Kit Carson	Wild Horse	13	Asphalt	Fair	2	$ 413,400	2	$ 344,500	4	$ 416,000	4	$ 416,000	4	$ 416,000	**$ 2,005,900**
56	Build 2 new lanes in Concrete	US 40	Colorado	Wild Horse	Cheyenne/Lincoln County Line	10	Concrete	Good	2	$ 318,000	2	$ 265,000	4	$ 320,000	4	$ 320,000	4	$ 320,000	**$ 1,543,000**
57	Build 2 new lanes in Concrete	US 40	Colorado	Cheyenne/Lincoln County Line	Hugo	23	Asphalt	Poor	2	$ 731,400	4	$ 736,000	4	$ 736,000	4	$ 736,000	4	$ 736,000	**$ 3,675,400**
58	Build 2 new lanes in Concrete	US 40	Colorado	Hugo	Limon	16	Concrete	Good	2	$ 508,800	2	$ 424,000	4	$ 512,000	4	$ 512,000	4	$ 512,000	**$ 2,468,800**
59	Existing 4 land divided Interstate	I 70	Colorado	Limon	Lincoln/Elbert County Line	4	Concrete	Good	4	$ 153,600	4	$ 128,000	4	$ 128,000	4	$ 128,000	4	$ 128,000	**$ 665,600**
60	Existing 4 land divided Interstate	I 70	Colorado	Lincoln/Elbert County Line	Elbert/Arapahoe County Line	27	Concrete	Good	4	$ 1,036,800	4	$ 864,000	4	$ 864,000	4	$ 864,000	4	$ 864,000	**$ 4,492,800**
61	Existing 4 land divided Interstate	I 70	Colorado	Elbert/Arapahoe County Line	Denver	56	Concrete	Good	4	$ 2,150,400	4	$ 1,792,000	4	$ 1,792,000	4	$ 1,792,000	4	$ 1,792,000	**$ 9,318,400**
62	Build 2 new lanes in Asphalt	US 87	Amarillo	Dumas	Moore/Hartley County Line	9	Asphalt	Fair	2	$ 324,000	4	$ 382,500	4	$ 382,500	4	$ 382,500	4	$ 382,500	**$ 1,854,000**

Exhibit 4.1-4 Routine Maintenance Costs on Improved System (continued)

ROUTINE MAINTENANCE
(Improved System)

Section	Description	Roadway	District	From	To	Length	Existing Pvmnt Type	Existing Pvmnt Cond	Existing Lanes	Time Span										TOTAL $ PER SECTION
										2005-2010	Lanes	2011-2015	Lanes	2016-2020	Lanes	2021-2025	Lanes	2026-2030	
63	Build 2 new lanes in Asphalt	US 87	Amarillo	Moore/Hartley County Line	Hartley/Interchange with US 385	12	Asphalt	Fair	2	$ 432,000	4	$ 510,000	4	$ 510,000	4	$ 510,000	4	$ 510,000	**$ 2,472,000**
64	Existing 4 lane divided highway	US 87	Amarillo	Hartley/Interchange with US 385	Dalhart Relief Route	15	Asphalt	Poor	4	$ 765,000	4	$ 637,500	4	$ 637,500	4	$ 637,500	4	$ 637,500	**$ 3,315,000**
65	Build 2 new lanes in Asphalt	US 87	Amarillo	Dalhart Relief Route	Tx/NM Border	35	Asphalt	Fair	2	$ 1,260,000	4	$ 1,487,500	4	$ 1,487,500	4	$ 1,487,500	4	$ 1,487,500	**$ 7,210,000**
66	Build 2 new lanes in Asphalt	US 64	New Mexico	Tx/NM Border	Capulin	53	Asphalt	Fair	2	$ 1,908,000	4	$ 2,252,500	4	$ 2,252,500	4	$ 2,252,500	4	$ 2,252,500	**$ 10,918,000**
67	Build 2 new lanes in Asphalt	US 64	New Mexico	Capulin	Union/Colfax County Line	1	Asphalt	Good	2	$ 36,000	4	$ 42,500	4	$ 42,500	4	$ 42,500	4	$ 42,500	**$ 206,000**
68	Build 2 new lanes in Asphalt	US 64	New Mexico	Union/Colfax County Line	Raton/I-25	26	Asphalt	Good	2	$ 936,000	2	$ 780,000	4	$ 1,105,000	4	$ 1,105,000	4	$ 1,105,000	**$ 5,031,000**
69	Carrizo Springs	On-Existing Bus. Route	Laredo	South of Asherton	North of Carrizo Springs	8.6	Asphalt	Good	4	$ 531,480	4	$ 442,900	4	$ 442,900	4	$ 442,900	4	$ 442,900	**$ 2,303,080**
70	Eagle Pass	On-Existing Bus. Route	Laredo	Eagle Pass International Bridge	US 277 East of Eagle Pass	9.3	Asphalt	Good	4	$ 574,740	4	$ 478,950	4	$ 478,950	4	$ 478,950	4	$ 478,950	**$ 2,490,540**
71	Eagle Pass	On-Existing Bus. Route	Laredo	US 277 East of Eagle Pass	US 277 North of Eagle Pass	8.4	Asphalt	Good	4	$ 519,120	4	$ 432,600	4	$ 432,600	4	$ 432,600	4	$ 432,600	**$ 2,249,520**
72	Del Rio	On-Existing Bus. Route	Laredo	US 277 East of Del Rio	US 277 North of Del Rio	12	Asphalt	Good	4	$ 741,600	4	$ 618,000	4	$ 618,000	4	$ 618,000	4	$ 618,000	**$ 3,213,600**
73	Sonora	On-Existing Bus. Route	San Angelo	US 277 South of Sonora	US 277 North of Sonora	4.8	Asphalt	Good	4	$ 316,800	4	$ 264,000	4	$ 264,000	4	$ 264,000	4	$ 264,000	**$ 1,372,800**
74	San Angelo	On-Existing Bus. Route	San Angelo	US 277 South of San Angelo	US 87 North of San Angelo	21.3	Asphalt	Good	4	$ 1,405,800	4	$ 1,171,500	4	$ 1,171,500	4	$ 1,171,500	4	$ 1,171,500	**$ 6,091,800**
75	Big Spring	On-Existing Bus. Route	Abilene	US 87 South of Big Spring	US 87 North of Big Spring	13	Asphalt	Good	4	$ 624,000	4	$ 520,000	4	$ 520,000	4	$ 520,000	4	$ 520,000	**$ 2,704,000**
76	Lamesa	On-Existing Bus. Route	Lubbock	US 87 South of Lamesa	US 87 North of Lamesa	5.8	Asphalt	Good	4	$ 295,800	4	$ 246,500	4	$ 246,500	4	$ 246,500	4	$ 246,500	**$ 1,281,800**
77	Dumas	On-Existing Bus. Route	Lubbock	US 287 South of Dumas	US 287 North of Dumas	5	Asphalt	Good	4	$ 255,000	4	$ 212,500	4	$ 212,500	4	$ 212,500	4	$ 212,500	**$ 1,105,000**
78	Boise City	On-Existing Bus. Route	Oklahoma	US 287 South of Boise City	US 287 North of Boise City	3.5	Asphalt	Good	4	$ 134,400	4	$ 112,000	4	$ 112,000	4	$ 112,000	4	$ 112,000	**$ 582,400**
79	Lamar	On-Existing Bus. Route	Colorado	US 287 South of Lamar	US 50 North of Lamar	9	Asphalt	Good	4	$ 345,600	4	$ 288,000	4	$ 288,000	4	$ 288,000	4	$ 288,000	**$ 1,497,600**
80	Stratford	On-Existing Bus. Route	Amarillo	US 287 South of Stratford	US 287 North of Stratford	5.2	Asphalt	Good	4	$ 265,200	4	$ 221,000	4	$ 221,000	4	$ 221,000	4	$ 221,000	**$ 1,149,200**
81	Midland	On-Existing Bus. Route	Odessa	I 20 on West	Texas 349 on North	21	Asphalt	Good	4	$ 1,008,000	4	$ 840,000	4	$ 840,000	4	$ 840,000	4	$ 840,000	**$ 4,368,000**
82	Clayton	On-Existing Bus. Route	New Mexico	US 87 East of Clayton	US 64 West of Clayton	3.8	Asphalt	Good	4	$ 193,800	4	$ 161,500	4	$ 161,500	4	$ 161,500	4	$ 161,500	**$ 839,800**
83	Dalhart	On-Existing Bus. Route	Amarillo	US 87 South of Dalhart	US 87 North of Dalhart	6.6	Asphalt	Good	4	$ 336,600	4	$ 280,500	4	$ 280,500	4	$ 280,500	4	$ 280,500	**$ 1,458,600**
84	Build 4 lane median separated in asphalt	Carrizo Springs Relief Route	Laredo	South of Asherton	North of Carrizo Springs	8.6	Asphalt	N/A	N/A		0		0		4	$ 442,900	4	$ 442,900	**$ 885,800**
85	Build 4 lane median separated in asphalt	Eagle Pass Relief Route	Laredo	Eagle Pass International Bridge	US 277 East of Eagle Pass	9.3	Asphalt	N/A	N/A		0		2	$ 360,375	2	$ 360,375	4	$ 478,950	**$ 1,199,700**
86	Build 4 lane median separated in asphalt	Eagle Pass Relief Route	Laredo	US 277 East of Eagle Pass	US 277 North of Eagle Pass	8.4	Asphalt	N/A	N/A		0		2	$ 325,500	2	$ 325,500	4	$ 432,600	**$ 1,083,600**
87	Build 4 lane median separated in asphalt	Del Rio Relief Route	Laredo	US 277 East of Del Rio	US 277 North of Del Rio	12	Asphalt	N/A	N/A		2	$ 465,000	2	$ 465,000	4	$ 618,000	4	$ 618,000	**$ 2,166,000**
88	Build 4 lane median separated in asphalt	Sonora Relief Route	San Angelo	US 277 South of Sonora	US 277 North of Sonora	4.8	Asphalt	N/A	N/A		0		0		2	$ 160,800	4	$ 264,000	**$ 424,800**
89	Build 4 lane median separated in asphalt	San Angelo Relief Route	San Angelo	US 277 South of San Angelo	US 87 North of San Angelo	21.3	Asphalt	N/A	N/A		0		2	$ 713,550	4	$ 1,171,500	4	$ 1,171,500	**$ 3,056,550**
90	Build 4 lane median separated in asphalt	Big Spring Relief Route	Abilene	US 87 South of Big Spring	US 87 North of Big Spring	13	Asphalt	N/A	N/A		0		2	$ 390,000	2	$ 390,000	4	$ 520,000	**$ 1,300,000**
91	Build 4 lane median separated in asphalt	Lamesa Relief Route	Lubbock	US 87 South of Lamesa	US 87 North of Lamesa	5.8	Asphalt	N/A	N/A		0		2	$ 174,000	2	$ 174,000	4	$ 246,500	**$ 594,500**
92	Build 4 lane median separated in asphalt	Dumas Relief Route	Lubbock	US 287 South of Dumas	US 287 North of Dumas	5	Asphalt	N/A	N/A		4	$ 212,500	4	$ 212,500	4	$ 212,500	4	$ 212,500	**$ 850,000**

Exhibit 4.1-4 Routine Maintenance Costs on Improved System (continued)

ROUTINE MAINTENANCE
(Improved System)

Section	Description	Roadway	District	From	To	Length	Existing Pvmnt Type	Existing Pvmnt Cond	Existing Lanes	Time Span 2005-2010	Lanes	2011-2015	Lanes	2016-2020	Lanes	2021-2025	Lanes	2026-2030	TOTAL $ PER SECTION
93	Build 4 lane median separated in asphalt	Boise City Relief Route	Oklahoma	US 287 South of Boise City	US 287 North of Boise City	3.5	Asphalt	N/A	N/A		4	$ 112,000	4	$ 112,000	4	$ 112,000	4	$ 112,000	**$ 448,000**
94	Build 4 lane median separated in concrete	Lamar Relief Route	Colorado	US 287 South of Lamar	US 50 North of Lamar	9	Asphalt	N/A	N/A		2	$ 238,500	2	$ 238,500	4	$ 288,000	4	$ 288,000	**$ 1,053,000**
95	Build 4 lane median separated in asphalt	Stratford Relief Route	Amarillo	US 287 South of Stratford	US 287 North of Stratford	5.2	Asphalt	N/A	N/A		0		4	$ 221,000	4	$ 221,000	4	$ 221,000	**$ 663,000**
96	Build 4 lane median separated in asphalt	Midland Relief Route	Odessa	I 20 on West	Texas 349 on North	21	Asphalt	N/A	N/A		0		4	$ 840,000	4	$ 840,000	4	$ 840,000	**$ 2,520,000**
97	Build 4 lane median separated in asphalt	Clayton Relief Route	New Mexico	US 87 East of Clayton	US 64 West of Clayton	3.8	Asphalt	N/A	N/A		0		0		2	$ 114,000	4	$ 161,500	**$ 275,500**
98	Build 4 lane median separated in asphalt	Dalhart Relief Route	Amarillo	US 87 South of Dalhart	US 87 North of Dalhart	6.6	Asphalt	N/A	N/A		0		4	$ 280,500	4	$ 280,500	4	$ 280,500	**$ 841,500**
								TOTAL $ FOR TIMESPAN		**$ 61,782,840**		**$ 55,651,950**		**$ 60,286,375**		**$ 63,807,025**		**$ 66,436,650**	**$ 307,964,840**

Exhibit 4.1-5 Preventive Maintenance Costs on Improved System

PREVENTIVE MAINTENANCE COST
(Improved System)

Section	Description	Roadway	District	From	To	Length	Existing Pvmnt Type	Existing Pvmnt Cond	Existing Lanes	2005-2010			2011-2015			2016-2020			2021-2025			2026-2030			TOTAL $ FOR SECTION
										No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	
1	Build 2 new lanes in Asphalt	US 83	Laredo	I 35	Webb/Dimmit County Line	34	Asphalt	Fair	2	2	NA		4	NA	$ -	4	SEAL	$ 680,000	4	ACP	$ 20,400,000	4	NA	$ -	**$ 21,080,000**
2	Build 2 new lanes in Asphalt	US 83	Laredo	Webb/Dimmit County Line	FM 133, Catarina	9	Asphalt	Fair	2	2	SEAL	$ 90,000	2	NA	$ 4		NA	$ -	4	SEAL	$ 180,000	4	ACP	$ 5,400,000	**$ 5,670,000**
3	Build 2 new lanes in Asphalt	US 83	Laredo	FM 133, Catarina	Carrizo Springs Relief Route	9	Asphalt	Fair	2	2	SEAL	$ 90,000	2	NA	$ 4		NA	$ -	4	SEAL	$ 180,000	4	ACP	$ 5,400,000	**$ 5,670,000**
4	Remains 2-lanes	US 83	Laredo	Asherton	Carrizo Springs	11	Asphalt	Fair	2	2	SEAL	$ 110,000	2	ACP	$ 3,300,000	2	NA	$ -	2	SEAL	$ 110,000	2	ACP	$ 3,300,000	**$ 6,820,000**
5	Build 2 new lanes in Asphalt	US 277	Laredo	Carrizo Springs Relief Route	Dimmit/Maverick County Line	17	Asphalt	Good	2	2	NA	$ -	2	SEAL	$ 170,000	2	NA	$ 4		NA	$ -	4	SEAL	$ 340,000	**$ 510,000**
6	Build 2 new lanes in Asphalt	US 277	Laredo	Dimmit/Maverick County Line	Eagle Pass Relief Route	19	Asphalt	Good	2	2	NA	$ -	2	SEAL	$ 190,000	2	NA	$ 4		NA	$ -	4	SEAL	$ 380,000	**$ 570,000**
7	Build 2 new lanes in Asphalt	US 277	Laredo	Eagle Pass Relief Route	Maverick/Kinney County line	23	Asphalt	Poor	2	2	NA	$ 2		NA	$ -	4	SEAL	$ 460,000	4	ACP	$ 13,800,000	4	NA	$ -	**$ 14,260,000**
8	Build 2 new lanes in Asphalt	US 277	Laredo	Maverick/Kinney County line	Kinney/Val Verde County Line	14	Asphalt	Poor	2	2	ACP	$ 4,200,000	2	NA	$ 4		NA	$ -	4	SEAL	$ 280,000	4	ACP	$ 8,400,000	**$ 12,880,000**
9	Build 2 new lanes in Asphalt	US 277	Laredo	Kinney/Val Verde County Line	Del Rio Relief Route	8	Asphalt	Poor	2	2	NA	$ 2		NA	$ -	4	SEAL	$ 160,000	4	ACP	$ 4,800,000	4	NA	$ -	**$ 4,960,000**
10	Build 2 new lanes in Asphalt	US 277	Laredo	Del Rio Relief Route	Val Verde/Edwards County Line	55	Asphalt	Good	2	2	NA	$ -	2	SEAL	$ 550,000	2	ACP	$ 16,500,000	2	NA	$ 4		NA	$ -	**$ 17,050,000**
11	Build 2 new lanes in Asphalt	US 277	San Angelo	Val Verde/Edwards County Line	Edwards/Sutton County Line	10	Asphalt	Good	2	2	NA	$ -	2	SEAL	$ 100,000	2	ACP	$ 3,000,000	2	NA	$ 4		NA	$ -	**$ 3,100,000**
12	Build 2 new lanes in Asphalt	US 277	San Angelo	Edwards/Sutton County Line	Sonora Relief Route	20	Asphalt	Fair	2	2	SEAL	$ 200,000	2	ACP	$ 6,000,000	2	NA	$ 2		NA	$ 4		NA	$ -	**$ 6,200,000**
13	Build 2 new lanes in Asphalt	US 277	San Angelo	Sonora Relief Route	Sutton/Schleicher County Line	8	Asphalt	Good	2	2	NA	$ -	2	SEAL	$ 80,000	2	ACP	$ 2,400,000	2	NA	$ 4		NA	$ -	**$ 2,480,000**
14	Build 2 new lanes in Asphalt	US 277	San Angelo	Sutton/Schleicher County Line	Schleicher/Tom Green County Line	30	Asphalt	Good	2	2	NA	$ -	2	SEAL	$ 300,000	2	NA	$ 4		NA	$ -	4	SEAL	$ 600,000	**$ 900,000**
15	Build 2 new lanes in Asphalt	US 277	San Angelo	Schleicher/Tom Green County Line	San Angelo Relief Route	22	Asphalt	Good	2	2	NA	$ -	2	SEAL	$ 220,000	2	NA	$ 4		NA	$ -	4	SEAL	$ 440,000	**$ 660,000**
16	Existing 4 lane divided highway	US 87	San Angelo	San Angelo Relief Route	Tom Green/Coke County Line	20	Asphalt	Fair	4	4	SEAL	$ 400,000	4	ACP	$ 12,000,000	4	NA	$ -	4	SEAL	$ 400,000	4	ACP	$ 12,000,000	**$ 24,800,000**
17	Existing 4 lane divided highway	US 87	San Angelo	Tom Green/Coke County Line	Coke/Sterling County Line	4	Asphalt	Fair	4	4	SEAL	$ 80,000	4	ACP	$ 2,400,000	4	NA	$ -	4	SEAL	$ 80,000	4	ACP	$ 2,400,000	**$ 4,960,000**
18	Existing 4 lane divided highway	US 87	San Angelo	Coke/Sterling County Line	Sterling/Glasscock County Line	32	Asphalt	Fair	4	4	SEAL	$ 640,000	4	ACP	$ 19,200,000	4	NA	$ -	4	SEAL	$ 640,000	4	ACP	$ 19,200,000	**$ 39,680,000**
19	Existing 4 lane divided highway	US 87	San Angelo	Sterling/Glasscock County Line	Glasscock/Howard County Line	11	Asphalt	Fair	4	4	SEAL	$ 220,000	4	ACP	$ 6,600,000	4	NA	$ -	4	SEAL	$ 220,000	4	ACP	$ 6,600,000	**$ 13,640,000**
20	Existing 4 lane divided highway	US 87	Abilene	Glasscock/Howard County Line	Big Spring Relief Route	6	Asphalt	Fair	4	4	SEAL	$ 120,000	4	ACP	$ 3,600,000	4	NA	$ -	4	SEAL	$ 120,000	4	ACP	$ 3,600,000	**$ 7,440,000**
21	Existing 4 lane divided highway	US 87	Abilene	Big Spring Relief Route	Howard/Martin County Line	19	Asphalt	Fair	4	4	SEAL	$ 380,000	4	ACP	$ 11,400,000	4	NA	$ -	4	SEAL	$ 380,000	4	ACP	$ 11,400,000	**$ 23,560,000**
22	Existing 4 lane divided highway	US 87	Odessa	Howard/Martin County Line	Martin/Dawson County Line	1	Asphalt	Fair	4	4	SEAL	$ 20,000	4	ACP	$ 600,000	4	NA	$ -	4	SEAL	$ 20,000	4	ACP	$ 600,000	**$ 1,240,000**
23	Existing 4 lane divided highway	US 87	Lubbock	Martin/Dawson County Line	Lamesa Relief Route	18	Asphalt	Fair	4	4	SEAL	$ 360,000	4	ACP	$ 10,800,000	4	NA	$ -	4	SEAL	$ 360,000	4	ACP	$ 10,800,000	**$ 22,320,000**
24	Build 2 new lanes in Asphalt	Texas 158	San Angelo	Sterling City	Sterling/Glasscock County Line	14	Asphalt	Fair	2	2	NA	$ 4		NA	$ -	4	SEAL	$ 280,000	4	ACP	$ 8,400,000	4	NA	$ -	**$ 8,680,000**
25	Build 2 new lanes in Asphalt	Texas 158	San Angelo	Sterling/Glasscock County Line	Glasscock/Midland County Line	30	Asphalt	Fair	2	2	NA	$ 4		NA	$ -	4	SEAL	$ 600,000	4	ACP	$ 18,000,000	4	NA	$ -	**$ 18,600,000**
26	Existing 4 lane undivided highway	Texas 158	Odessa	Glasscock/Midland County Line	Midland	16	Asphalt	Fair	4	4	SEAL	$ 320,000	4	ACP	$ 9,600,000	4	NA	$ -	4	SEAL	$ 320,000	4	ACP	$ 9,600,000	**$ 19,840,000**
27	Build 2 new lanes in Asphalt	Texas 349	Odessa	Midland	Midland/Martin County Line	7	Asphalt	Fair	2	2	SEAL	$ 70,000	2	ACP	$ 2,100,000	2	NA	$ 2		NA	$ 4		NA	$ -	**$ 2,170,000**
28	Build 2 new lanes in Asphalt	Texas 349	Odessa	Midland/Martin County Line	Martin/Dawson County Line	34	Asphalt	Poor	2	2	ACP	$ 10,200,000	2	NA	$ 2		NA	$ 4		NA	$ -	4	SEAL	$ 680,000	**$ 10,880,000**
29	Build 2 new lanes in Asphalt	Texas 349	Lubbock	Martin/Dawson County Line	FM 2052	13	Asphalt	Fair	2	2	SEAL	$ 130,000	2	ACP	$ 3,900,000	2	NA	$ 2		NA	$ 4		NA	$ -	**$ 4,030,000**
30	Build 2 new lanes in Asphalt	FM 2052	Lubbock	Texas 349	US 87	2	Asphalt	Fair	2	2	SEAL	$ 20,000	2	ACP	$ 600,000	2	NA	$ 2		NA	$ 4		NA	$ -	**$ 620,000**
31	Existing 4 lane divided highway	US 87	Lubbock	Texas 349	Lamesa Relief Route	3	Asphalt	Poor	4	4	ACP	$ 1,800,000	4	NA	$ -	4	SEAL	$ 60,000	4	ACP	$ 1,800,000	4	NA	$ -	**$ 3,660,000**
32	Existing 4 lane divided highway	US 87	Lubbock	Lamesa Relief Route	Dawson/Lynn County Line	14	Asphalt	Poor	4	4	ACP	$ 8,400,000	4	NA	$ -	4	SEAL	$ 280,000	4	ACP	$ 8,400,000	4	NA	$ -	**$ 17,080,000**
33	Existing 4 lane divided highway	US 87	Lubbock	Dawson/Lynn County Line	Lynn/Lubbock County Line	32	Asphalt	Poor	4	4	ACP	$ 19,200,000	4	NA	$ -	4	SEAL	$ 640,000	4	ACP	$ 19,200,000	4	NA	$ -	**$ 39,040,000**
34	Existing 4 lane divided highway	US 87	Lubbock	Lynn/Lubbock County Line	I 27	10	Asphalt	Fair	4	4	SEAL	$ 200,000	4	ACP	$ 6,000,000	4	NA	$ -	4	SEAL	$ 200,000	4	ACP	$ 6,000,000	**$ 12,400,000**
35	Existing 4 land divided Interstate	I 27	Lubbock	US 87	Lubbock/Hale County Line	24	Concrete	Poor	4	4	ACP	$ 14,400,000	4	NA	$ -	4	SEAL	$ 480,000	4	ACP	$ 14,400,000	4	NA	$ -	**$ 29,280,000**
36	Existing 4 land divided Interstate	I 27	Lubbock	Lubbock/Hale County Line	Hale/Swisher County Line	38	Concrete	Poor	4	4	ACP	$ 22,800,000	4	NA	$ -	4	SEAL	$ 760,000	4	ACP	$ 22,800,000	4	NA	$ -	**$ 46,360,000**

Exhibit 4.1-5 Preventive Maintenance Costs on Improved System (continued)

PREVENTIVE MAINTENANCE COST
(Improved System)

Section	Description	Roadway	District	From	To	Length	Existing Pvmnt Type	Existing Pvmnt Cond	Existing Lanes	2005-2010			2011-2015			2016-2020			2021-2025			2026-2030			TOTAL $ FOR SECTION
										No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	
37	Existing 4 land divided Interstate	I 27	Lubbock	Hale/Swisher County Line	Swisher/Randall County Line	33	Concrete	Poor	4	4	ACP	$ 19,800,000	4	NA	$ -	4	SEAL	$ 660,000	4	ACP	$ 19,800,000	4	NA	$ -	**$ 40,260,000**
38	Existing 4 land divided Interstate	I 27	Amarillo	Swisher/Randall County Line	Randall/Potter County Line	34	Concrete	Poor	4	4	ACP	$ 20,400,000	4	NA	$ -	4	SEAL	$ 680,000	4	ACP	$ 20,400,000	4	NA	$ -	**$ 41,480,000**
39	Existing 4 land divided Interstate	I 27	Amarillo	Randall/Potter County Line	I 40	1	Asphalt	Poor	4	4	ACP	$ 600,000	4	NA	$ -	4	SEAL	$ 20,000	4	ACP	$ 600,000	4	NA	$ -	**$ 1,220,000**
40	Existing 4 lane divided highway	US 87	Amarillo	I 40	Potter/Moore County Line	33	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 660,000	4	ACP	$ 19,800,000	4	NA	$ -	4	SEAL	$ 660,000	**$ 21,120,000**
41	Existing 4 lane divided highway	US 87	Amarillo	Potter/Moore County Line	Dumas Relief Route	16	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 320,000	4	ACP	$ 9,600,000	4	NA	$ -	4	SEAL	$ 320,000	**$ 10,240,000**
42	Existing 4 lane divided highway	US 287	Amarillo	Dumas Relief Route	Moore/Sherman County Line	12	Asphalt	Fair	4	4	SEAL	$ 240,000	4	ACP	$ 7,200,000	4	NA	$ -	4	SEAL	$ 240,000	4	ACP	$ 7,200,000	**$ 14,880,000**
43	Existing 4 lane divided highway	US 287	Amarillo	Moore/Sherman County Line	Stratford	21	Asphalt	Poor	4	4	ACP	$ 12,600,000	4	NA	$ -	4	SEAL	$ 420,000	4	ACP	$ 12,600,000	4	NA	$ -	**$ 25,620,000**
44	Build 2 new lanes in Asphalt	US 287	Amarillo	Stratford	Sherman/Dallam County Line	9	Asphalt	Fair	2	2	SEAL	$ 90,000	2	NA	$ 4		NA	$ -	4	SEAL	$ 180,000	4	ACP	$ 5,400,000	**$ 5,670,000**
45	Build 2 new lanes in Asphalt	US 287	Amarillo	Sherman/Dallam County Line	Ok/Tx Border	7	Asphalt	Poor	2	2	NA	$ 4		NA	$ -	4	SEAL	$ 140,000	4	ACP	$ 4,200,000	4	NA	$ -	**$ 4,340,000**
46	Build 2 new lanes in Asphalt	US 287	Oklahoma	Ok/Tx Border	Boise City Relief Route	21	Asphalt	Good	2	2	NA	$ 2		NA	$ 4		NA	$ -	4	SEAL	$ 420,000	4	ACP	$ 12,600,000	**$ 13,020,000**
47	Build 2 new lanes in Asphalt	US 287	Oklahoma	Boise City Relief Route	Ok/Co Border	19	Asphalt	Good	2	2	NA	$ 4		NA	$ -	4	SEAL	$ 380,000	4	ACP	$ 11,400,000	4	NA	$ -	**$ 11,780,000**
48	Build 2 new lanes in Concrete	US 287	Colorado	Ok/Co Border	Springfield	32	Concrete	Good	2	2	NA	$ 2		NA	$ 2		ACP	$ 9,600,000	2	NA	$ 4		NA	$ -	**$ 9,600,000**
49	Build 2 new lanes in Concrete	US 287	Colorado	Springfield	Baca/Prowers County Line	18	Concrete	Good	2	2	NA	$ 2		NA	$ 2		ACP	$ 5,400,000	2	NA	$ 4		NA	$ -	**$ 5,400,000**
50	Build 2 new lanes in Concrete	US 287	Colorado	Baca/Prowers County Line	Lamar Relief Route	28	Concrete	Good	2	2	NA	$ 2		NA	$ 4		ACP	$ 8,400,000	4	NA	$ 4		ACP	$ 8,400,000	**$ 16,800,000**
51	Build 2 new lanes in Concrete	US 287	Colorado	Lamar Relief Route	Prowers/Kiowa County Line	16	Asphalt	Poor	2	2	NA	$ 4		NA	$ 4		NA	$ 4		ACP	$ 9,600,000	4	NA	$ -	**$ 9,600,000**
52	Build 2 new lanes in Concrete	US 287	Colorado	Prowers/Kiowa County Line	Eads	19	Concrete	Good	2	2	NA	$ 2		NA	$ 2		ACP	$ 5,700,000	4	NA	$ -	4	SEAL	$ 380,000	**$ 6,080,000**
53	Build 2 new lanes in Concrete	US 287	Colorado	Eads	Kiowa/Cheyenne County Line	10	Concrete	Good	2	2	NA	$ 2		NA	$ 2		ACP	$ 3,000,000	4	NA	$ -	4	SEAL	$ 100,000	**$ 3,100,000**
54	Build 2 new lanes in Concrete	US 287	Colorado	Kiowa/Cheyenne County Line	Kit Carson	12	Concrete	Good	2	2	NA	$ 2		NA	$ 2		ACP	$ 3,600,000	4	NA	$ -	4	SEAL	$ 120,000	**$ 3,720,000**
55	Build 2 new lanes in Concrete	US 40	Colorado	Kit Carson	Wild Horse	13	Asphalt	Fair	2	2	SEAL	$ 130,000	2	NA	$ 4		NA	$ 4		NA	$ 4		ACP	$ 7,800,000	**$ 7,930,000**
56	Build 2 new lanes in Concrete	US 40	Colorado	Wild Horse	Cheyenne/Lincoln County Line	10	Concrete	Good	2	2	NA	$ 2		NA	$ 4		ACP	$ 3,000,000	4	NA	$ 4		ACP	$ 3,000,000	**$ 6,000,000**
57	Build 2 new lanes in Concrete	US 40	Colorado	Cheyenne/Lincoln County Line	Hugo	23	Asphalt	Poor	2	2	NA	$ 4		NA	$ 4		NA	$ 4		ACP	$ 13,800,000	4	NA	$ -	**$ 13,800,000**
58	Build 2 new lanes in Concrete	US 40	Colorado	Hugo	Limon	16	Concrete	Good	2	2	NA	$ 2		NA	$ 4		ACP	$ 4,800,000	4	NA	$ 4		ACP	$ 4,800,000	**$ 9,600,000**
59	Existing 4 land divided Interstate	I 70	Colorado	Limon	Lincoln/Elbert County Line	4	Concrete	Good	4	4	NA	$ 4		ACP	$ 2,400,000	4	NA	$ -	4	SEAL	$ 80,000	4	ACP	$ 2,400,000	**$ 4,880,000**
60	Existing 4 land divided Interstate	I 70	Colorado	Lincoln/Elbert County Line	Elbert/Arapahoe County Line	27	Concrete	Good	4	4	NA	$ 4		ACP	$ 16,200,000	4	NA	$ -	4	SEAL	$ 540,000	4	ACP	$ 16,200,000	**$ 32,940,000**
61	Existing 4 land divided Interstate	I 70	Colorado	Elbert/Arapahoe County Line	Denver	56	Concrete	Good	4	4	NA	$ 4		ACP	$ 33,600,000	4	NA	$ -	4	SEAL	$ 1,120,000	4	ACP	$ 33,600,000	**$ 68,320,000**
62	Build 2 new lanes in Asphalt	US 87	Amarillo	Dumas	Moore/Hartley County Line	9	Asphalt	Fair	2	2	NA	$ 4		NA	$ -	4	SEAL	$ 180,000	4	ACP	$ 5,400,000	4	NA	$ -	**$ 5,580,000**
63	Build 2 new lanes in Asphalt	US 87	Amarillo	Moore/Hartley County Line	Hartley/Interchange with US 385	12	Asphalt	Fair	2	2	NA	$ 4		NA	$ -	4	SEAL	$ 240,000	4	ACP	$ 7,200,000	4	NA	$ -	**$ 7,440,000**
64	Existing 4 lane divided highway	US 87	Amarillo	Hartley/Interchange with US 385	Dalhart Relief Route	15	Asphalt	Poor	4	4	ACP	$ 9,000,000	4	NA	$ -	4	SEAL	$ 300,000	4	ACP	$ 9,000,000	4	NA	$ -	**$ 18,300,000**
65	Build 2 new lanes in Asphalt	US 87	Amarillo	Dalhart Relief Route	Tx/NM Border	35	Asphalt	Fair	2	2	NA	$ 4		NA	$ -	4	SEAL	$ 700,000	4	ACP	$ 21,000,000	4	NA	$ -	**$ 21,700,000**
66	Build 2 new lanes in Asphalt	US 64	New Mexico	Tx/NM Border	Capulin	53	Asphalt	Fair	2	2	NA	$ 4		NA	$ -	4	SEAL	$ 1,060,000	4	ACP	$ 31,800,000	4	NA	$ -	**$ 32,860,000**
67	Build 2 new lanes in Asphalt	US 64	New Mexico	Capulin	Union/Colfax County Line	1	Asphalt	Good	2	2	NA	$ 4		NA	$ -	4	SEAL	$ 20,000	4	ACP	$ 600,000	4	NA	$ -	**$ 620,000**
68	Build 2 new lanes in Asphalt	US 64	New Mexico	Union/Colfax County Line	Raton/I-25	26	Asphalt	Good	2	2	NA	$ 2		NA	$ 4		NA	$ -	4	SEAL	$ 520,000	4	ACP	$ 15,600,000	**$ 16,120,000**
69	Carrizo Springs	On-Existing Bus. Route	Laredo	South of Asherton	North of Carrizo Springs	8.6	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 172,000	4	ACP	$ 5,160,000	4	NA	$ -	4	SEAL	$ 172,000	**$ 5,504,000**
70	Eagle Pass	On-Existing Bus. Route	Laredo	Eagle Pass International Bridge	US 277 East of Eagle Pass	9.3	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 186,000	4	ACP	$ 5,580,000	4	NA	$ -	4	SEAL	$ 186,000	**$ 5,952,000**
71	Eagle Pass	On-Existing Bus. Route	Laredo	US 277 East of Eagle Pass	US 277 North of Eagle Pass	8.4	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 168,000	4	ACP	$ 5,040,000	4	NA	$ -	4	SEAL	$ 168,000	**$ 5,376,000**
72	Del Rio	On-Existing Bus. Route	Laredo	US 277 East of Del Rio	US 277 North of Del Rio	12	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 240,000	4	ACP	$ 7,200,000	4	NA	$ -	4	SEAL	$ 240,000	**$ 7,680,000**

Exhibit 4.1-5 Preventive Maintenance Costs on Improved System (continued)

PREVENTIVE MAINTENANCE COST
(Improved System)

Section	Description	Roadway	District	From	To	Length	Existing Pvmnt Type	Existing Pvmnt Cond	Existing Lanes	2005-2010			2011-2015			2016-2020			2021-2025			2026-2030			TOTAL $ FOR SECTION
										No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	No of Lanes	Action	Cost	
73	Sonora	On-Existing Bus. Route	San Angelo	US 277 South of Sonora	US 277 North of Sonora	4.8	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 96,000	4	ACP	$ 2,880,000	4	NA	$ -	4	SEAL	$ 96,000	**$ 3,072,000**
74	San Angelo	On-Existing Bus. Route	San Angelo	US 277 South of San Angelo	US 87 North of San Angelo	21.3	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 426,000	4	ACP	$ 12,780,000	4	NA	$ -	4	SEAL	$ 426,000	**$ 13,632,000**
75	Big Spring	On-Existing Bus. Route	Abilene	US 87 South of Big Spring	US 87 North of Big Spring	13	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 260,000	4	ACP	$ 7,800,000	4	NA	$ -	4	SEAL	$ 260,000	**$ 8,320,000**
76	Lamesa	On-Existing Bus. Route	Lubbock	US 87 South of Lamesa	US 87 North of Lamesa	5.8	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 116,000	4	ACP	$ 3,480,000	4	NA	$ -	4	SEAL	$ 116,000	**$ 3,712,000**
77	Dumas	On-Existing Bus. Route	Lubbock	US 287 South of Dumas	US 287 North of Dumas	5	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 100,000	4	ACP	$ 3,000,000	4	NA	$ -	4	SEAL	$ 100,000	**$ 3,200,000**
78	Boise City	On-Existing Bus. Route	Oklahoma	US 287 South of Boise City	US 287 North of Boise City	3.5	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 70,000	4	ACP	$ 2,100,000	4	NA	$ -	4	SEAL	$ 70,000	**$ 2,240,000**
79	Lamar	On-Existing Bus. Route	Colorado	US 287 South of Lamar	US 50 North of Lamar	9	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 180,000	4	ACP	$ 5,400,000	4	NA	$ -	4	SEAL	$ 180,000	**$ 5,760,000**
80	Stratford	On-Existing Bus. Route	Amarillo	US 287 South of Stratford	US 287 North of Stratford	5.2	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 104,000	4	ACP	$ 3,120,000	4	NA	$ -	4	SEAL	$ 104,000	**$ 3,328,000**
81	Midland	On-Existing Bus. Route	Odessa	I 20 on West	Texas 349 on North	21	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 420,000	4	ACP	$ 12,600,000	4	NA	$ -	4	SEAL	$ 420,000	**$ 13,440,000**
82	Clayton	On-Existing Bus. Route	New Mexico	US 87 East of Clayton	US 64 West of Clayton	3.8	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 76,000	4	ACP	$ 2,280,000	4	NA	$ -	4	SEAL	$ 76,000	**$ 2,432,000**
83	Dalhart	On-Existing Bus. Route	Amarillo	US 87 South of Dalhart	US 87 North of Dalhart	6.6	Asphalt	Good	4	4	NA	$ -	4	SEAL	$ 132,000	4	ACP	$ 3,960,000	4	NA	$ -	4	SEAL	$ 132,000	**$ 4,224,000**
84	Build 4 lane median separated in asphalt	Carrizo Springs Relief Route	Laredo	South of Asherton	North of Carrizo Springs	8.6	N/A	N/A	N/A	N/A	NA	$ 0		NA	$ 0		NA	$ 4		NA	$ -	4	SEAL	$ 172,000	**$ 172,000**
85	Build 4 lane median separated in asphalt	Eagle Pass Relief Route	Laredo	Eagle Pass International Bridge	US 277 East of Eagle Pass	9.3	Asphalt	N/A	N/A	N/A	NA	$ 0		NA	$ 2		NA	$ -	2	SEAL	$ 93,000	4	ACP	$ 2,790,000	**$ 2,883,000**
86	Build 4 lane median separated in asphalt	Eagle Pass Relief Route	Laredo	US 277 East of Eagle Pass	US 277 North of Eagle Pass	8.4	Asphalt	N/A	N/A	N/A	NA	$ 0		NA	$ 2		NA	$ -	2	SEAL	$ 84,000	4	ACP	$ 2,520,000	**$ 2,604,000**
87	Build 4 lane median separated in asphalt	Del Rio Relief Route	Laredo	US 277 East of Del Rio	US 277 North of Del Rio	12	Asphalt	N/A	N/A	N/A	NA	$ 2		NA	$ -	2	SEAL	$ 120,000	4	ACP	$ 3,600,000	4	SEAL	$ 120,000	**$ 3,840,000**
88	Build 4 lane median separated in asphalt	Sonora Relief Route	San Angelo	US 277 South of Sonora	US 277 North of Sonora	4.8	Asphalt	N/A	N/A	N/A	NA	$ 0		NA	$ 0		NA	$ 2		NA	$ -	4	SEAL	$ 48,000	**$ 48,000**
89	Build 4 lane median separated in asphalt	San Angelo Relief Route	San Angelo	US 277 South of San Angelo	US 87 North of San Angelo	21.3	Asphalt	N/A	N/A	N/A	NA	$ 0		NA	$ 2		NA	$ -	4	SEAL	$ 213,000	4	ACP	$ 6,390,000	**$ 6,603,000**
90	Build 4 lane median separated in asphalt	Big Spring Relief Route	Abilene	US 87 South of Big Spring	US 87 North of Big Spring	13	Asphalt	N/A	N/A	N/A	NA	$ 0		NA	$ 2		NA	$ -	2	SEAL	$ 130,000	4	ACP	$ 3,900,000	**$ 4,030,000**
91	Build 4 lane median separated in asphalt	Lamesa Relief Route	Lubbock	US 87 South of Lamesa	US 87 North of Lamesa	5.8	Asphalt	N/A	N/A	N/A	NA	$ 0		NA	$ 2		NA	$ -	2	SEAL	$ 58,000	4	ACP	$ 1,740,000	**$ 1,798,000**
92	Build 4 lane median separated in asphalt	Dumas Relief Route	Lubbock	US 287 South of Dumas	US 287 North of Dumas	5	Asphalt	N/A	N/A	N/A	NA	$ 4		NA	$ -	4	SEAL	$ 100,000	4	ACP	$ 3,000,000	4	NA	$ -	**$ 3,100,000**
93	Build 4 lane median separated in asphalt	Boise City Relief Route	Oklahoma	US 287 South of Boise City	US 287 North of Boise City	3.5	Asphalt	N/A	N/A	N/A	NA	$ 4		NA	$ -	4	SEAL	$ 70,000	4	ACP	$ 2,100,000	4	NA	$ -	**$ 2,170,000**
94	Build 4 lane median separated in concrete	Lamar Relief Route	Colorado	US 287 South of Lamar	US 50 North of Lamar	9	Asphalt	N/A	N/A	N/A	NA	$ 2		NA	$ 2		NA	$ 4		NA	$ 4		ACP	$ 2,700,000	**$ 2,700,000**
95	Build 4 lane median separated in asphalt	Stratford Relief Route	Amarillo	US 287 South of Stratford	US 287 North of Stratford	5.2	Asphalt	N/A	N/A	N/A	NA	$ 0		NA	$ 4		NA	$ -	4	SEAL	$ 104,000	4	ACP	$ 3,120,000	**$ 3,224,000**
96	Build 4 lane median separated in asphalt	Midland Relief Route	Odessa	I 20 on West	Texas 349 on North	21	Asphalt	N/A	N/A	N/A	NA	$ 0		NA	$ 4		NA	$ -	4	SEAL	$ 420,000	4	ACP	$ 12,600,000	**$ 13,020,000**
97	Build 4 lane median separated in asphalt	Clayton Relief Route	New Mexico	US 87 East of Clayton	US 64 West of Clayton	3.8	Asphalt	N/A	N/A	N/A	NA	$ 0		NA	$ 0		NA	$ 2		NA	$ -	4	SEAL	$ 38,000	**$ 38,000**
98	Build 4 lane median separated in asphalt	Dalhart Relief Route	Amarillo	US 87 South of Dalhart	US 87 North of Dalhart	6.6	Asphalt	N/A	N/A	N/A	NA	$ 0		NA	$ 4		NA	$ -	4	SEAL	$ 132,000	4	ACP	$ 3,960,000	**$ 4,092,000**
							TOTAL $ FOR TIMESPAN					**$ 151,471,508**			**$ 162,836,000**			**$ 186,670,000**			**$ 315,924,000**			**$ 268,564,000**	**$ 1,085,465,508**

Exhibit 4.1-6 Total Maintenance Costs on Improved System

TOTAL ROUTINE AND PREVENTIVE COSTS

(Improved System)

							COST/TIMESPAN					
Section	Description	Roadway	District	From	To	Length	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	TOTAL PER SECTION
1	Build 2 new lanes in Asphalt	US 83	Laredo	I 35	Webb/Dimmit County Line	34	$ 1,581,000	$ 1,751,000	$ 2,431,000	$ 22,151,000	$ 1,751,000	**$ 29,665,000**
2	Build 2 new lanes in Asphalt	US 83	Laredo	Webb/Dimmit County Line	FM 133, just south of Asherton	9	$ 508,500	$ 348,750	$ 463,500	$ 643,500	$ 5,863,500	**$ 7,827,750**
3	Build 2 new lanes in Asphalt	US 83	Laredo	FM 133, just south of Asherton	Carrizo Springs Relief Route	9	$ 508,500	$ 348,750	$ 463,500	$ 643,500	$ 5,863,500	**$ 7,827,750**
4	Remains 2-lanes	US 83	Laredo	Asherton	Carrizo Springs	11	$ 621,500	$ 3,726,250	$ 426,250	$ 536,250	$ 3,726,250	**$ 9,036,500**
5	Build 2 new lanes in Asphalt	US 277	Laredo	Carrizo Springs Relief Route	Dimmit/Maverick County Line	17	$ 790,500	$ 828,750	$ 658,750	$ 875,500	$ 1,215,500	**$ 4,369,000**
6	Build 2 new lanes in Asphalt	US 277	Laredo	Dimmit/Maverick County Line	Eagle Pass Relief Route	19	$ 883,500	$ 926,250	$ 736,250	$ 978,500	$ 1,358,500	**$ 4,883,000**
7	Build 2 new lanes in Asphalt	US 277	Laredo	Eagle Pass Relief Route	Maverick/Kinney County line	23	$ 1,069,500	$ 1,184,500	$ 1,644,500	$ 14,984,500	$ 1,184,500	**$ 20,067,500**
8	Build 2 new lanes in Asphalt	US 277	Laredo	Maverick/Kinney County line	Kinney/Val Verde County Line	14	$ 4,851,000	$ 542,500	$ 721,000	$ 1,001,000	$ 9,121,000	**$ 16,236,500**
9	Build 2 new lanes in Asphalt	US 277	Laredo	Kinney/Val Verde County Line	Del Rio Relief Route	8	$ 372,000	$ 412,000	$ 572,000	$ 5,212,000	$ 412,000	**$ 6,980,000**
10	Build 2 new lanes in Asphalt	US 277	Laredo	Del Rio Relief Route	Val Verde/Edwards County Line	55	$ 2,557,500	$ 2,681,250	$ 18,631,250	$ 2,131,250	$ 2,832,500	**$ 28,833,750**
11	Build 2 new lanes in Asphalt	US 277	San Angelo	Val Verde/Edwards County Line	Edwards/Sutton County Line	10	$ 402,000	$ 435,000	$ 3,335,000	$ 335,000	$ 550,000	**$ 5,057,000**
12	Build 2 new lanes in Asphalt	US 277	San Angelo	Edwards/Sutton County Line	Sonora Relief Route	20	$ 1,004,000	$ 6,670,000	$ 670,000	$ 670,000	$ 1,100,000	**$ 10,114,000**
13	Build 2 new lanes in Asphalt	US 277	San Angelo	Sonora Relief Route	Sutton/Schleicher County Line	8	$ 321,600	$ 348,000	$ 2,668,000	$ 268,000	$ 440,000	**$ 4,045,600**
14	Build 2 new lanes in Asphalt	US 277	San Angelo	Sutton/Schleicher County Line	Schleicher/Tom Green County Line	30	$ 1,206,000	$ 1,305,000	$ 1,005,000	$ 1,650,000	$ 2,250,000	**$ 7,416,000**
15	Build 2 new lanes in Asphalt	US 277	San Angelo	Schleicher/Tom Green County Line	San Angelo Relief Route	22	$ 884,400	$ 957,000	$ 737,000	$ 1,210,000	$ 1,650,000	**$ 5,438,400**
16	Existing 4 lane divided highway	US 87	San Angelo	San Angelo Relief Route	Tom Green/Coke County Line	20	$ 1,720,000	$ 13,100,000	$ 1,100,000	$ 1,500,000	$ 13,100,000	**$ 30,520,000**
17	Existing 4 lane divided highway	US 87	San Angelo	Tom Green/Coke County Line	Coke/Sterling County Line	4	$ 344,000	$ 2,620,000	$ 220,000	$ 300,000	$ 2,620,000	**$ 6,104,000**
18	Existing 4 lane divided highway	US 87	San Angelo	Coke/Sterling County Line	Sterling/Glasscock County Line	32	$ 2,752,000	$ 20,960,000	$ 1,760,000	$ 2,400,000	$ 20,960,000	**$ 48,832,000**
19	Existing 4 lane divided highway	US 87	San Angelo	Sterling/Glasscock County Line	Glasscock/Howard County Line	11	$ 946,000	$ 7,205,000	$ 605,000	$ 825,000	$ 7,205,000	**$ 16,786,000**
20	Existing 4 lane divided highway	US 87	Abilene	Glasscock/Howard County Line	Big Spring Relief Route	6	$ 408,000	$ 3,840,000	$ 240,000	$ 360,000	$ 3,840,000	**$ 8,688,000**
21	Existing 4 lane divided highway	US 87	Abilene	Big Spring Relief Route	Howard/Martin County Line	19	$ 1,292,000	$ 12,160,000	$ 760,000	$ 1,140,000	$ 12,160,000	**$ 27,512,000**
22	Existing 4 lane divided highway	US 87	Odessa	Howard/Martin County Line	Martin/Dawson County Line	1	$ 68,000	$ 640,000	$ 40,000	$ 60,000	$ 640,000	**$ 1,448,000**
23	Existing 4 lane divided highway	US 87	Lubbock	Martin/Dawson County Line	Lamesa Relief Route	18	$ 1,278,000	$ 11,565,000	$ 765,000	$ 1,125,000	$ 11,565,000	**$ 26,298,000**

Exhibit 4.1-6 Total Maintenance Costs on Improved System (continued)

TOTAL ROUTINE AND PREVENTIVE COSTS
(Improved System)

							COST/TIMESPAN					
Section	Description	Roadway	District	From	To	Length	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	TOTAL PER SECTION
24	Build 2 new lanes in Asphalt	Texas 158	San Angelo	Sterling City	Sterling/Glasscock County Line	14	$ 336,000	$ 448,000	$ 728,000	$ 8,848,000	$ 448,000	**$ 10,808,000**
25	Build 2 new lanes in Asphalt	Texas 158	San Angelo	Sterling/Glasscock County Line	Glasscock/Midland County Line	30	$ 720,000	$ 960,000	$ 1,560,000	$ 18,960,000	$ 960,000	**$ 23,160,000**
26	Existing 4 lane undivided highway	Texas 158	Odessa	Glasscock/Midland County Line	Midland	16	$ 1,088,000	$ 10,240,000	$ 640,000	$ 960,000	$ 10,240,000	**$ 23,168,000**
27	Build 2 new lanes in Asphalt	Texas 349	Odessa	Midland	Midland/Martin County Line	7	$ 322,000	$ 2,310,000	$ 210,000	$ 210,000	$ 280,000	**$ 3,332,000**
28	Build 2 new lanes in Asphalt	Texas 349	Odessa	Midland/Martin County Line	Martin/Dawson County Line	34	$ 11,424,000	$ 1,020,000	$ 1,020,000	$ 1,360,000	$ 2,040,000	**$ 16,864,000**
29	Build 2 new lanes in Asphalt	Texas 349	Lubbock	Martin/Dawson County Line	FM 2052	13	$ 598,000	$ 4,290,000	$ 390,000	$ 390,000	$ 552,500	**$ 6,220,500**
30	Build 2 new lanes in Asphalt	FM 2052	Lubbock	Texas 349	US 87	2	$ 92,000	$ 660,000	$ 60,000	$ 60,000	$ 85,000	**$ 957,000**
31	Existing 4 lane divided highway	US 87	Lubbock	Texas 349	Lamesa Relief Route	3	$ 1,953,000	$ 127,500	$ 187,500	$ 1,927,500	$ 127,500	**$ 4,323,000**
32	Existing 4 lane divided highway	US 87	Lubbock	Lamesa Relief Route	Dawson/Lynn County Line	14	$ 9,114,000	$ 595,000	$ 875,000	$ 8,995,000	$ 595,000	**$ 20,174,000**
33	Existing 4 lane divided highway	US 87	Lubbock	Dawson/Lynn County Line	Lynn/Lubbock County Line	32	$ 20,832,000	$ 1,360,000	$ 2,000,000	$ 20,560,000	$ 1,360,000	**$ 46,112,000**
34	Existing 4 lane divided highway	US 87	Lubbock	Lynn/Lubbock County Line	I 27	10	$ 710,000	$ 6,425,000	$ 425,000	$ 625,000	$ 6,425,000	**$ 14,610,000**
35	Existing 4 land divided Interstate	I 27	Lubbock	US 87	Lubbock/Hale County Line	24	$ 15,624,000	$ 1,020,000	$ 1,500,000	$ 15,420,000	$ 1,020,000	**$ 34,584,000**
36	Existing 4 land divided Interstate	I 27	Lubbock	Lubbock/Hale County Line	Hale/Swisher County Line	38	$ 24,738,000	$ 1,615,000	$ 2,375,000	$ 24,415,000	$ 1,615,000	**$ 54,758,000**
37	Existing 4 land divided Interstate	I 27	Lubbock	Hale/Swisher County Line	Swisher/Randall County Line	33	$ 21,483,000	$ 1,402,500	$ 2,062,500	$ 21,202,500	$ 1,402,500	**$ 47,553,000**
38	Existing 4 land divided Interstate	I 27	Amarillo	Swisher/Randall County Line	Randall/Potter County Line	34	$ 22,134,000	$ 1,445,000	$ 2,125,000	$ 21,845,000	$ 1,445,000	**$ 48,994,000**
39	Existing 4 land divided Interstate	I 27	Amarillo	Randall/Potter County Line	I 40	1	$ 651,000	$ 42,500	$ 62,500	$ 642,500	$ 42,500	**$ 1,441,000**
40	Existing 4 lane divided highway	US 87	Amarillo	I 40	Potter/Moore County Line	33	$ 1,683,000	$ 2,062,500	$ 21,202,500	$ 1,402,500	$ 2,062,500	**$ 28,413,000**
41	Existing 4 lane divided highway	US 87	Amarillo	Potter/Moore County Line	Dumas Relief Route	16	$ 816,000	$ 1,000,000	$ 10,280,000	$ 680,000	$ 1,000,000	**$ 13,776,000**
42	Existing 4 lane divided highway	US 287	Amarillo	Dumas Relief Route	Moore/Sherman County Line	12	$ 852,000	$ 7,710,000	$ 510,000	$ 750,000	$ 7,710,000	**$ 17,532,000**
43	Existing 4 lane divided highway	US 287	Amarillo	Moore/Sherman County Line	Stratford	21	$ 13,671,000	$ 892,500	$ 1,312,500	$ 13,492,500	$ 892,500	**$ 30,261,000**
44	Build 2 new lanes in Asphalt	US 287	Amarillo	Stratford	Sherman/Dallam County Line	9	$ 414,000	$ 270,000	$ 382,500	$ 562,500	$ 5,782,500	**$ 7,411,500**
45	Build 2 new lanes in Asphalt	US 287	Amarillo	Sherman/Dallam County Line	Ok/Tx Border	7	$ 252,000	$ 297,500	$ 437,500	$ 4,497,500	$ 297,500	**$ 5,782,000**
46	Build 2 new lanes in Asphalt	US 287	Oklahoma	Ok/Tx Border	Boise City Relief Route	21	$ 667,800	$ 556,500	$ 672,000	$ 1,092,000	$ 13,272,000	**$ 16,260,300**

Exhibit 4.1-6 Total Maintenance Costs on Improved System (continued)

TOTAL ROUTINE AND PREVENTIVE COSTS
(Improved System)

							COST/TIMESPAN					
Section	Description	Roadway	District	From	To	Length	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	**TOTAL PER SECTION**
47	Build 2 new lanes in Asphalt	US 287	Oklahoma	Boise City Relief Route	Ok/Co Border	19	$ 604,200	$ 608,000	$ 988,000	$ 12,008,000	$ 608,000	**$ 14,816,200**
48	Build 2 new lanes in Concrete	US 287	Colorado	Ok/Co Border	Springfield	32	$ 1,017,600	$ 848,000	$ 10,448,000	$ 848,000	$ 1,024,000	**$ 14,185,600**
49	Build 2 new lanes in Concrete	US 287	Colorado	Springfield	Baca/Prowers County Line	18	$ 572,400	$ 477,000	$ 5,877,000	$ 477,000	$ 576,000	**$ 7,979,400**
50	Build 2 new lanes in Concrete	US 287	Colorado	Baca/Prowers County Line	Lamar Relief Route	28	$ 890,400	$ 742,000	$ 9,296,000	$ 896,000	$ 9,296,000	**$ 21,120,400**
51	Build 2 new lanes in Concrete	US 287	Colorado	Lamar Relief Route	Prowers/Kiowa County Line	16	$ 508,800	$ 512,000	$ 512,000	$ 10,112,000	$ 512,000	**$ 12,156,800**
52	Build 2 new lanes in Concrete	US 287	Colorado	Prowers/Kiowa County Line	Eads	19	$ 604,200	$ 503,500	$ 6,203,500	$ 608,000	$ 988,000	**$ 8,907,200**
53	Build 2 new lanes in Concrete	US 287	Colorado	Eads	Kiowa/Cheyenne County Line	10	$ 318,000	$ 265,000	$ 3,265,000	$ 320,000	$ 420,000	**$ 4,588,000**
54	Build 2 new lanes in Concrete	US 287	Colorado	Kiowa/Cheyenne County Line	Kit Carson	12	$ 381,600	$ 318,000	$ 3,918,000	$ 384,000	$ 504,000	**$ 5,505,600**
55	Build 2 new lanes in Concrete	US 40	Colorado	Kit Carson	Wild Horse	13	$ 543,400	$ 344,500	$ 416,000	$ 416,000	$ 8,216,000	**$ 9,935,900**
56	Build 2 new lanes in Concrete	US 40	Colorado	Wild Horse	Cheyenne/Lincoln County Line	10	$ 318,000	$ 265,000	$ 3,320,000	$ 320,000	$ 3,320,000	**$ 7,543,000**
57	Build 2 new lanes in Concrete	US 40	Colorado	Cheyenne/Lincoln County Line	Hugo	23	$ 731,400	$ 736,000	$ 736,000	$ 14,536,000	$ 736,000	**$ 17,475,400**
58	Build 2 new lanes in Concrete	US 40	Colorado	Hugo	Limon	16	$ 508,800	$ 424,000	$ 5,312,000	$ 512,000	$ 5,312,000	**$ 12,068,800**
59	Existing 4 land divided Interstate	I 70	Colorado	Limon	Lincoln/Elbert County Line	4	$ 153,600	$ 2,528,000	$ 128,000	$ 208,000	$ 2,528,000	**$ 5,545,600**
60	Existing 4 land divided Interstate	I 70	Colorado	Lincoln/Elbert County Line	Elbert/Arapahoe County Line	27	$ 1,036,800	$ 17,064,000	$ 864,000	$ 1,404,000	$ 17,064,000	**$ 37,432,800**
61	Existing 4 land divided Interstate	I 70	Colorado	Elbert/Arapahoe County Line	Denver	56	$ 2,150,400	$ 35,392,000	$ 1,792,000	$ 2,912,000	$ 35,392,000	**$ 77,638,400**
62	Build 2 new lanes in Asphalt	US 87	Amarillo	Dumas	Moore/Hartley County Line	9	$ 324,000	$ 382,500	$ 562,500	$ 5,782,500	$ 382,500	**$ 7,434,000**
63	Build 2 new lanes in Asphalt	US 87	Amarillo	Moore/Hartley County Line	Hartley/Interchange with US 385	12	$ 432,000	$ 510,000	$ 750,000	$ 7,710,000	$ 510,000	**$ 9,912,000**
64	Existing 4 lane divided highway	US 87	Amarillo	Hartley/Interchange with US 385	Dalhart Relief Route	15	$ 9,765,000	$ 637,500	$ 937,500	$ 9,637,500	$ 637,500	**$ 21,615,000**
65	Build 2 new lanes in Asphalt	US 87	Amarillo	Dalhart Relief Route	Tx/NM Border	35	$ 1,260,000	$ 1,487,500	$ 2,187,500	$ 22,487,500	$ 1,487,500	**$ 28,910,000**
66	Build 2 new lanes in Asphalt	US 64	New Mexico	Tx/NM Border	Capulin	53	$ 1,908,000	$ 2,252,500	$ 3,312,500	$ 34,052,500	$ 2,252,500	**$ 43,778,000**
67	Build 2 new lanes in Asphalt	US 64	New Mexico	Capulin	Union/Colfax County Line	1	$ 36,000	$ 42,500	$ 62,500	$ 642,500	$ 42,500	**$ 826,000**
68	Build 2 new lanes in Asphalt	US 64	New Mexico	Union/Colfax County Line	Raton/I-25	26	$ 936,000	$ 780,000	$ 1,105,000	$ 1,625,000	$ 16,705,000	**$ 21,151,000**
69	Carrizo Springs	On-Existing Bus. Route	Laredo	South of Asherton	North of Carrizo Springs	8.6	$ 531,480	$ 614,900	$ 5,602,900	$ 442,900	$ 614,900	**$ 7,807,080**

Exhibit 4.1-6 Total Maintenance Costs on Improved System (continued)

TOTAL ROUTINE AND PREVENTIVE COSTS

(Improved System)

							COST/TIMESPAN					
Section	Description	Roadway	District	From	To	Length	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	TOTAL PER SECTION
70	Eagle Pass	On-Existing Bus. Route	Laredo	Eagle Pass International Bridge	US 277 East of Eagle Pass	9.3	$ 574,740	$ 664,950	$ 6,058,950	$ 478,950	$ 664,950	**$ 8,442,540**
71	Eagle Pass	On-Existing Bus. Route	Laredo	US 277 East of Eagle Pass	US 277 North of Eagle Pass	8.4	$ 519,120	$ 600,600	$ 5,472,600	$ 432,600	$ 600,600	**$ 7,625,520**
72	Del Rio	On-Existing Bus. Route	Laredo	US 277 East of Del Rio	US 277 North of Del Rio	12	$ 741,600	$ 858,000	$ 7,818,000	$ 618,000	$ 858,000	**$ 10,893,600**
73	Sonora	On-Existing Bus. Route	San Angelo	US 277 South of Sonora	US 277 North of Sonora	4.8	$ 316,800	$ 360,000	$ 3,144,000	$ 264,000	$ 360,000	**$ 4,444,800**
74	San Angelo	On-Existing Bus. Route	San Angelo	US 277 South of San Angelo	US 87 North of San Angelo	21.3	$ 1,405,800	$ 1,597,500	$ 13,951,500	$ 1,171,500	$ 1,597,500	**$ 19,723,800**
75	Big Spring	On-Existing Bus. Route	Abilene	US 87 South of Big Spring	US 87 North of Big Spring	13	$ 624,000	$ 780,000	$ 8,320,000	$ 520,000	$ 780,000	**$ 11,024,000**
76	Lamesa	On-Existing Bus. Route	Lubbock	US 87 South of Lamesa	US 87 North of Lamesa	5.8	$ 295,800	$ 362,500	$ 3,726,500	$ 246,500	$ 362,500	**$ 4,993,800**
77	Dumas	On-Existing Bus. Route	Lubbock	US 287 South of Dumas	US 287 North of Dumas	5	$ 255,000	$ 312,500	$ 3,212,500	$ 212,500	$ 312,500	**$ 4,305,000**
78	Boise City	On-Existing Bus. Route	Oklahoma	US 287 South of Boise City	US 287 North of Boise City	3.5	$ 134,400	$ 182,000	$ 2,212,000	$ 112,000	$ 182,000	**$ 2,822,400**
79	Lamar	On-Existing Bus. Route	Colorado	US 287 South of Lamar	US 50 North of Lamar	9	$ 345,600	$ 468,000	$ 5,688,000	$ 288,000	$ 468,000	**$ 7,257,600**
80	Stratford	On-Existing Bus. Route	Amarillo	US 287 South of Stratford	US 287 North of Stratford	5.2	$ 265,200	$ 325,000	$ 3,341,000	$ 221,000	$ 325,000	**$ 4,477,200**
81	Midland	On-Existing Bus. Route	Odessa	I 20 on West	Texas 349 on North	21	$ 1,008,000	$ 1,260,000	$ 13,440,000	$ 840,000	$ 1,260,000	**$ 17,808,000**
82	Clayton	On-Existing Bus. Route	New Mexico	US 87 East of Clayton	US 64 West of Clayton	3.8	$ 193,800	$ 237,500	$ 2,441,500	$ 161,500	$ 237,500	**$ 3,271,800**
83	Dalhart	On-Existing Bus. Route	Amarillo	US 87 South of Dalhart	US 87 North of Dalhart	6.6	$ 336,600	$ 412,500	$ 4,240,500	$ 280,500	$ 412,500	**$ 5,682,600**
84	Build 4 lane median separated in asphalt	Carrizo Springs Relief Route	Laredo	South of Asherton	North of Carrizo Springs	8.6	$ -	$ -	$ -	$ 442,900	$ 614,900	**$ 1,057,800**
85	Build 4 lane median separated in asphalt	Eagle Pass Relief Route	Laredo	Eagle Pass International Bridge	US 277 East of Eagle Pass	9.3	$ -	$ -	$ 360,375	$ 453,375	$ 3,268,950	**$ 4,082,700**
86	Build 4 lane median separated in asphalt	Eagle Pass Relief Route	Laredo	US 277 East of Eagle Pass	US 277 North of Eagle Pass	8.4	$ -	$ -	$ 325,500	$ 409,500	$ 2,952,600	**$ 3,687,600**
87	Build 4 lane median separated in asphalt	Del Rio Relief Route	Laredo	US 277 East of Del Rio	US 277 North of Del Rio	12	$ -	$ 465,000	$ 585,000	$ 4,218,000	$ 738,000	**$ 6,006,000**
88	Build 4 lane median separated in asphalt	Sonora Relief Route	San Angelo	US 277 South of Sonora	US 277 North of Sonora	4.8	$ -	$ -	$ -	$ 160,800	$ 312,000	**$ 472,800**
89	Build 4 lane median separated in asphalt	San Angelo Relief Route	San Angelo	US 277 South of San Angelo	US 87 North of San Angelo	21.3	$ -	$ -	$ 713,550	$ 1,384,500	$ 7,561,500	**$ 9,659,550**
90	Build 4 lane median separated in asphalt	Big Spring Relief Route	Abilene	US 87 South of Big Spring	US 87 North of Big Spring	13	$ -	$ -	$ 390,000	$ 520,000	$ 4,420,000	**$ 5,330,000**
91	Build 4 lane median separated in asphalt	Lamesa Relief Route	Lubbock	US 87 South of Lamesa	US 87 North of Lamesa	5.8	$ -	$ -	$ 174,000	$ 232,000	$ 1,986,500	**$ 2,392,500**

Exhibit 4.1-6 Total Maintenance Costs on Improved System (continued)

TOTAL ROUTINE AND PREVENTIVE COSTS
(Improved System)

							COST/TIMESPAN					
Section	Description	Roadway	District	From	To	Length	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	**TOTAL PER SECTION**
92	Build 4 lane median separated in asphalt	Dumas Relief Route	Lubbock	US 287 South of Dumas	US 287 North of Dumas	5	$ -	$ 212,500	$ 312,500	$ 3,212,500	$ 212,500	**$ 3,950,000**
93	Build 4 lane median separated in asphalt	Boise City Relief Route	Oklahoma	US 287 South of Boise City	US 287 North of Boise City	3.5	$ -	$ 112,000	$ 182,000	$ 2,212,000	$ 112,000	**$ 2,618,000**
94	Build 4 lane median separated in concrete	Lamar Relief Route	Colorado	US 287 South of Lamar	US 50 North of Lamar	9	$ -	$ 238,500	$ 238,500	$ 288,000	$ 2,988,000	**$ 3,753,000**
95	Build 4 lane median separated in asphalt	Stratford Relief Route	Amarillo	US 287 South of Stratford	US 287 North of Stratford	5.2	$ -	$ -	$ 221,000	$ 325,000	$ 3,341,000	**$ 3,887,000**
96	Build 4 lane median separated in asphalt	Midland Relief Route	Odessa	I 20 on West	Texas 349 on North	21	$ -	$ -	$ 840,000	$ 1,260,000	$ 13,440,000	**$ 15,540,000**
97	Build 4 lane median separated in asphalt	Clayton Relief Route	New Mexico	US 87 East of Clayton	US 64 West of Clayton	3.8	$ -	$ -	$ -	$ 114,000	$ 199,500	**$ 313,500**
98	Build 4 lane median separated in asphalt	Dalhart Relief Route	Amarillo	US 87 South of Dalhart	US 87 North of Dalhart	6.6	$ -	$ -	$ 280,500	$ 412,500	$ 4,240,500	**$ 4,933,500**
					TOTAL FOR TIMESPAN		**$ 209,092,840**	**$ 218,487,950**	**$ 246,956,375**	**$ 379,731,025**	**$ 335,000,650**	**$ 1,393,430,348**

Texas	$ 1,032,441,500
Oklahoma	$ 36,516,900
Colorado	$ 255,043,500
New Mexico	$ 69,428,600
Total	$ 1,393,430,500

This sheet intentionally left blank.

Benefit Cost
Supporting Technical Analysis

Table of Contents

5.0 Benefit Cost Analysis

This report develops a Benefit Cost Analysis of the Ports to Plains Corridor, which runs from the Texas/Mexico border at Laredo through western Texas and parts of Oklahoma and New Mexico to Denver, Colorado. The objective of this analysis is to help select efficient transportation improvement projects. Two Benefit Cost (B/C) ratios are developed for the Ports to Plains Corridor. The first ratio compares the value of transportation benefits to the cost of the project. The second ratio compares the value of expected economic development attributable to the project to the cost of the project. Both B/C ratios address the feasibility of candidate highway investments. A positive value on a B/C ratio above 1.0 indicates that a project returns $1 of transportation user benefits or economic development for every $1 or more of project cost. The B/C ratio can help rank elements of a project, which is useful for decisions on project staging. The ratio may also be used to compare projects; this may have implications for funding when decision makers review a menu of alternative investments.

Project Costs

The costs associated with this investment include both the capital expenditure to improve the road and the operations and maintenance spending that will occur once the road improvements are completed. These costs, expressed in millions of 2004 dollars, are summarized in Exhibit 5.0-1. The costs also are shown discounted at 7 percent following Office of Management and Budget (OMB) guideline for investment appraisal and 4.78 percent, which is the cost of capital to the states.

Exhibit 5.0-1: Ports to Plains Corridor Project Costs

	2004 Dollars	Discounted at 7 Percent	Discounted at 4.78 Percent
Colorado	$610.2	$303.1	$370.0
New Mexico	$173.7	$98.7	$115.5
Oklahoma	$177.0	$107.1	$123.4
Texas	$1,908.7	$929.6	$1,140.8
Corridor	$2,869.5	$1,438.5	$1,749.8

Transportation Benefit/Cost Analysis

The transportation user benefits will be realized as residents, tourists, and trucks travel the Corridor more efficiently and with greater safety. These user benefits include travel time savings, vehicle operating cost savings, and savings associated with increased safety; that is, crashes, including injuries and fatalities that are avoided.

Safety Benefits

The economic benefit associated with crash reduction is calculated using national costs per crash by type of crash.[1] Those costs include actual costs incurred, such as emergency and legal services, insurance costs, lost productivity, and travel delay for other motorists and also include a component to measure more intangible costs such as lost productivity and reduced quality of life resulting from injury.

The economic value of these safety benefits, summarized by Property Damage (PDO), Injury, and Fatality type is summarized in the Exhibit 5.0-2.

[1] Crash cost data were obtained from *The Economic Benefit of Motor Vehicle Crashes, 2000* published by the National Highway Transportation Safety Administration. For crashes with injuries, those data reported costs associated with six varying levels of injury severity. For simplicity, those costs were aggregated using a weighted average based on type of injury frequency. Cost data were adjusted to reflect 2004 dollars.

Exhibit 5.0-2: Benefits from Crash Reduction: 2011 to 2030

	Crash Reduction	Benefits in Millions of 2004 Dollars	Benefits (Millions of 2004 $ @ 7%)
PDO	3,296	$13.1	$3.90
Injury	1,369	$81.7	$24.50
Fatality	70	$286.5	$85.90
Total	4,735	$381.2	$114.30

The total benefit is $381.2 million for crashes that are avoided, in 2004 dollars. Discounting that benefit by 7 percent and 4.78 percent results in benefits of $114.3 million and $163.6 million respectively. These are recurring benefits.

Travel Time Savings

The benefits of travel time savings were estimated using estimated savings in vehicle hours traveled predicted by the traffic model and the value of time saved. Travel time savings is estimated for auto and trucks.

Between 2011 and 2030, the total auto travel time savings benefit generated by improving the transportation infrastructure is estimated to be $273.7 million in 2004 dollars.
The discounted benefit associated with the reduction in auto travel times in the project Corridor is expected to be $76.5 million and $112.2 million, using a 7.0 and 4.78 percent discount rate respectively.

Between 2011 and 2030, the total truck travel time savings benefit generated by improving the transportation infrastructure are estimated to be $268.2 million in 2004 dollars. The discounted benefit associated with the reduction in truck travel times in the project Corridor is expected to be $75.0 million and $109.9 million, using a 7.0 and 4.78 percent discount rate respectively.

Vehicle Operations Costs Savings

The value of reduced vehicle operation in 2030 was calculated by multiplying the per mile costs for trucks and autos to the estimated daily VMT savings provided by the travel demand forecasting model developed for the Ports to Plains Corridor by the project team.

Between 2011 and 2030, the total auto operations costs savings benefit generated by improving the transportation infrastructure in the Ports to Plains Corridor is estimated to be $-49.1 million in 2004 dollars. The discounted benefit associated with the reduction in auto travel times in the project Corridor is expected to be $-13.7 million and $-20.1 million, using a 7.0 and 4.78 percent discount rate respectively.

Between 2011 and 2030, the total truck operations costs savings benefit generated by improving the transportation infrastructure in the Ports to Plains Corridor is estimated to be $38.0 million in 2004 dollars. The discounted benefit associated with the reduction in truck travel times in the project Corridor is expected to be $10.6 million and $15.6 million, using a 7.0 and 4.78 percent discount rate respectively.

Exhibit 5.0-3 presents a summary the transportation benefits to users of the improved Ports to Plains Corridor. The benefits are expressed in millions of 2004 dollars at a 7 percent discount rate. The figures reflect the sum of benefits from 2011 to 2030.

Exhibit 5.0-3: Summary of Transportation User Benefits (Millions of 2004 Dollars Discounted at 7 Percent)

User Benefit	Benefits in Millions of 2004 Dollars	Benefits (Millions of 2004 $ @ 7%)
Safety	$381.2	$114.3
Travel Time (auto and truck)	$541.9	$151.5
Vehicle Operation Cost	-$11.1	-$3.1
Total	$912.0	$262.7

Comparing the total of discounted benefits in Exhibit 5.0-3 to the project costs yields a Benefit Cost Ratio of 0.18. The conclusion, based on this ratio, is that the project is not justified on AASHTO Red Book used criteria to evaluate highway investments. Of note, however, AASHTO criteria for Benefit Cost analysis do NOT address economic benefits associated with highway improvements. Such benefits may be a major part of the underlying motivation for the project. This is the case for the Ports to Plains Corridor. Therefore the analysis shifts focus to consider the economic benefits projected to occur if the Corridor improvements are made.

The economic benefits analyzed include construction benefits, roadside services benefits, increased manufacturing and distribution benefits, tourism benefits from increased Winter Texans, and the fiscal benefits attributable to the expansion of this economic base.

Construction Benefits: These are one-time benefits that stem from the construction work needed to improve the existing road.

Roadside Service Benefits: The improved road will attract more travelers, increasing the spending at roadside establishments. The roadside service benefits analysis examines the hiring and associated wage and salary gains generated to meet this increased demand.

Manufacturing and Distribution Benefits: Given its southern terminus at the Port of Laredo, Texas and the Corridor's significance as an international trade route, much of the economic development potential of the Corridor stems from economic activity related to NAFTA trade, namely manufacturing and distribution activities. This analysis projects the potential growth in these industries that would occur if development unfolds as it has along other more established NAFTA trade routes in the region.

Tourism: Seasonal migration in winter is a growth industry in southern Texas and the Corridor lies along a feasible route for travelers from the Western U.S. The improved road opens up access to this travel market, permitting Ports to Plains communities to compete for a small share of this rapidly growing market. The expenditures made by these travelers generate demand in the local economy for food, entertainment, health and travel services.

Fiscal Benefits: The expansion of payrolls and commercial development described above increases the tax base of Corridor communities.

Estimation Methodology

The Bureau of Economic Analysis (BEA) has developed a method for estimating economic multipliers called its Regional Industrial Multiplier System (RIMS). Updated and improved over time, the current version of these multipliers is known as the RIMS II multipliers. RIMS II multipliers are used extensively in the public and private sectors for economic benefit analysis.

The RIMS II multipliers used in this study represent the most recent available at the time of the study. The multipliers were customized by BEA to reflect the unique industrial structure of the Ports to Plains Corridor economy. The RIMS II model is expenditure driven and translates capital investment and

related operational spending into economic outcomes measured in terms of earnings multipliers (earning incomes) and employment multipliers (full-time equivalent jobs).
The economic benefits described above represent a broadening and deepening of the Corridor economy—an expansion of the local tax base.

This analysis considered direct and indirect benefits (multiplier effects) through 2030. All measures are stated in year 2004 dollars (no escalation of benefits). Benefits are stated through the horizon year (2030) and as net present value (NPV). NPV is derived using alternative discount rates including 7.0 percent following OMB guidelines reflecting cost of capital displaced from the private sector and 4.78 percent, which is the latest state and local bond rate.

Construction Benefits

The initial benefits of the Ports to Plains investment are generated by the direct expenditures associated with building the relief routes and expanding the existing 2-lane highway. This construction spending increases the employment, earnings and output for Corridor communities for the duration of the construction process as construction firms expand payrolls and purchase materials. The hiring associated with the project represents the **direct** effects of the Corridor construction investment.

The earnings of these newly-hired construction workers will translate into a proportional increase in consumer demand as these workers purchase goods and services in the region. These purchases in turn generate additional jobs across a variety of industrial sectors and occupational categories as employers hire to meet this increase in local consumer demand. This latter hiring represents the **indirect** effect of the project. These are one-time benefits that only last for the duration of the construction cycle.

For construction workers and residents in the states along the project Corridor over the 2006 to 2030 period, expenditures associated with construction activities are expected to produce in both direct and indirect effects a maximum of 1,365 jobs and $931.1 million in earnings, in 2004 dollars throughout the Corridor states. Discounting those earnings by 7 and 4.78 percent respectively, the construction benefit would equal $448.3 million and $553.8 million, respectively.

Other Benefits - Roadside Services

Once completed, the improved Ports to Plains Corridor is expected to divert some traffic away from the existing and heavily-traveled Interstate routes. This increase in traffic translates into increases in spending on food, gasoline, lodging, and other retail along the Corridor. Therefore, there will be an expansion of commercial activity to meet this increase in demand.

Between 2006 and 2030, the expansion of commercial activities serving Corridor travelers is expected to generate approximately 2,031 jobs and about $722.4 million in earnings in 2004 dollars throughout the Corridor states. Discounting that benefit by 7 and 4.78 percent results in a benefit of $215.6 million and $309.1 million, respectively. These are recurring benefits.

Manufacturing and Distribution

The Ports to Plains Corridor is a North American Free Trade Agreement (NAFTA) trade Corridor. Given its southern terminus at the Port of Laredo, Texas, much of the economic development potential of the Corridor stems from economic activity related to NAFTA trade.

This improved alternative link increases the likelihood that distribution and other trade-related firms can locate in Corridor communities and enjoy the lower business costs of a non-metro Corridor location but with reliable access to Mexico and the larger metro areas within the Southwest U.S.

Between 2006 and 2030, the potential expansion of manufacturing and distribution activities in the Corridor would generate approximately 39,636 jobs and about $16.1 billion in earnings in 2004 dollars

throughout the Corridor states. Discounting that benefit by 7 and 4.78 percent results in benefits of $4.26 billion and $6.34 billion, respectively. These are recurring benefits.

Winter Texans and Other Seasonal Retiree Migrants

Recreational vehicle (RV) tourism and winter migration is on the rise in the U.S. given the growing numbers of retirees. These seasonal tourists, largely RV travelers and other longer stay visitors, pass through the Corridor on their way to southern Texas.

Although southern Texas is the primary destination for winter seasonal travel, these visitors would be expected to make expenditures as they stop along the Corridor on their way to their seasonal destination. In addition, as southern Texas is increasingly developed and built up, the improved road opens up opportunities in the less developed Corridor communities to capture a small part of this market and develop its own tourism industry over time.

The potential expansion of a tourism industry in the Corridor would generate 280 jobs and $82.6 million in earnings in 2004 dollars throughout the Corridor states. Discounting that benefit by 7 and 4.78 percent results in benefits of $27.0 million and $37.4 million, respectively. These are recurring benefits.

Fiscal Benefits

The expansion of payrolls and commercial development described above increases the tax base of Corridor communities. Retail tax receipts, lodging taxes, and taxable property will increase as new distribution, manufacturing, tourism, and roadside service jobs are created and as visitors come through the Corridor. These revenues stay in the communities and help local governments provide services such as schools, parks, and other public services.

Tax revenue gains vary by state according to the type of taxes and rates levied. Between 2006 and 2030, tax gains for state and local governments are estimated to be $742.0 million in 2004 dollars throughout the Corridor states. Those revenues, when discounted by 7.0 percent factor, would equal $211.3 million and when discounted by a 4.78 percent factor, would equal $306.8 million. Those are recurring benefits.

Summary

The Ports to Plains Corridor does not meet the project feasibility test based on transportation benefits and costs alone. The project is motivated more by the economic development prospects that it affords than by transportation benefits. The economic analysis has identified four potential sources of economic benefits as presented in Exhibit 5.0-4. If all sources came to fruition, the total economic benefits measured by income to residents would exceed the project cost by a ratio of 3.15.

The results provided in this brief executive summary are presented in more detail in the following sections.

Exhibit 5.0-4: Summary of Economic Development Benefits (Millions of 2004 Dollars Discounted at 7 Percent)

Benefit	Colorado	New Mexico	Oklahoma	Texas	Total
Construction	$7.72	$1.20	$1.97	$16.93	$27.81
Roadside Services	$55.65	-$9.54	$18.01	$151.42	$215.55
Manufacturing and Distribution	$2,265.31	$6.88	$1.50	$1,984.08	$4,257.77
Winter Texans	na	na	na	$27.00	$27.00
Total	$2,328.68	-$1.46	$21.48	$2,179.43	$4,528.13

Note: Fiscal benefits were not included because those benefits do not represent new economic activity. Only the portion of construction activity that would be new to each state along the project Corridor was included.

5.1 Scope of User, Economic, and Fiscal Benefits

This section describes the user, economic, and fiscal benefits associated with improved transportation infrastructure in the Ports to Plains Corridor. This section describes benefits that accrue through the Corridor's construction, its use, and the estimated economic development associated with that Corridor. The benefits analyzed in this section include construction benefits, user benefits, roadside services benefits, increased manufacturing and distribution employment, increased Winter Texans visitations, and fiscal benefits. Each of these benefits is described in more detail below.

Where applicable, the employment and earnings associated with each benefit are reported. Employment and earnings benefits are reported for each state along the project Corridor and for the project Corridor in total for the 2006 to 2030 period. When measuring future earnings benefits, it is necessary to discount those benefits to better represent their present value. Therefore, for each benefit, the value of earnings is discounted using a 7 percent factor, as recommended by the Office of Management and Budget (OMB) and a 4.78 percent factor, the most recent rate reported for state and local bonds.[2] The latter measure is included because it may better approximate the cost of capital for the state transportation agencies investing in the Ports to Plains Corridor.

Construction Benefits

The initial benefits of the Ports to Plains investment are generated by the direct expenditures associated with constructing the relief routes and expanding the existing 2-lane highway. This construction spending increases the employment, earnings and output for Corridor communities for the duration of the construction process as construction firms expand payrolls and purchase materials. The hiring associated with the project represents the **direct** effects of the Corridor construction investment.

The earnings of these newly-hired construction workers will translate into a proportional increase in consumer demand as these workers purchase goods and services in the region. These purchases in turn generate additional jobs across a variety of industrial sectors and occupational categories as employers hire to meet this increase in local consumer demand. This latter hiring represents the **indirect** effect of the project.[3]

These are one-time benefits that only last for the duration of the construction cycle.

For construction workers and residents in the states along the project Corridor over the 2006 to 2030 period, expenditures associated with construction activities are expected to produce in both direct and indirect effects a maximum of an estimated 1,365 jobs and $931.1 million in earnings, in 2004 dollars.

[2] The reported rate was obtained from the U.S. Federal Reserve and was reported for August 6, 2004 for 20-year maturity mixed quality state and local general obligation bonds.
[3] The occurrence of increased employment and earnings generated from an initial round of increased employment or expenditures is referred to as a multiplier effect and is estimated using RIMS II multipliers from BEA. Those multipliers calculate the resulting employment and earnings generated by all subsequent rounds of spending resulting from the initial increase in employment or expenditures.

Discounting those earnings by 7 and 4.78 percent respectively, the construction benefit would equal $448.3 million and $553.8 million, respectively.[4]

User Benefits

Once the Corridor is built, the user benefits can be realized as residents, tourists, and trucks travel the Corridor more efficiently and with greater safety. These user benefits include travel time savings, vehicle operating cost savings, and savings associated with increased safety; that is, crashes, including injuries and fatalities that are avoided.

Over the 2006 to 2030 period, the economic value of time saving benefits for automobiles associated with the Corridor's improvements is estimated to be $273.7 million. Discounting that benefit by 7.0 and 4.78 percent results in benefits of $76.5 million and $112.2 million, respectively.

Over the 2006 to 2030 period, the economic value of time saving benefits for trucks associated with the Corridor's improvements is estimated to be $268.2 million. Discounting that benefit by 7.0 and 4.78 percent results in benefits of $75.0 million and $109.9 million, respectively.

For auto operating cost benefits, the economic value of user benefits is $-49.1 million. Discounting that benefit by 7.0 and 4.78 percent results in benefits of $-13.7 million and $-20.1 million, respectively.

For truck operating cost benefits, the economic value of user benefits is $38.0 million. Discounting that benefit by 7.0 and 4.78 percent results in benefits of $10.6 million and $15.6 million, respectively

For safety benefits, the economic value of user benefits is $381.2 million for the cost of crashes that are avoided, in 2004 dollars. Discounting that benefit by 7 and 4.78 percent results in benefits of $114.3 million and $163.6 million, respectively. These are recurring benefits.

Other Benefits - Roadside Services

Once completed, the improved Ports to Plains Corridor is expected to divert some traffic away from existing and heavily-traveled Interstate routes. This increase in traffic translates into increases in spending on food, gasoline, lodging, and other retail along the Corridor. Therefore, there will be an expansion of commercial activity to meet this increase in demand.

Between 2006 and 2030, the expansion of commercial activities serving Corridor travelers is expected to generate an estimated 2,031 jobs and $722.4 million in earnings, in 2004 dollars. Discounting that benefit by 7 and 4.78 percent results in a benefit of $215.6 million and $309.1 million, respectively. These are recurring benefits.

Manufacturing and Distribution

The Ports to Plains Corridor is a North American Free Trade Agreement (NAFTA) trade Corridor. Given its southern terminus at the Port of Laredo, Texas, much of the economic development potential of the Corridor stems from economic activity related to NAFTA trade. The improved highway will offer a reliable and less congested link with Mexico.

This improved alternative link increases the likelihood that distribution and other trade-related firms can locate in Corridor communities and enjoy the lower business costs of that location but with reliable access to Mexico and the larger metro areas within the Southwest U.S.

Between 2006 and 2030, the potential expansion of manufacturing and distribution activities in the Corridor would generate an estimated 39,636 jobs and $16.1 billion in earnings, in 2004 dollars.

[4] Because operating and maintenance expenditures do not represent new revenues in the area, this section does not analyze the economic benefits associated with those expenditures.

Discounting that benefit by 7 and 4.78 percent results in benefits of $4.26 billion and $6.34 billion, respectively. These are recurring benefits.

Winter Texans and Other Seasonal Retiree Migrants

Recreational vehicle (RV) tourism and winter seasonal migration is on the rise in the U.S. given the growing numbers of retirees. RV travelers to the southern Texas pass through the Corridor on their way to New Mexico's mountains and especially to southern Texas.

Some of these travelers may use the Ports to Plains Corridor as an alternative to interstate driving. Some can be attracted to the route through marketing. Although southern Texas is the primary destination for winter seasonal travel, these visitors would be expected to make expenditures as they stop along the Corridor on their way to their seasonal destination.

By 2030, the potential expansion of activities in the Corridor would generate an estimated 280 jobs by 2030 and $82.6 million in earnings in 2004 dollars. Discounting that benefit by 7 and 4.78 percent results in benefits of $27.0 million and $37.4 million, respectively. These are recurring benefits.

Fiscal Benefits

The expansion of payrolls and commercial development described above increases the tax base of Corridor communities. Retail sales taxes, hotel occupancy taxes, and taxable income will increase as new distribution, manufacturing, tourism, and roadside service jobs are created and as visitors come through the Corridor. These revenues stay in the communities and help local government provide services such as schools, parks, and other public services.

Tax revenue gains vary by state according to the type of taxes and rates levied. Between 2006 and 2030, tax gains for state and local governments are estimated to be $742.0 million in 2004 dollars. Those revenues, when discounted by 7.0 percent factor, would equal $211.3 million and when discounted by a 4.78 percent factor, would equal $306.8 million. Those are recurring benefits.

Broader Economic Benefits

Transportation systems are an important ingredient in the economic success of cities and regions. Dependable, efficient, and safe movement of people and goods is essential for an economy to operate.

The cumulative effect of expanding roadside commercial activity, of expanding NAFTA-related activity, and through supporting tourism activity in the Corridor is that the local communities of the Ports to Plains Corridor will be able to rely on a greater range of employers and types of jobs. That is, they will become more industrially diverse.

Industrial diversity benefits local economies in two ways. First, because there are more types of firms in the community, residents' economic fortunes are not tied to a single industry or employer. Workers have more opportunities from which to choose.

Industrial diversity also increases the variety of goods and services available to local residents, thereby improving the quality of life available to them in their home economies. Consumers have more local choices.

Transportation investment may simply make the community a more attractive place to live and work by enhancing the amenities available in the local economy.

5.2 Detailed Construction Benefits Associated with Improved Transportation in the Ports to Plains Corridor

This section describes how infrastructure spending for the Ports to Plains Corridor project will benefit the economies of the Corridor counties, and states. These economic benefits are generated directly from increased construction spending required to design and build the projects within the Corridor. As this initial flow of construction expenditures is re-spent throughout the larger economy, indirect economic benefits are also generated. These direct and indirect economic benefits are measured in terms of increased employment and earnings in the Ports to Plains Corridor counties and states.

This section estimates the economic benefits associated with the construction of the Ports to Plains Corridor improvements. The analysis begins with a description of the Ports to Plains Corridor construction expenditures, funding sources, and schedule. Then, the methodology for estimating the direct and indirect employment and earnings benefits using the Bureau of Economic Analysis' (BEA) Regional Input-Output Modeling System (RIMS II) multipliers is discussed. Lastly, the total economic benefits for the Ports to Plains Corridor counties and states are presented.

5.2.1 Description of the Ports to Plains Construction Expenditures, Funding Sources, and Schedule

The total construction costs associated with the Ports to Plains Corridor improvements are estimated to be $2.7 billion in 2004 dollars, excluding right-of-way costs and operating and maintenance costs[5]. The capital costs were developed by Corridor section and include utilities, civil construction, planning, design, construction management, administration, and environmental costs associated with the Corridor's capacity increase, relief route, railroad grade separation, ITS, and signage projects.

The construction of the Ports to Plains Corridor improvements will occur in four phases from 2006 through 2025; however, some additional ITS costs will be experienced through 2030. The costs are estimated by Corridor section, but for the purposes of this analysis, the annual construction costs have been summed by state. Exhibit 5.2-1 is a summary of the proposed total annual construction costs for each state, excluding right-of-way.

[5] The operating and maintenance costs are included in the total project cost discussed in other sections of the Corridor Management Plan; however, these costs are not included in this section. This section focuses solely on the construction benefits associated with the capital costs of the Corridor.

Exhibit 5.2-1: Annual Ports to Plains Corridor Construction Costs Excluding Right-of-Way (Millions of 2004 Dollars)

Year	Colorado	New Mexico	Oklahoma	Texas	Total
2006	$ 32.50	$ 16.07	$ 15.71	$ 102.88	**$ 167.16**
2007	$ 32.44	$ 16.06	$ 15.70	$ 102.69	**$ 166.89**
2008	$ 32.44	$ 16.06	$ 15.70	$ 102.69	**$ 166.89**
2009	$ 32.44	$ 16.06	$ 15.70	$ 102.69	**$ 166.89**
2010	$ 32.44	$ 16.06	$ 15.70	$ 102.69	**$ 166.89**
2011	$ 32.19	$ 10.18	$ 14.26	$ 77.34	**$ 133.97**
2012	$ 32.19	$ 10.18	$ 14.26	$ 77.34	**$ 133.97**
2013	$ 32.19	$ 10.18	$ 14.26	$ 77.34	**$ 133.97**
2014	$ 32.19	$ 10.18	$ 14.26	$ 77.34	**$ 133.97**
2015	$ 32.19	$ 10.18	$ 14.26	$ 77.34	**$ 133.97**
2016	$ 25.72	$ 2.11	$ 0.05	$ 94.60	**$ 122.47**
2017	$ 25.72	$ 2.11	$ 0.05	$ 94.60	**$ 122.47**
2018	$ 25.72	$ 2.11	$ 0.05	$ 94.60	**$ 122.47**
2019	$ 25.72	$ 2.11	$ 0.05	$ 94.60	**$ 122.47**
2020	$ 25.72	$ 2.11	$ 0.05	$ 94.60	**$ 122.47**
2021	$ 23.08	$ 1.99	$ 0.05	$ 89.96	**$ 115.08**
2022	$ 23.08	$ 1.99	$ 0.05	$ 89.96	**$ 115.08**
2023	$ 23.08	$ 1.99	$ 0.05	$ 89.96	**$ 115.08**
2024	$ 23.08	$ 1.99	$ 0.05	$ 89.96	**$ 115.08**
2025	$ 23.08	$ 1.99	$ 0.05	$ 89.96	**$ 115.08**
2026	$ 0.20	$ 0.09	$ 0.05	$ 0.93	**$ 1.27**
2027	$ 0.20	$ 0.09	$ 0.05	$ 0.93	**$ 1.27**
2028	$ 0.20	$ 0.09	$ 0.05	$ 0.93	**$ 1.27**
2029	$ 0.20	$ 0.09	$ 0.05	$ 0.93	**$ 1.27**
2030	$ 0.20	$ 0.09	$ 0.05	$ 0.93	**$ 1.27**
Total	**$ 568.21**	**$ 152.16**	**$ 150.53**	**$ 1,827.75**	**$ 2,698.65**

Source: DMJM+HARRIS and Turner Collie & Braden.
Note: Columns and rows may not sum to totals due to rounding.

It is important to note that some of the revenues listed in the exhibit above would be spent in that Corridor or in the respective state even without the Ports to Plains Project improvements occurring. In other words, while the these funds are expended in the Ports to Plains Corridor counties if that Corridor is constructed, some of the state and local sources of funds for the Corridor project could be used to fund other transportation improvements in these counties or in different parts of each state if the Ports to Plains Corridor project were not built.

Those funds that could be spent on other transportation improvements in the Corridor counties or in other parts of each state need to be recognized and eliminated from the economic benefit analysis because they do not represent "new" economic activity in the project Corridor. Exhibit 5.2-2 shows which of the Ports to Plains revenue sources are "new" or "existing" to distinguish between revenues that would not be used for other transportation projects in that area.

The revenue sources in the exhibit are evaluated from the perspective of both the Corridor counties and states because the local and state views on how a revenue source would be spent without the Ports to Plains Corridor project may be different. The revenue sources shown in the exhibit are the revenue sources utilized in the finance plan "Middle Scenario." The other two finance plan scenarios may include other revenue sources, but this analysis focuses only on the "Middle Scenario," or most likely scenario.

As seen in Exhibit 5.2-2, the Ports to Plains Corridor counties view the federal aid highway programs and earmarks, federal discretionary, toll credits, and private funding from the railroad funds and utility easements as "new" because these counties only would receive these funding sources if the Ports to Plains Corridor project is built. From the perspective of the Corridor counties, the only existing local funding sources are the Federal and State committed funds, state highway program, local match, and the bridge toll revenue sharing in Texas. This is because these funds would be spent on other transportation improvements in the counties and the local toll bridges in Texas if the Corridor project is not constructed.

Exhibit 5.2-2 also reveals that the Ports to Plains Corridor states view most of the capital revenue sources as "existing" because these revenues will be received by the Corridor states for transportation improvements even if the Ports to Plains Corridor is not built. From the perspective of the states, the only "new" revenue sources are the Federal discretionary funds, and the private funding from the railroad funds and utility easements because the receipt of these funds is contingent upon the construction of the Ports to Plains Corridor project.

Exhibit 5.2-3 provides a summary of the proposed annual Ports to Plains construction spending reflecting the "new" revenue sources for the Corridor counties. These data will be used to estimate the construction economic benefits for the Ports to Plains Corridor counties.

Exhibit 5.2-2: New and Existing Sources of Capital Funds for the Ports to Plains Corridor Project from the Perspective of the Corridor Counties and States

Sources of Funds	Corridor Counties	States
Federal Aid Highway Program and Earmarks		
Colorado	New	Existing
New Mexico	New	Existing
Oklahoma	New	Existing
Texas	New	Existing
Federal Discretionary Programs		
Colorado	New	New
New Mexico	New	New
Oklahoma	New	New
Texas	New	New
Federal Committed Funding		
Colorado	Existing	Existing
New Mexico	Existing	Existing
Oklahoma	Existing	Existing
Texas	Existing	Existing
State Highway Programs[6]		
Colorado	Existing	Existing
New Mexico	Existing	Existing
Oklahoma	Existing	Existing
Texas	Existing	Existing
State Committed Funding		
Colorado	Existing	Existing
New Mexico	Existing	Existing
Oklahoma	Existing	Existing
Texas[7]	Existing	Existing
Toll Credits		
Colorado	New	Existing
New Mexico	New	Existing
Oklahoma	New	Existing
Texas	New	Existing
Local Match		
Colorado	Existing	Existing
New Mexico	Existing	Existing
Oklahoma	Existing	Existing
Texas	Existing	Existing
Bridge Toll Revenue Sharing		
Colorado	None	None
New Mexico	None	None
Oklahoma	None	None
Texas	Existing	Existing
Railroad Funds--Private		
Colorado	New	New
New Mexico	New	New
Oklahoma	New	New
Texas	New	New
Utility Easements--Private		
Colorado	New	New
New Mexico	New	New
Oklahoma	New	New
Texas	New	New

Source: AECOM Consult, Inc.

[6] State Highway Programs are also the source of funds for the Ports to Plains Corridor operating costs. Since the State Highway Programs funds are existing revenues sources for both the Corridor counties and the states, the funds spent on capital as well as operating and maintenance expenditures do not generate any additional economic benefit to the Corridor counties or states. If the Ports to Plains Corridor is not built, these revenues would be spent on other capital and operating and maintenance expenditures in the Corridor region, which would generate similar economic benefits.

[7] All committed state funding from Texas comes from the trunk system. Additionally, state money that is not yet committed by Texas, and is included in the State Highways Programs funding source, may come from the Texas trunk system.

Exhibit 5.2-3: Annual Ports to Plains Corridor Construction Expenditures of "New" Revenue Sources for the Corridor Counties (Millions of 2004 Dollars)

Year	Colorado	New Mexico	Oklahoma	Texas	Total Corridor
2006	$ 23.40	$ 3.80	$ 8.40	$ 40.15	**$ 75.75**
2007	$ 23.36	$ 3.79	$ 8.40	$ 40.01	**$ 75.56**
2008	$ 23.36	$ 3.79	$ 8.40	$ 40.01	**$ 75.56**
2009	$ 23.36	$ 3.79	$ 8.40	$ 40.01	**$ 75.56**
2010	$ 23.36	$ 3.79	$ 8.40	$ 40.01	**$ 75.56**
2011	$ 23.18	$ 4.13	$ 10.27	$ 55.90	**$ 93.48**
2012	$ 23.18	$ 4.13	$ 10.27	$ 55.90	**$ 93.48**
2013	$ 23.18	$ 4.13	$ 10.27	$ 55.90	**$ 93.48**
2014	$ 23.18	$ 4.13	$ 10.27	$ 55.90	**$ 93.48**
2015	$ 23.18	$ 4.13	$ 10.27	$ 55.90	**$ 93.48**
2016	$ 18.90	$ 1.50	$ 0.03	$ 68.11	**$ 88.54**
2017	$ 18.90	$ 1.50	$ 0.03	$ 68.11	**$ 88.54**
2018	$ 18.90	$ 1.50	$ 0.03	$ 68.11	**$ 88.54**
2019	$ 18.90	$ 1.50	$ 0.03	$ 68.11	**$ 88.54**
2020	$ 18.90	$ 1.50	$ 0.03	$ 68.11	**$ 88.54**
2021	$ 17.00	$ 1.42	$ 0.03	$ 64.77	**$ 83.22**
2022	$ 17.00	$ 1.42	$ 0.03	$ 64.77	**$ 83.22**
2023	$ 17.00	$ 1.42	$ 0.03	$ 64.77	**$ 83.22**
2024	$ 17.00	$ 1.42	$ 0.03	$ 64.77	**$ 83.22**
2025	$ 17.00	$ 1.42	$ 0.03	$ 64.77	**$ 83.22**
2026	$ 0.15	$ 0.06	$ 0.03	$ 0.67	**$ 0.91**
2027	$ 0.15	$ 0.06	$ 0.03	$ 0.67	**$ 0.91**
2028	$ 0.15	$ 0.06	$ 0.03	$ 0.67	**$ 0.91**
2029	$ 0.15	$ 0.06	$ 0.03	$ 0.67	**$ 0.91**
2030	$ 0.15	$ 0.06	$ 0.03	$ 0.67	**$ 0.91**
Total	**$ 412.94**	**$ 54.51**	**$ 93.83**	**$ 1,147.46**	**$ 1,708.75**

Source: AECOM Consult, Inc.
Note: Columns and rows may not sum to totals due to rounding.

Exhibit 5.2-4 presents a summary of the annual Ports to Plains construction spending using the "new" sources for the Corridor states, which will be used to estimate the construction economic benefits for the Ports to Plains Corridor states.

Exhibit 5.2-4: Annual Ports to Plains Corridor Construction Expenditures of "New" Revenue Sources for the Corridor States (Millions of 2004 Dollars[8])

Year	Colorado	New Mexico	Oklahoma	Texas	Total
2006	$ 0.97	$ 0.26	$ 0.39	$ 2.25	**$ 3.88**
2007	$ 0.97	$ 0.26	$ 0.39	$ 2.25	**$ 3.87**
2008	$ 0.97	$ 0.26	$ 0.39	$ 2.25	**$ 3.87**
2009	$ 0.97	$ 0.26	$ 0.39	$ 2.25	**$ 3.87**
2010	$ 0.97	$ 0.26	$ 0.39	$ 2.25	**$ 3.87**
2011	$ 0.97	$ 0.22	$ 0.43	$ 2.54	**$ 4.15**
2012	$ 0.97	$ 0.22	$ 0.43	$ 2.54	**$ 4.15**
2013	$ 0.97	$ 0.22	$ 0.43	$ 2.54	**$ 4.15**
2014	$ 0.97	$ 0.22	$ 0.43	$ 2.54	**$ 4.15**
2015	$ 0.97	$ 0.22	$ 0.43	$ 2.54	**$ 4.15**
2016	$ 1.15	$ 0.06	$ 0.00	$ 2.84	**$ 4.06**
2017	$ 1.15	$ 0.06	$ 0.00	$ 2.84	**$ 4.06**
2018	$ 1.15	$ 0.06	$ 0.00	$ 2.84	**$ 4.06**
2019	$ 1.15	$ 0.06	$ 0.00	$ 2.84	**$ 4.06**
2020	$ 1.15	$ 0.06	$ 0.00	$ 2.84	**$ 4.06**
2021	$ 1.08	$ 0.06	$ 0.00	$ 2.70	**$ 3.84**
2022	$ 1.08	$ 0.06	$ 0.00	$ 2.70	**$ 3.84**
2023	$ 1.08	$ 0.06	$ 0.00	$ 2.70	**$ 3.84**
2024	$ 1.08	$ 0.06	$ 0.00	$ 2.70	**$ 3.84**
2025	$ 1.08	$ 0.06	$ 0.00	$ 2.70	**$ 3.84**
2026	$ 0.01	$ 0.00	$ 0.00	$ 0.03	**$ 0.04**
2027	$ 0.01	$ 0.00	$ 0.00	$ 0.03	**$ 0.04**
2028	$ 0.01	$ 0.00	$ 0.00	$ 0.03	**$ 0.04**
2029	$ 0.01	$ 0.00	$ 0.00	$ 0.03	**$ 0.04**
2030	$ 0.01	$ 0.00	$ 0.00	$ 0.03	**$ 0.04**
Total	**$ 20.87**	**$ 3.04**	**$ 4.10**	**$ 51.75**	**$ 79.76**

Source: AECOM Consult, Inc.
Note: Columns and rows may not sum to totals due to rounding.

The construction expenditures along the Ports to Plains Corridor shown in Exhibits 5.2-3 and 5.2-4 will result in direct and indirect employment and earnings benefits in the Corridor counties and states.

The direct employment and earnings are generated by the additional employees required to design and construct the transportation improvements in the Corridor. The indirect employment and earnings result from the increased demand for goods and services in other economic sectors such as retail and personal services.

The direct and indirect economic benefits will occur in the counties along the Corridor as well as areas beyond the Corridor.[9] Therefore, the total economic benefits include Corridor employment and earnings as well as the state employment and earnings.

[8] New revenue sources for counties of $1,708.75 million plus new revenues sources for states of $79.8 million do not sum to total project cost of $2,698.65 million because some revenues are considered existing for the states and counties along the project Corridor.
[9] The direct and indirect economic benefits will be experienced in counties along the project Corridor and will also be experienced in counties that are in Corridor states but are not along the Corridor. Those benefits differ and will be estimated separately in this analysis.

5.3 Economic Benefit Methodology

Determining the direct and indirect economic benefits the construction expenditures will have is conducted by using employment and earnings multipliers. These multipliers were obtained from RIMS II published by BEA. Using the RIMS II multipliers, the direct and indirect employment and earnings benefits are calculated for the counties along the project Corridor as well as the States of Colorado, New Mexico, Oklahoma, and Texas.

The RIMS II final demand multipliers used to estimate these employment and earnings benefits are displayed in Exhibit 5.3-1. The final demand multipliers for employment and earnings are multiplied by the total change in construction expenditures funded by "new" revenue sources in order to estimate the direct and indirect employment and earnings associated with the Ports to Plains Corridor project. It is important to note that the final demand employment multipliers represent the number of jobs created per $1 million of construction expenditures in 2001 dollars. Therefore, the construction expenditures shown in Exhibits 5.2-3 and 5.2-4 are deflated using the *Engineering News Record* Construction Cost Index for FY 2001 to FY 2004 when estimating the employment benefits.

Exhibit 5.3-1: RIMS II Final Demand Multipliers for 2001 for the Counties and States in the Ports to Plains Corridor

	Colorado[10]		New Mexico		Oklahoma		Texas	
	Corridor Counties	State	Corridor Counties	State	Corridor Counties	State	Corridor Counties	State
Construction								
Employment	8.8610	21.6083	19.4334	24.1907	18.0304	27.5307	18.8477	24.2486
Earnings	0.3222	0.7627	0.5319	0.6589	0.4847	0.7402	0.6306	0.6813
Professional, Scientific, and Technical Services								
Employment	7.2906	20.4221	18.4142	22.7366	19.8961	27.1117	16.2815	20.6686
Earnings	0.3076	0.8084	0.6299	0.7290	0.6083	0.7783	0.6813	0.8319

Source: Bureau of Economic Analysis, RIMS II.

The RIMS II final demand multipliers shown in Exhibit 5.3-1 include both construction and professional (which include scientific, and technical services) multipliers because the Ports to Plains Corridor would generate both construction employment as well as professional employment associated with planning, engineering, and construction management.

However, the earnings multipliers for professional employment, for the most part, are significantly higher than the corresponding construction multipliers, which will generate larger earnings benefit estimates in the benefit analysis. This discrepancy in the construction and professional, scientific, and technical services earnings multipliers is attributable to the large presence of the oil industry in these states.

Given that approximately 80 percent of the total Ports to Plains Corridor capital costs are construction expenditures and the construction multipliers will result in more conservative earnings estimates, the analysis only uses the construction multipliers to estimate the direct and indirect economic benefits associated with the design and construction of the Corridor.

5.4 Economic Benefits of the Construction Expenditures

The final demand multipliers shown in Exhibit 5.3-1 are multiplied by the changes in output, in this case the changes in construction expenditures funded by the Corridor counties' new revenue sources summarized in Exhibit 5.2-3, to estimate the total direct and indirect employment and earnings benefits

[10] Multipliers for the Colorado portion of the project Corridor are lower than those reported for other states because those multipliers only account for a portion of the Denver Metro Area. Economic benefits that occur in that area are diminished as that activity locates in other parts of that metro area.

in these counties. The construction economic benefits are presented in Exhibits 5.4-1 through 5.4-3. It is important to note that earnings are adjusted for inflation and presented in 2004 constant dollars. The earnings also are discounted further to reflect their present value.

When measuring future benefits, it is necessary to discount those benefits to better represent their present value. Therefore, the discounted value of the construction expenditure earnings is included in Exhibits 5.4-2 and 5.4-3 using discount rates of 7 percent and 4.78 percent.

Exhibit 5.4-1: Annual Corridor Employment Benefits from "New" Construction Expenditures for the Ports to Plains Corridor Counties

Year	Colorado	New Mexico	Oklahoma	Texas	Total
2006	186	66	136	677	**1,065**
2007	185	66	136	675	**1,062**
2008	185	66	136	675	**1,062**
2009	185	66	136	675	**1,062**
2010	185	66	136	675	**1,062**
2011	184	72	166	943	**1,365**
2012	184	72	166	943	**1,365**
2013	184	72	166	943	**1,365**
2014	184	72	166	943	**1,365**
2015	184	72	166	943	**1,365**
2016	150	26	1	1,149	**1,326**
2017	150	26	1	1,149	**1,326**
2018	150	26	1	1,149	**1,326**
2019	150	26	1	1,149	**1,326**
2020	150	26	1	1,149	**1,326**
2021	135	25	1	1,093	**1,253**
2022	135	25	1	1,093	**1,253**
2023	135	25	1	1,093	**1,253**
2024	135	25	1	1,093	**1,253**
2025	135	25	1	1,093	**1,253**
2026	1	1	1	11	**14**
2027	1	1	1	11	**14**
2028	1	1	1	11	**14**
2029	1	1	1	11	**14**
2030	1	1	1	11	**14**

Source: AECOM Consult, Inc.
Note: Rows may not sum to totals due to rounding.

The employment benefits generated by the Ports to Plains Corridor project are temporary, lasting only as long as the construction expenditures occur in the Corridor counties. After the Corridor construction is complete, the employment benefits disappear and no longer influence the Corridor economies. The new construction expenditures in the Ports to Plains Corridor counties result in maximum total employment gain of approximately 1,365 jobs in each year between 2011 and 2015. After 2025, the employment gains drops off dramatically because the Corridor construction is complete, except for a few remaining ITS projects.

Similarly, the earnings benefits generated by the Ports to Plains Corridor project also are temporary, lasting only as long as the construction expenditures occur in the Corridor counties. After the Corridor construction is complete, the earnings benefits disappear and no longer influence the Corridor economies.

Exhibit 5.4-2: Annual Corridor Earnings Benefits from "New" Construction Expenditures for the Ports to Plains Corridor Counties, (Millions of 2004 Dollars)

Year	Colorado			New Mexico			Oklahoma			Texas		
	Earn-ings	Discounted at 7%	Discounted at 4.78%	Earn-ings	Discounted at 7%	Discounted at 4.78%	Earn-ings	Discounted at 7%	Discounted at 4.78%	Earn-ings	Discounted at 7%	Discounted at 4.78%
2006	$7.54	$6.59	$6.87	$2.02	$1.77	$1.84	$4.07	$3.56	$3.71	$25.32	$22.12	$23.06
2007	$7.53	$6.14	$6.54	$2.02	$1.65	$1.75	$4.07	$3.32	$3.54	$25.23	$20.60	$21.93
2008	$7.53	$5.74	$6.24	$2.02	$1.54	$1.67	$4.07	$3.10	$3.38	$25.23	$19.25	$20.93
2009	$7.53	$5.37	$5.96	$2.02	$1.44	$1.60	$4.07	$2.90	$3.22	$25.23	$17.99	$19.98
2010	$7.53	$5.02	$5.69	$2.02	$1.34	$1.52	$4.07	$2.71	$3.08	$25.23	$16.81	$19.07
2011	$7.47	$4.65	$5.39	$2.20	$1.37	$1.59	$4.98	$3.10	$3.59	$35.25	$21.95	$25.42
2012	$7.47	$4.35	$5.14	$2.20	$1.28	$1.51	$4.98	$2.90	$3.43	$35.25	$20.52	$24.26
2013	$7.47	$4.06	$4.91	$2.20	$1.20	$1.44	$4.98	$2.71	$3.27	$35.25	$19.18	$23.16
2014	$7.47	$3.80	$4.68	$2.20	$1.12	$1.38	$4.98	$2.53	$3.12	$35.25	$17.92	$22.10
2015	$7.47	$3.55	$4.47	$2.20	$1.04	$1.32	$4.98	$2.36	$2.98	$35.25	$16.75	$21.09
2016	$6.09	$2.70	$3.48	$0.80	$0.35	$0.45	$0.02	$0.01	$0.01	$42.95	$19.07	$24.53
2017	$6.09	$2.53	$3.32	$0.80	$0.33	$0.43	$0.02	$0.01	$0.01	$42.95	$17.82	$23.41
2018	$6.09	$2.36	$3.17	$0.80	$0.31	$0.41	$0.02	$0.01	$0.01	$42.95	$16.66	$22.34
2019	$6.09	$2.21	$3.02	$0.80	$0.29	$0.39	$0.02	$0.01	$0.01	$42.95	$15.57	$21.32
2020	$6.09	$2.06	$2.88	$0.80	$0.27	$0.38	$0.02	$0.01	$0.01	$42.95	$14.55	$20.35
2021	$5.48	$1.73	$2.48	$0.75	$0.24	$0.34	$0.02	$0.01	$0.01	$40.84	$12.93	$18.47
2022	$5.48	$1.62	$2.36	$0.75	$0.22	$0.32	$0.02	$0.00	$0.01	$40.84	$12.08	$17.62
2023	$5.48	$1.51	$2.26	$0.75	$0.21	$0.31	$0.02	$0.00	$0.01	$40.84	$11.29	$16.82
2024	$5.48	$1.42	$2.15	$0.75	$0.19	$0.30	$0.02	$0.00	$0.01	$40.84	$10.55	$16.05
2025	$5.48	$1.32	$2.05	$0.75	$0.18	$0.28	$0.02	$0.00	$0.01	$40.84	$9.86	$15.32
2026	$0.05	$0.01	$0.02	$0.03	$0.01	$0.01	$0.02	$0.00	$0.01	$0.42	$0.09	$0.15
2027	$0.05	$0.01	$0.02	$0.03	$0.01	$0.01	$0.02	$0.00	$0.01	$0.42	$0.09	$0.14
2028	$0.05	$0.01	$0.02	$0.03	$0.01	$0.01	$0.02	$0.00	$0.01	$0.42	$0.08	$0.14
2029	$0.05	$0.01	$0.01	$0.03	$0.01	$0.01	$0.02	$0.00	$0.01	$0.42	$0.08	$0.13
2030	$0.05	$0.01	$0.01	$0.03	$0.01	$0.01	$0.02	$0.00	$0.00	$0.42	$0.07	$0.13
Total	**$133.05**	**$68.77**	**$83.13**	**$29.00**	**$16.37**	**$19.31**	**$45.48**	**$29.26**	**$33.40**	**$723.59**	**$333.89**	**$417.93**

Source: AECOM Consult, Inc.
Note: Columns may not sum to totals due to rounding.

Between 2006 and 2030, the "new" construction expenditures in the Ports to Plains Corridor counties result in earnings of approximately $133.1 million for Colorado, $29.0 million for New Mexico, $45.5 million for Oklahoma, and $723.6 million for Texas, all in 2004 dollars.

However, to better represent the present value of these earnings benefits, they are discounted using the 7.0 and 4.78 percent discount rates. The 7.0 and 4.78 percent discount rates result in Colorado discounted earnings of about $68.8 and $83.1 million, respectively; New Mexico discounted earnings of $16.4 and $19.3 million, respectively; Oklahoma discounted earnings of $29.3 and $33.4 million, respectively; and Texas discounted earnings of $333.9 and $417.9 million, respectively. The total earnings benefits for the Corridor counties are shown in Exhibit 5.4-3.

Exhibit 5.4-3: Annual Total Corridor Earnings Benefits from "New" Construction Expenditures for the Ports to Plains Corridor Counties (Millions of 2004 Dollars)

	Total		
Year	Earnings	Discounted at 7%	Discounted at 4.78%
2006	$ 38.95	$ 34.02	$ 35.48
2007	$ 38.85	$ 31.71	$ 33.77
2008	$ 38.85	$ 29.64	$ 32.23
2009	$ 38.85	$ 27.70	$ 30.76
2010	$ 38.85	$ 25.88	$ 29.35
2011	$ 49.90	$ 31.07	$ 35.98
2012	$ 49.90	$ 29.04	$ 34.34
2013	$ 49.90	$ 27.14	$ 32.78
2014	$ 49.90	$ 25.36	$ 31.28
2015	$ 49.90	$ 23.71	$ 29.85
2016	$ 49.85	$ 22.13	$ 28.47
2017	$ 49.85	$ 20.69	$ 27.17
2018	$ 49.85	$ 19.33	$ 25.93
2019	$ 49.85	$ 18.07	$ 24.75
2020	$ 49.85	$ 16.89	$ 23.62
2021	$ 47.09	$ 14.91	$ 21.29
2022	$ 47.09	$ 13.93	$ 20.32
2023	$ 47.09	$ 13.02	$ 19.39
2024	$ 47.09	$ 12.17	$ 18.51
2025	$ 47.09	$ 11.37	$ 17.66
2026	$ 0.52	$ 0.12	$ 0.19
2027	$ 0.52	$ 0.11	$ 0.18
2028	$ 0.52	$ 0.10	$ 0.17
2029	$ 0.52	$ 0.10	$ 0.16
2030	$ 0.52	$ 0.09	$ 0.15
Total	**$ 931.11**	**$ 448.30**	**$ 553.77**

Source: AECOM Consult, Inc.
Note: Columns may not sum to totals due to rounding.

Between 2006 and 2030, the "new" construction expenditures in the Ports to Plains Corridor counties result in earnings of approximately $931.1 million in 2004 dollars for the entire Corridor. To better represent the present value of these earnings benefits, they are discounted using the 7.0 and 4.78 percent discount rates, which results in discounted earnings of $448.3 and $553.8 million, respectively.

5.5 Economic Benefits of Construction Expenditures in the Ports to Plains Corridor States

"New" construction expenditures along the Ports to Plains Corridor project also result in employment and earnings growth for the Corridor states of Colorado, New Mexico, Oklahoma, and Texas. These benefits are measured using the total demand multipliers for each state shown previously in Exhibit 5.3-1 and the construction expenditures funded by the Corridor states' "new" revenue sources summarized in Exhibit 5.2-4. This represents additional money coming into the state from Federal

discretionary programs, the use of railroad funds and the use of funds generated from utility easements.

When measuring employment and earnings benefits in the states, it is important to note that these benefits ***cannot be added*** to the Corridor benefits estimated in Exhibits 5.4-1 through 5.4-3 because the construction spending that is new for the Corridor states is also new for the Corridor counties, which would result in double counting the economic benefits associated with the states' "new" funding sources for the Corridor. The state benefits are presented in Exhibits 5.5-1 through 5.5-3. The earnings shown in Exhibits 5.5-2 and 5.5-3 are adjusted for inflation and presented in 2004 constant dollars. The discounted value of construction expenditure earnings using the 7.0 and 4.78 percent discount rates also is included in these exhibits.

Exhibit 5.5-1: Annual Employment Benefits from "New" Construction Expenditures for the Ports to Plains Corridor States

Year	Colorado	New Mexico	Oklahoma	Texas	Total Corridor
2006	19	6	10	49	**83**
2007	19	6	10	49	**83**
2008	19	6	10	49	**83**
2009	19	6	10	49	**83**
2010	19	6	10	49	**83**
2011	19	5	11	55	**89**
2012	19	5	11	55	**89**
2013	19	5	11	55	**89**
2014	19	5	11	55	**89**
2015	19	5	11	55	**89**
2016	22	1	0	62	**85**
2017	22	1	0	62	**85**
2018	22	1	0	62	**85**
2019	22	1	0	62	**85**
2020	22	1	0	62	**85**
2021	21	1	0	59	**81**
2022	21	1	0	59	**81**
2023	21	1	0	59	**81**
2024	21	1	0	59	**81**
2025	21	1	0	59	**81**
2026	0	0	0	1	**1**
2027	0	0	0	1	**1**
2028	0	0	0	1	**1**
2029	0	0	0	1	**1**
2030	0	0	0	1	**1**

Source: AECOM Consult, Inc.
*Notes: The employment benefits shown in this exhibit **cannot** be added to the Corridor counties' construction employment benefits shown in Exhibit 5.4-1.*
Rows may not sum to totals due to rounding.

Similar to the Corridor counties benefits, the state employment benefits generated by the Ports to Plains Corridor project are temporary, lasting only as long as the construction expenditures occur. After the Corridor construction is complete, the employment benefits disappear and no longer influence each state's economy.

The "new" construction expenditures in the Ports to Plains Corridor result in a maximum total state employment benefit of 89 jobs in each year between 2011 and 2015 as shown in Exhibit 5.5-2. Between 2006 and 2025, the estimated increase in employment remains fairly constant as expenditures are evenly spread throughout the construction schedule. After 2025, the employment drops off dramatically because the Corridor construction is complete, except for a few remaining ITS projects.

Exhibit 5.5-2: Annual State Earnings Benefits from "New" Construction Expenditures for the Ports to Plains Corridor States, in (Millions of 2004 Dollars)

	Colorado			New Mexico			Oklahoma			Texas		
Year	Earn-ings	Discounted at 7%	Discounted at 4.78%	Earn-ings	Discounted at 7%	Discounted at 4.78%	Earn-ings	Discounted at 7%	Discounted at 4.78%	Earn-ings	Discounted at 7%	Discounted at 4.78%
2006	$0.74	$0.65	$0.68	$0.17	$0.15	$0.16	$0.29	$0.25	$0.26	$1.53	$1.34	$ 1.40
2007	$0.74	$0.61	$0.65	$0.17	$0.14	$0.15	$0.29	$0.23	$0.25	$1.53	$1.25	$ 1.33
2008	$0.74	$0.57	$0.62	$0.17	$0.13	$0.14	$0.29	$0.22	$0.24	$1.53	$1.17	$ 1.27
2009	$0.74	$0.53	$0.59	$0.17	$0.12	$0.14	$0.29	$0.20	$0.23	$1.53	$1.09	$ 1.21
2010	$0.74	$0.49	$0.56	$0.17	$0.12	$0.13	$0.29	$0.19	$0.22	$1.53	$1.02	$ 1.16
2011	$0.74	$0.46	$0.53	$0.14	$0.09	$0.10	$0.32	$0.20	$0.23	$1.73	$1.08	$ 1.25
2012	$0.74	$0.43	$0.51	$0.14	$0.08	$0.10	$0.32	$0.18	$0.22	$1.73	$1.01	$ 1.19
2013	$0.74	$0.40	$0.48	$0.14	$0.08	$0.09	$0.32	$0.17	$0.21	$1.73	$0.94	$ 1.14
2014	$0.74	$0.37	$0.46	$0.14	$0.07	$0.09	$0.32	$0.16	$0.20	$1.73	$0.88	$ 1.08
2015	$0.74	$0.35	$0.44	$0.14	$0.07	$0.09	$0.32	$0.15	$0.19	$1.73	$0.82	$ 1.03
2016	$0.88	$0.39	$0.50	$0.04	$0.02	$0.02	$0.00	$0.00	$0.00	$1.93	$0.86	$ 1.10
2017	$0.88	$0.37	$0.48	$0.04	$0.02	$0.02	$0.00	$0.00	$0.00	$1.93	$0.80	$ 1.05
2018	$0.88	$0.34	$0.46	$0.04	$0.02	$0.02	$0.00	$0.00	$0.00	$1.93	$0.75	$ 1.01
2019	$0.88	$0.32	$0.44	$0.04	$0.02	$0.02	$0.00	$0.00	$0.00	$1.93	$0.70	$ 0.96
2020	$0.88	$0.30	$0.42	$0.04	$0.01	$0.02	$0.00	$0.00	$0.00	$1.93	$0.65	$ 0.92
2021	$0.82	$0.26	$0.37	$0.04	$0.01	$0.02	$0.00	$0.00	$0.00	$1.84	$0.58	$ 0.83
2022	$0.82	$0.24	$0.35	$0.04	$0.01	$0.02	$0.00	$0.00	$0.00	$1.84	$0.54	$ 0.79
2023	$0.82	$0.23	$0.34	$0.04	$0.01	$0.02	$0.00	$0.00	$0.00	$1.84	$0.51	$ 0.76
2024	$0.82	$0.21	$0.32	$0.04	$0.01	$0.02	$0.00	$0.00	$0.00	$1.84	$0.48	$ 0.72
2025	$0.82	$0.20	$0.31	$0.04	$0.01	$0.01	$0.00	$0.00	$0.00	$1.84	$0.44	$ 0.69
2026	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.02	$0.00	$ 0.01
2027	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.02	$0.00	$ 0.01
2028	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.02	$0.00	$ 0.01
2029	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.02	$0.00	$ 0.01
2030	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.02	$0.00	$ 0.01
Total	**$15.92**	**$7.72**	**$9.51**	**$2.00**	**$1.20**	**$1.39**	**$3.03**	**$1.97**	**$2.24**	**$35.26**	**$16.93**	**$ 20.92**

Source: AECOM Consult, Inc.
*Note: The employment benefits shown in this exhibit **cannot** be added to the Corridor counties' construction earnings benefits shown in Exhibits 5.4-2 and 5.4-3. Columns may not sum to totals due to rounding.*

The state earnings benefits generated by the Ports to Plains Corridor project also are temporary, lasting only as long as the construction expenditures occur. After the Corridor construction is complete, the earnings benefits disappear and no longer benefit each state's economy.

Between 2006 and 2030, the "new" construction expenditures in the Ports to Plains Corridor states result in earnings of approximately $15.9 million for Colorado, $2.0 million for New Mexico, $3.0 million for Oklahoma, and $35.3 million for Texas, all in 2004 dollars. Again, to better represent the present value of these earnings benefits, they are discounted using the 7.0 and 4.78 percent discount rates. The total earnings benefits for the Corridor states are shown in Exhibit 5.5-3.

Exhibit 5.5-3: Annual Total State Earnings Benefits from "New" Construction Expenditures for the Ports to Plains Corridor States (Millions of 2004 Dollars)

	Total		
Year	Earnings	Discounted at 7%	Discounted at 4.78%
2006	$ 2.74	$ 2.39	$ 2.50
2007	$ 2.73	$ 2.23	$ 2.38
2008	$ 2.73	$ 2.09	$ 2.27
2009	$ 2.73	$ 1.95	$ 2.17
2010	$ 2.73	$ 1.82	$ 2.07
2011	$ 2.93	$ 1.82	$ 2.11
2012	$ 2.93	$ 1.70	$ 2.01
2013	$ 2.93	$ 1.59	$ 1.92
2014	$ 2.93	$ 1.49	$ 1.83
2015	$ 2.93	$ 1.39	$ 1.75
2016	$ 2.86	$ 1.27	$ 1.63
2017	$ 2.86	$ 1.19	$ 1.56
2018	$ 2.86	$ 1.11	$ 1.49
2019	$ 2.86	$ 1.04	$ 1.42
2020	$ 2.86	$ 0.97	$ 1.35
2021	$ 2.70	$ 0.85	$ 1.22
2022	$ 2.70	$ 0.80	$ 1.16
2023	$ 2.70	$ 0.75	$ 1.11
2024	$ 2.70	$ 0.70	$ 1.06
2025	$ 2.70	$ 0.65	$ 1.01
2026	$ 0.03	$ 0.01	$ 0.01
2027	$ 0.03	$ 0.01	$ 0.01
2028	$ 0.03	$ 0.01	$ 0.01
2029	$ 0.03	$ 0.00	$ 0.01
2030	$ 0.03	$ 0.00	$ 0.01
Total	**$ 56.21**	**$ 27.81**	**$ 34.06**

Source: AECOM Consult, Inc.
*Notes: The employment benefits shown in this exhibit **cannot** be added to the Corridor counties' construction earnings benefits shown in Exhibits 5.4-2 and 5.4-3. Columns may not sum to totals due to rounding.*

Between 2006 and 2030, the "new" construction expenditures in the Ports to Plains Corridor states result in earnings of $56.2 million in 2004 dollars for all four states. The total present value of these earnings benefits for all four Corridor states are $27.8 and $34.1 million, for the 7.0 and 4.78 percent discount rates, respectively.

This analysis demonstrates that the construction benefits associated with the Ports to Plains Corridor project are significantly higher for the Corridor counties than the states as a whole. The large

discrepancy in benefits is due to the fact that the Corridor counties are more dependent on the Ports to Plains project specific revenue sources for construction of transportation improvements. Without the Ports to Plains Corridor project, the Corridor counties likely will not receive funding for other transportation improvements in their region. The Corridor states, on the other hand, will receive most of the funding proposed for the Ports to Plains Corridor project whether the Corridor is constructed or not. As a result, if the Ports to Plains Corridor is not built, the states will use these revenues for other transportation improvements throughout their respective states, which will result in construction employment and earnings benefits in other areas of the states, but not necessarily in the Ports to Plains Corridor counties.

5.6 User Benefits Associated with Improved Transportation in the Ports to Plains Corridor

This section will describe the economic value of transportation user benefits that may occur as a result of the transportation infrastructure improvements in the Ports to Plains Corridor. Typically, those benefits are comprised of travel time savings, which may occur as motorists experience reduced travel times, operating cost savings that occur as the distances driven by motorists are reduced, and increased safety, which may occur as the number of crashes that take place on a Corridor are reduced. The analysis that follows will quantify the economic benefits associated with those potential benefits in the Ports to Plains Corridor.

The benefits of travel time savings were estimated for auto and truck traffic. Auto travel time savings were calculated for autos based on the average wage and salaries for the Corridor county economies and the savings in regional vehicle hours traveled resulting from improved transportation infrastructure. Truck travel time savings are based on driver's wages and the savings in regional vehicle hours traveled. Those benefits were calculated using estimated increases in travel speeds resulting from improved transportation infrastructure and the value of the time saved.

The benefits of vehicle operating cost savings were calculated using estimated savings in regional vehicle miles traveled resulting from improved transportation infrastructure.

The benefits of improved safety were calculated by first estimating the crashes avoidance that may occur as a result of improved transportation infrastructure, then estimating the cost of those avoided crashes.

This section is divided into two parts. The first part will estimate the value of the time savings and increased efficiencies in vehicle operating cost associated with improved transportation infrastructure in the project Corridor. The second part will estimate the reduction in crash that may result from improved transportation infrastructure. That section will then quantify the economic benefit of that crash avoidance by determining the cost of crash avoided in the project Corridor.

5.7 Estimating the Value of Time and Operating Cost Savings Associated with Improved Transportation Infrastructure in the Ports to Plains Corridor

Among the benefits of improved transportation infrastructure in the Ports to Plains Corridor is the reduction in travel times along the Corridor. This section will estimate the economic benefit of the reduction in travel time for autos and trucks that will occur as a result of the transportation improvements in the Ports to Plains Corridor.

The highway investment will add relief routes and significant lane capacity along the Corridor route. The added capacity and alternative route around urban areas will yield both travel time savings and operating cost savings for drivers in the region who use the Corridor. These savings, measured in vehicle miles traveled (VMT) and vehicle hours traveled (VHT), are summarized in Exhibit 5.7-1.[11]

[11] The forecast methodology, results and interpretation are presented in the Corridor Development and Management Plan.

Exhibit 5.7-1: Regional VMT and VHT Savings between the Build and No-Build Alternatives in 2030

	Cars (Non-Truck)		Trucks	
	VMT/Day	VHT/Day	VMT/Day	VHT/Day
All States	-58,210	-4,835	-14,320	-3,258
Colorado	308,416	4,865	137,224	2,155
New Mexico	-207,889	-3,443	-71,281	-1,167
Oklahoma	-38,492	-628	8,782	158
Texas	-39,238	-4,424	-83,632	-4,329

Source: Ports to Plains Traffic Forecast Model.
Note: All States region includes parts of Kansas because of the Corridor's significance within the region. These benefits are not reported as Kansas is not part of the Corridor. Thus, individual state benefits will not total to the total regional benefit. In Colorado, the large increase in VMT and VHT is due to traffic shifting onto the Ports to Plains Corridor. In New Mexico, the decreases in VMT and VHT are due to traffic shifting from the New Mexico to the Colorado route. In Oklahoma, the disproportionate decrease in VMT is due to shifting traffic from longer routes in the state to the somewhat shorter 40 mile Ports to Plains route through the panhandle. In Texas, trips are shifted from other Texas facilities onto the Ports to Plains Corridor, therefore there is not as great of decrease realized.

The following sections quantify the economic value of these transportation user benefits. Estimates are derived for:

- Auto Time Savings
- Auto Operating Cost Savings
- Truck Time Savings
- Truck Operating Cost Savings

Results are reported by state and for the Corridor region as a whole. Values are expressed as 2004 dollars discounted at a 7 percent and 4.78 percent rate.

5.7.1 Estimating the Auto Time Savings

The economic benefit of the time saved by auto drivers is a straightforward calculation of the amount of time saved multiplied by the value of time among Corridor auto drivers. The amount of time saved is reported in Exhibit 5.7-1 above. The value of auto motorists' time is estimated below.

5.7.2 Value of Time in the Ports to Plains Corridor

The U.S. Department of Transportation (DOT) issued a memo entitled *Departmental Guidance for the Valuation of Travel Time in Economic Analysis* in 1997, which provided estimates for the value of personal travel and business travel. The analysis uses the DOT estimates to determine a percentage of the Corridor average wage to estimate business and personal travelers' values of time. The DOT guidance states that the business traveler's value of time is 100 percent of the Corridor average wage, while the personal traveler's value is 70 percent of the Corridor average wage.

The value of time for auto travelers in the Ports to Plains Corridor is based on the average annual wage for each county group within the states that comprise the Corridor. The average annual wages are based on the 2002 Local Area Personal Income tables from the Bureau of Economic Analysis (BEA). The average wages were converted to an hourly wage for each state assuming that wage earners work 2000 hours per year.

For this analysis because the percentage of Corridor traffic that is leisure and business is not known and the value of leisure time is less than the value of business time, it is assumed that all auto traffic is leisure traffic. The effect of this is a more conservative benefits estimate. The personal travel time values were calculated by multiplying each state's average annual wage rate by 70 percent as recommended by DOT. Exhibit 5.7-2 presents a summary of the Corridor's value of time for personal travel.

Exhibit 5.7-2: Average Wages in U.S. and Corridor Counties in Colorado, New Mexico, Oklahoma, and Texas

	2002 Wages and Salary (000s)	2002 Wage and Salary Employment	2002 Average Wage	Average Wage (2004$)*	70% of Average Wage for Value of Leisure (2004$)	Leisure Wage Converted to Hourly Wage (2004$)**
U.S.	4,969,990,000	137,416,000	$ 36,167	$37,715	$26,401	$13.20
Colorado counties	19,009,652	462,414	$41,110	$42,869	$30,008	$15.00
New Mexico counties	174,415	7,712	$22,616	$23,584	$16,509	$8.25
Oklahoma counties	20,313	1,029	$19,741	$20,585	$14,410	$7.20
Texas counties	13,783,395	508,014	$27,132	$28,293	$19,805	$9.90
Weighted Average for All Counties in the Corridor	**32,987,775**	**979,169**	**$33,690**	**$35,131**	**$24,592**	**$12.30**

Source: Bureau of Economic Analysis, Income and Employment Tables by NAICS (North American Industry Classification System).
*Notes: *Escalated by change in U.S. CPI for all items between mid-point 2004 and 2002, 4.28 percent.*
***Converted annual wages to hourly wages assuming 2000 hours worked per year (40 hour a week for 50 weeks). Columns may not sum to totals due to rounding.*

The Corridor average wage was applied to the projected travel time savings for autos. This calculation interpolates the 2030 value over the period between 2011, when the first road section opens, through the forecast horizon in order to capture the cumulative increase in benefits as increasingly more of the highway construction is completed and comes into use by the region's auto motorists. The total is also adjusted for the average occupancy rate by a factor of 1.6 people per vehicle (and thus vehicle hour traveled). These savings are summarized by state in Exhibit 5.7-3.

Exhibit 5.7-3: Value of Auto Travel Time Saved (Millions of 2004 Dollars)

Year	Value of Auto Time Saved in Colorado	Value of Auto Time Saved in New Mexico	Value of Auto Time Saved in Oklahoma	Value of Auto Time Saved in Texas	4-State Total in 2004 $	Discounted at 7.0%	Discounted at 4.78%
2011	-$1.75	$1.24	$0.23	$1.59	$1.30	$0.81	$0.94
2012	-$3.49	$2.47	$0.45	$3.18	$2.61	$1.52	$1.79
2013	-$5.24	$3.71	$0.68	$4.77	$3.91	$2.13	$2.57
2014	-$6.99	$4.94	$0.90	$6.35	$5.21	$2.65	$3.27
2015	-$8.73	$6.18	$1.13	$7.94	$6.52	$3.10	$3.90
2016	-$10.48	$7.42	$1.35	$9.53	$7.82	$3.47	$4.47
2017	-$12.23	$8.65	$1.58	$11.12	$9.12	$3.79	$4.97
2018	-$13.97	$9.89	$1.80	$12.71	$10.43	$4.04	$5.42
2019	-$15.72	$11.13	$2.03	$14.30	$11.73	$4.25	$5.82
2020	-$17.47	$12.36	$2.25	$15.88	$13.03	$4.41	$6.17
2021	-$19.21	$13.60	$2.48	$17.47	$14.34	$4.54	$6.48
2022	-$20.96	$14.83	$2.71	$19.06	$15.64	$4.63	$6.75
2023	-$22.71	$16.07	$2.93	$20.65	$16.94	$4.68	$6.98
2024	-$24.45	$17.31	$3.16	$22.24	$18.25	$4.72	$7.17
2025	-$26.20	$18.54	$3.38	$23.83	$19.55	$4.72	$7.33
2026	-$27.95	$19.78	$3.61	$25.41	$20.85	$4.71	$7.47
2027	-$29.69	$21.02	$3.83	$27.00	$22.16	$4.67	$7.57
2028	-$31.44	$22.25	$4.06	$28.59	$23.46	$4.63	$7.65
2029	-$33.19	$23.49	$4.28	$30.18	$24.76	$4.56	$7.71
2030	-$34.93	$24.72	$4.51	$31.77	$26.07	$4.49	$7.74
Total	**-$366.82**	**$259.60**	**$47.35**	**$333.57**	**$273.70**	**$76.51**	**$112.17**

Sources: AECOM calculations.
Note: Columns and rows may not sum to totals due to rounding.

5.7.3 Estimating the Truck Time Savings

The economic benefit of the time saved by truck drivers is a straightforward calculation of the amount of time saved multiplied by the value of time among Corridor truck drivers. The value of truck drivers' time is estimated as $20.00/hour[12].

This calculation interpolates the 2030 value over the period between 2011, when the first road section opens, through the forecast horizon in order to capture the cumulative increase in benefits as increasingly more of the highway construction is completed and comes into use by truck drivers who use the Corridor. These savings are summarized by state in Exhibit 5.7-4.

Exhibit 5.7-4: Value of Truck Time Savings
(Millions of 2004 Dollars)

Year	Value of Truck Time Saved in Colorado	Value of Truck Time Saved in New Mexico	Value of Truck Time Saved in Oklahoma	Value of Truck Time Saved in Texas	4-State Total in 2004 $	Discounted at 7.0%	Discounted at 4.78%
2011	-$0.79	$0.43	$0.06	$1.58	$1.28	$0.80	$0.92
2012	-$1.57	$0.85	$0.12	$3.16	$2.55	$1.49	$1.76
2013	-$2.36	$1.28	$0.17	$4.74	$3.83	$2.08	$2.52
2014	-$3.15	$1.70	$0.23	$6.32	$5.11	$2.60	$3.20
2015	-$3.93	$2.13	$0.29	$7.90	$6.39	$3.03	$3.82
2016	-$4.72	$2.56	$0.35	$9.48	$7.66	$3.40	$4.38
2017	-$5.51	$2.98	$0.40	$11.06	$8.94	$3.71	$4.87
2018	-$6.29	$3.41	$0.46	$12.64	$10.22	$3.96	$5.31
2019	-$7.08	$3.83	$0.52	$14.22	$11.49	$4.17	$5.71
2020	-$7.87	$4.26	$0.58	$15.80	$12.77	$4.33	$6.05
2021	-$8.65	$4.69	$0.63	$17.38	$14.05	$4.45	$6.35
2022	-$9.44	$5.11	$0.69	$18.96	$15.33	$4.53	$6.61
2023	-$10.23	$5.54	$0.75	$20.54	$16.60	$4.59	$6.84
2024	-$11.01	$5.96	$0.81	$22.12	$17.88	$4.62	$7.03
2025	-$11.80	$6.39	$0.87	$23.70	$19.16	$4.63	$7.19
2026	-$12.59	$6.82	$0.92	$25.28	$20.43	$4.61	$7.32
2027	-$13.37	$7.24	$0.98	$26.86	$21.71	$4.58	$7.42
2028	-$14.16	$7.67	$1.04	$28.44	$22.99	$4.53	$7.50
2029	-$14.94	$8.09	$1.10	$30.02	$24.27	$4.47	$7.55
2030	-$15.73	$8.52	$1.15	$31.60	$25.54	$4.40	$7.59
Total	**-$165.18**	**$89.45**	**$12.11**	**$331.82**	**$268.20**	**$74.98**	**$109.92**

Source: AECOM calculations.
Note: Columns and rows may not sum to totals due to rounding.

5.7.4 Estimating Operating Cost Savings

The operating cost estimation entails the application of a per mile operation cost to the VMT savings provided by the travel demand forecasting model. The per mile costs for autos and trucks are presented in the sections below, followed by the derivation of the operating cost savings.

Auto Operating Costs

The cost of operating a passenger vehicle was obtained from the American Automobile Association (AAA). The association provides an estimate of the cost per mile to operate a personal passenger vehicle

[12] This hourly value assumes an average truck speed of 50 miles per hour, allowing for meal and rest stops, as well as traffic and road conditions over the course of the trip. It also assumes driver wages at 40 cents per mile. This value is consistent with data from the American Trucking Association that reports a per mile wage ranging between 38 cents and 42 cents per mile.

that is updated annually. The 2004 value is 56.2 cents per mile, inclusive of depreciation, insurance, fuel and maintenance costs.

Truck Operating Costs

The cost of operating a truck was obtained from the American Trucking Association, Inc.'s 2003 American Trucking Trends. The data describe the per mile cost for a range of industry inputs, ranging from equipment rentals, to fuel, to taxes, to driver wages. A summary of these costs is provided in Exhibit 5.7-5. The trucking association data are in 2001 dollars. The Producer Price Index (PPI) is used to escalate costs from 2001 dollars to 2004 dollars. The PPI is a barometer of cost increases on the producers' side of the market, similar to the more familiar Consumer Price Index (CPI), which measures cost inflation from the consumer's perspective.

Exhibit 5.7-5: Truck Costs per Mile

	Cost (2001$)	Cost (2004$)
Equipment Rents and Purchased Transportation	$0.56	$0.60
Other Wages and Benefits	$0.47	$0.50
Driver Wages	$0.39	$0.42
Miscellaneous	$0.21	$0.23
Fuel	$0.17	$0.19
Depreciation	$0.10	$0.11
Insurance	$0.64	$0.69
Outside Maintenance	$0.06	$0.06
Taxes and License	$0.03	$0.03
Tires	$0.02	$0.02
Total	**$2.65**	**$2.85**

Source: American Trucking Trends, 2003 published by the American Trucking Association, Inc.
Notes: Escalated by change in U.S. Producer Price Index (PPI) for Trucking and Courier Services, except air between 2001 and 2003, and the change in PPI for General Freight Trucking between 2003 and preliminary July 2004. The two categories were used due to the switch from SIC to NAICS. Driver pay per mile may appear higher here than it does in some wage studies because this is an average for all carriers reporting to the U.S. Department of Transportation, including many large unionized less-than-truckload carriers. Columns may not sum to totals due to rounding.

Not all costs vary with the amount of truck travel. Put another way, trucking industry costs can be divided between fixed costs—those that producers must pay no matter how much they drive in a year—and variable costs, those that do depend on the amount of miles traveled. An example of a fixed cost is insurance—the firm pays an annual premium that does not change if the vehicle travels 500 miles more or less in a given year. An example of a variable cost is fuel—the amount the firm pays for fuel is directly correlated with the amount of mileage driven.

Of the costs included in Exhibit 5.7-5, four are variable costs: fuel, tires, depreciation, and outside maintenance. Together, these per mile costs sum to $0.375 (2004). Driver wages are excluded here as they are embodied in the truck travel times savings estimation developed above.

5.7.5 Estimating Operating Cost Savings

The value of reduced vehicle operation is a straightforward calculation that applies the per mile costs for trucks and autos to the estimated daily VMT savings provided by the travel demand forecasting model developed for the Ports to Plains Corridor by the project team. The calculation is presented in Exhibit 5.7-6. The estimate uses 365 as the annualization factor as the VMT per day is VMT per calendar day. The estimates represent the value of benefits in 2030 stated in 2004 dollars.

Exhibit 5.7-6: Value of Vehicle Operating Efficiencies in 2030, in 2004 Dollars

	Colorado		New Mexico		Oklahoma		Texas	
	Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck
VMT/Day Savings	-308,416	-137,224	207,889	71,281	38,492	8,782	39,238	83,632
Days per Year	365	365	365	365	365	365	365	365
VMT/Year Savings	-112,571,840	-50,086,760	75,879,485	26,017,565	14,049,580	3,205,430	14,321,870	30,525,680
Cost per Mile (2004$)	$0.562	$0.375	$0.562	$0.375	$0.562	$0.375	$0.562	$0.375
Total	**-$63,265,374**	**-$18,782,535**	**$42,644,271**	**$9,756,587**	**$7,895,864**	**$1,202,036**	**$8,048,891**	**$11,447,130**

Sources: Ports to Plains travel model, American Auto Association, and American Trucking Association

To calculate the value of the travel cost savings associated with the VMT saved in the region throughout the 2011 to 2030 period, the cost savings obtained from the traffic forecast model developed for the Corridor (shown in Exhibit 5.7-1) are interpolated between 2011 and 2030. The interpolation method distributes the gains gradually over the forecast horizon beginning with 2011, the year the first phase of construction is completed and ending in 2030, the VMT forecast year provided by the demand model. The gains increase over time as more road is completed and available for use and as the hindrance caused by construction crews becomes increasingly scarce as demonstrated in Exhibits 5.7-7 and 5.7-8.

Exhibit 5.7-7: Value of Total Auto Operating Cost Savings Benefits, in Millions of 2004 Dollars

Year	Colorado	New Mexico	Oklahoma	Texas	4-State Total in 2004 $	Discounted at 7.0%	Discounted at 4.78%
2011	-$3.16	$2.13	$0.39	$0.40	-$0.23	-$0.15	-$0.17
2012	-$6.33	$4.26	$0.79	$0.80	-$0.47	-$0.27	-$0.32
2013	-$9.49	$6.40	$1.18	$1.21	-$0.70	-$0.38	-$0.46
2014	-$12.65	$8.53	$1.58	$1.61	-$0.94	-$0.48	-$0.59
2015	-$15.82	$10.66	$1.97	$2.01	-$1.17	-$0.56	-$0.70
2016	-$18.98	$12.79	$2.37	$2.41	-$1.40	-$0.62	-$0.80
2017	-$22.14	$14.93	$2.76	$2.82	-$1.64	-$0.68	-$0.89
2018	-$25.31	$17.06	$3.16	$3.22	-$1.87	-$0.73	-$0.97
2019	-$28.47	$19.19	$3.55	$3.62	-$2.10	-$0.76	-$1.04
2020	-$31.63	$21.32	$3.95	$4.02	-$2.34	-$0.79	-$1.11
2021	-$34.80	$23.45	$4.34	$4.43	-$2.57	-$0.81	-$1.16
2022	-$37.96	$25.59	$4.74	$4.83	-$2.81	-$0.83	-$1.21
2023	-$41.12	$27.72	$5.13	$5.23	-$3.04	-$0.84	-$1.25
2024	-$44.29	$29.85	$5.53	$5.63	-$3.27	-$0.85	-$1.29
2025	-$47.45	$31.98	$5.92	$6.04	-$3.51	-$0.85	-$1.32
2026	-$50.61	$34.12	$6.32	$6.44	-$3.74	-$0.84	-$1.34
2027	-$53.78	$36.25	$6.71	$6.84	-$3.97	-$0.84	-$1.36
2028	-$56.94	$38.38	$7.11	$7.24	-$4.21	-$0.83	-$1.37
2029	-$60.10	$40.51	$7.50	$7.65	-$4.44	-$0.82	-$1.38
2030	-$63.27	$42.64	$7.90	$8.05	-$4.68	-$0.81	-$1.39
Total	**-$664.29**	**$447.76**	**$82.91**	**$84.51**	**-$49.10**	**-$13.73**	**-$20.12**

Source: AECOM Consult calculation from Ports to Plains traffic model projection and American Automobile Association data.
Note: Columns may not sum to totals due to rounding.

Exhibit 5.7-8: Value of Total Truck Operating Cost Savings Benefits, in Millions of 2004 Dollars

Year	Colorado	New Mexico	Oklahoma	Texas	4-State Total in 2004 $	Discounted at 7.0%	Discounted at 4.78%
2011	-$0.94	$0.49	$0.06	$0.57	$0.18	$0.11	$0.13
2012	-$1.88	$0.98	$0.12	$1.14	$0.36	$0.21	$0.25
2013	-$2.82	$1.46	$0.18	$1.72	$0.54	$0.30	$0.36
2014	-$3.76	$1.95	$0.24	$2.29	$0.72	$0.37	$0.45
2015	-$4.70	$2.44	$0.30	$2.86	$0.91	$0.43	$0.54
2016	-$5.63	$2.93	$0.36	$3.43	$1.09	$0.48	$0.62
2017	-$6.57	$3.41	$0.42	$4.01	$1.27	$0.53	$0.69
2018	-$7.51	$3.90	$0.48	$4.58	$1.45	$0.56	$0.75
2019	-$8.45	$4.39	$0.54	$5.15	$1.63	$0.59	$0.81
2020	-$9.39	$4.88	$0.60	$5.72	$1.81	$0.61	$0.86
2021	-$10.33	$5.37	$0.66	$6.30	$1.99	$0.63	$0.90
2022	-$11.27	$5.85	$0.72	$6.87	$2.17	$0.64	$0.94
2023	-$12.21	$6.34	$0.78	$7.44	$2.36	$0.65	$0.97
2024	-$13.15	$6.83	$0.84	$8.01	$2.54	$0.66	$1.00
2025	-$14.09	$7.32	$0.90	$8.59	$2.72	$0.66	$1.02
2026	-$15.03	$7.81	$0.96	$9.16	$2.90	$0.65	$1.04
2027	-$15.97	$8.29	$1.02	$9.73	$3.08	$0.65	$1.05
2028	-$16.90	$8.78	$1.08	$10.30	$3.26	$0.64	$1.06
2029	-$17.84	$9.27	$1.14	$10.87	$3.44	$0.63	$1.07
2030	-$18.78	$9.76	$1.20	$11.45	$3.62	$0.62	$1.08
Total	**-$197.22**	**$102.44**	**$12.62**	**$120.19**	**$38.04**	**$10.64**	**$15.59**

Source: AECOM Consult calculation based on Ports to Plains traffic model and American Trucking Association data.
Note: Columns may not sum to totals due to rounding.

5.8 Estimating the Safety Benefits of Improved Transportation Infrastructure

Another benefit of improved transportation in the Ports to Plains Corridor is the potential reduction in the number of crashes that will occur in that Corridor. A comparison of crash rates on rural two-lane roads and four-lane divided roads demonstrates that four-lane divided facilities typically have lower crash rates than two-lane facilities.

This section will estimate the economic benefit of the reduction in crashes that will occur as a result of transportation improvements in the Corridor. That analysis will begin by estimating the reduction in the total number of crashes that will occur as a result of improved transportation. Then, those crashes will be distributed into one of three types of crashes based on observations of crashes on comparable roadways. Types of crashes analyzed in this section include those that result in property damage only, those that involve an injury, and those that involve a fatality.

Having calculated the reduction in crashes by type, the economic cost of each of those crashes will be estimated based on national trends. Those costs include actual costs incurred from each crash such as emergency response and legal costs, and also include more intangible costs such as quality of life deterioration. Then, the aggregated cost of the total reduction in crashes, which is equivalent to the total economic benefit of crash reduction, will be calculated by multiplying costs per crash by the reduction in crashes associated with improved transportation infrastructure.

This analysis has been conducted for each section along the project Corridor. For simplicity, the methodology will be described and the results will be reported using data representative of the entire project Corridor. At the end of this section, benefits for each of the states along the project Corridor will be reported.

5.8.1 Estimating Crash Reduction

The reduction in crashes that could be expected due to improved transportation in the project Corridor is determined by reviewing crash rates on roadways in the states along the project Corridor. That

review compared crash rates per hundred million motor vehicle miles traveled (100MVM) on rural two-lane and rural four-lane divided highways and is shown in Exhibit 5.8-1.

Exhibit 5.8-1: Crash Rates per 100MVM in States along the Project Corridor

	Rural Two-Lane	Rural Four-Lane Divided	Ratio of Crashes on Two-Lane Versus Four-Lane Facilities
Colorado	149	107	71.8%
New Mexico	60	40	66.7%
Oklahoma	72	40	55.6%
Texas	101	54	53.5%

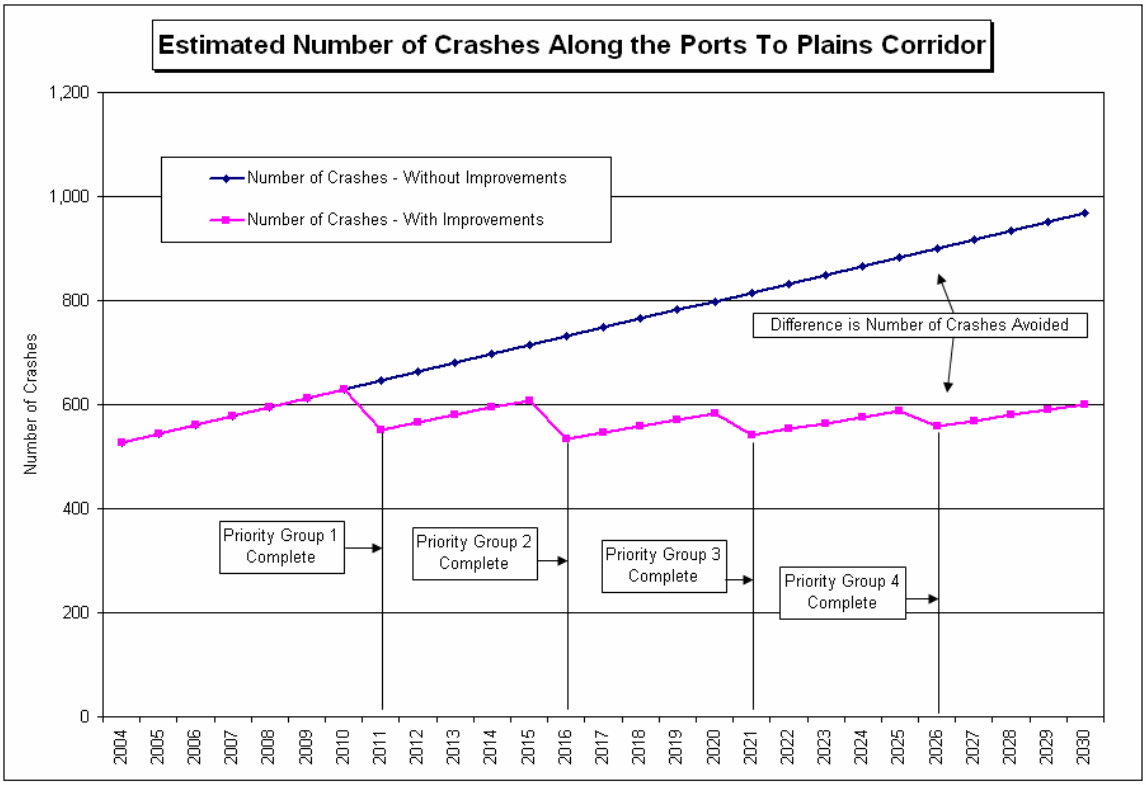
Source: Colorado Department of Transportation, New Mexico Department of Transportation, Oklahoma Department of Transportation, Texas Department of Transportation.

Based on observations of crashes on comparable roadways in the states along the project Corridor, it appears that crash rates on four-lane divided roadways are between 53.5 percent and 71.8 percent of crash rates on two-lane facilities. Those factors will be used to estimate the reduction in crashes that would occur in the Ports to Plains Corridor if transportation infrastructure in that Corridor were improved.

In order to estimate the reduction in crashes, the total number of crashes that would occur on the project Corridor without any improvement is first estimated. That estimate is calculated by multiplying section specific crash rates for each portion of the Ports to Plains Corridor by the estimated vehicle miles traveled (VMT) on each section for each of the years between 2006 and 2030.[13] Then, the lower crash rates associated with four-lane divided roadways were applied to the same estimated traffic volumes to determine the number of crashes that would occur on the project Corridor given transportation improvement. A comparison of the number of crashes with and without transportation improvement allowed the reduction in crashes due to transportation improvement to be calculated. These data series are displayed in Exhibit 5.8-2.

[13] Vehicle miles travel (VMT) was calculated by multiplying existing and 2030 forecast no-build average annual daily traffic for each section by its length for each section of the project Corridor. Years between 2006 and 2030 were interpolated. In this analysis, the number of crashes was calculated using no-build 2030 VMT as opposed to increased VMT with transportation improvement because in *The Safety Effects of the Conversion of Rural Two-Lane Roadways to Four-Lane Roadways*, published by the Federal Highway Administration, it was outlined that the more appropriate comparison is between baseline existing and projected traffic volumes without improvement where data for all affected streets in the system were not available. This analysis was only conducted on portions of the Ports to Plains Corridor that were to be improved.

Exhibit 5.8-2



Source: AECOM Consult, Inc., Colorado Department of Transportation, New Mexico Department of Transportation, Oklahoma Department of Transportation, Ports To Plains Corridor Development Plan Model, Texas Department of Transportation.

Based on projected traffic volumes and observed crash rates, approximately 650 crashes would occur on the project Corridor in 2011. Applying reduced crash rates associated with four-lane roadways resulted in an estimated number of crashes of approximately 550 in 2011, representing a reduction of about 100 crashes. Similarly, the estimated reduction in crashes is calculated for each of the years between 2012 and 2030 and is used to estimate economic benefits associated with improved safety along the project Corridor. In total, it is estimated that approximately 4,735 crashes would be avoided between 2011, the year of completion of the first group of improvements along the project Corridor, and 2030.

5.8.2 Estimating Benefits Associated with Crash Reduction

Before estimating the economic benefit associated with a reduction in crashes, the crashes that were avoided must be distributed into types of crashes. For this analysis, three crash classifications were analyzed including crashes that involve property damage only (PDO), crashes that involve an injury, and crashes that involve a fatality.

To estimate the distribution of crashes on the project Corridor, crash patterns were observed in similar roadways in the project Corridor area.[14] The distribution of crashes by type for all crashes is displayed in Exhibit 5.8-3.

[14] Crash data by type from similar roadways in the project Corridor area was used as opposed to national data because the national distribution of accidents by type do not properly reflect the proportion of injuries and fatalities that may occur on rural four lane roads due to the disproportionate share of urban arterials in the national data.

Exhibit 5.8-3: Crashes by Type on Comparable Roadways

	Share of Crashes
Property Damage Only	69.6%
Injury	28.9%
Fatality	1.5%
Total	**100.0%**

Source: Colorado Department of Transportation, Oklahoma Department of Transportation.

As would be expected, crashes classified as PDO are most common, composing almost 70 percent of all crashes. Crashes involving injuries and fatalities are less frequent. Information on crashes by type for New Mexico and Texas were obtained later in the study process, but were not incorporated into this analysis. A sensitivity test was conducted to determine if the additional information would significantly change the analysis. The test was conclusive that the additional information would not significantly change the outcome of the crash reduction analysis, or the overall conclusions regarding transportation benefits.

The distribution of crashes observed in comparable roadways is applied to the estimated reduction in crashes calculated earlier to arrive at a reduction in crashes by type. That calculation is conducted for each of the years analyzed.

Between 2011 and 2030, the total reduction in crashes associated with improved transportation along the Corridor is estimated to be approximately 3,296 PDO crashes, approximately 1,369 crashes involving an injury, and approximately 70 crashes involving a fatality. These estimated reductions in crashes by type were then used to estimate the total economic benefit of improved safety along the project Corridor.

In order to measure the economic benefit associated with crash reduction, it is required that the value of each crash be determined. That value is calculated using national costs per crash by type of crash.[15] Those costs include actual costs incurred, such as emergency and legal services, insurance costs, lost productivity, and travel delay for other motorists and also include a component to measure more intangible costs such as lost productivity and reduced quality of life resulting from injury.

It is important to note that two adjustments were made to properly measure the cost of crashes. First, one component of the cost of crashes is delay experienced by other motorists. For example, the total cost of a PDO crash is reported as being $2,758 and included $875 in delay costs. Because that figure is representative of all roadways in the U.S., and because roadways in the project Corridor are likely to be less heavily traveled or congested than might be observed in more urban areas, it was decided to reduce the cost of delay incurred by half. Therefore, the cost of delay for a PDO crash used in this analysis is $2,321 ($2,758-($875/2)). Similar adjustments were made for crashes involving an injury and fatality.

Second, the crash costs used in this analysis were reported as unit costs and needed to be adjusted to fully measure the cost of each crash.[16] Specifically, PDO costs were reported as being $2,758 per vehicle; however, many PDO crashes involve more than one vehicle. Similarly, injury and fatality costs were reported on a per person basis, yet some of those crashes involve more than one person being non-fatally or fatally injured. To adjust unit costs to costs per crash, PDO crashes were multiplied by the average number of vehicles in each crash and injury and fatality crashes were multiplied by the average

[15] Crash cost data were obtained from *The Economic Impact of Motor Vehicle Crashes, 2000* published by the National Highway Transportation Safety Administration. For crashes with injuries, those data reported costs associated with six varying levels of injury severity. For simplicity, those costs were aggregated using a weighted average based on type of injury frequency. Cost data were adjusted to reflect 2004 dollars.

[16] Unit costs of crashes published by the National Highway Transportation Safety Administration are published on a per person basis for injuries and fatalities and PDO costs are published on a per damaged vehicle basis.

umber of persons injured or fatally injured in each crash.[17] The estimated total cost per crash for each type of crash can be seen in Exhibit 5.8-4.

Exhibit 5.8-4: Estimated Cost of Crashes by Type in the Ports to Plains Corridor

Crash Type	Unit Costs Per Crash	Units	Average Number of Units Per Crash	Total Cost Per Crash
Property Damage Only (PDO)	$2,321	Vehicles	1.71	$3,961
Injury	$32,024	Persons	1.86	$59,664
Fatality	$3,662,463	Persons	1.12	$4,094,412

Source: The Economic Benefit of Motor Vehicle Crashes, 2000, National Highway Traffic Safety Administration.
Note: Data are displayed in 2004 dollars.

With an estimate of the reduction in crashes by type of crash and an estimate of the cost associated with each of those crashes, it is possible to determine the total benefit associated with a reduction in crashes. That benefit is calculated by multiplying the number of crashes avoided due to improved transportation infrastructure by the appropriate cost of each crash by type. Those figures have been calculated for each type of crash for each of the years between 2011, the year that the first portions of improvement in the project Corridor are projected to be completed, and 2030 and are displayed in Exhibit 5.8-5.

When measuring future benefits, it is required to discount those benefits to better represent their present value. Therefore, the discounted value of crash reduction has also been calculated and is included in Exhibit 5.8-5. Those calculations were conducted using a 7.0 percent discounting factor and a 4.78 percent factor.

[17] The number of units per crash for both vehicles and persons was obtained from *The Economic Impact of Motor Vehicle Crashes, 2000* published by the National Highway Transportation Safety Administration.

Exhibit 5.8-5: Estimated Total Benefit of Reduction in Crashes, in Millions of 2004 Dollars

Year	Crash Reduction				Total Benefit of Crash Reduction				Discounted Benefit of Crash Reduction	
	PDO	Injury	Fatality	Total	PDO	Injury	Fatality	Total	7.0 Percent	4.78 Percent
2011	65	27	1	94	$258,293	$1,616,399	$5,668,006	$7,542,698	$4,697,213	$5,439,738
2012	67	28	1	97	$266,532	$1,667,962	$5,848,812	$7,783,305	$4,529,954	$5,357,188
2013	69	29	1	100	$274,771	$1,719,524	$6,029,617	$8,023,912	$4,364,477	$5,270,850
2014	71	30	2	103	$283,011	$1,771,086	$6,210,423	$8,264,519	$4,201,263	$5,181,239
2015	74	31	2	106	$291,250	$1,822,648	$6,391,229	$8,505,126	$4,040,724	$5,088,836
2016	137	57	3	197	$544,406	$3,406,899	$11,946,506	$15,897,811	$7,058,818	$9,078,134
2017	141	59	3	202	$557,845	$3,490,999	$12,241,407	$16,290,251	$6,759,875	$8,877,867
2018	144	60	3	207	$571,283	$3,575,099	$12,536,308	$16,682,690	$6,469,835	$8,676,979
2019	148	61	3	212	$584,722	$3,659,199	$12,831,209	$17,075,129	$6,188,813	$8,475,944
2020	151	63	3	217	$598,161	$3,743,298	$13,126,110	$17,467,569	$5,916,870	$8,275,194
2021	191	79	4	274	$754,650	$4,722,607	$16,560,118	$22,037,375	$6,976,469	$9,963,850
2022	195	81	4	279	$770,557	$4,822,155	$16,909,188	$22,501,900	$6,657,500	$9,709,751
2023	199	82	4	285	$786,464	$4,921,703	$17,258,259	$22,966,425	$6,350,408	$9,458,100
2024	203	84	4	291	$802,371	$5,021,250	$17,607,329	$23,430,951	$6,055,003	$9,209,203
2025	207	86	4	297	$818,279	$5,120,798	$17,956,399	$23,895,476	$5,771,070	$8,963,330
2026	238	99	5	342	$942,285	$5,896,829	$20,677,602	$27,516,716	$6,210,885	$9,850,810
2027	242	101	5	348	$960,376	$6,010,044	$21,074,596	$28,045,015	$5,916,009	$9,581,922
2028	247	103	5	355	$978,467	$6,123,258	$21,471,589	$28,573,315	$5,633,132	$9,317,066
2029	252	105	5	361	$996,558	$6,236,473	$21,868,583	$29,101,614	$5,361,948	$9,056,434
2030	256	106	5	368	$1,014,649	$6,349,687	$22,265,577	$29,629,913	$5,102,138	$8,800,192
Total	**3,296**	**1,369**	**70**	**4,735**	**$13,054,929**	**$81,697,917**	**$286,478,866**	**$381,231,712**	**$114,262,404**	**$163,632,627**

Source: AECOM Consult, Inc., Colorado Department of Transportation, New Mexico Department of Transportation, Oklahoma Department of Transportation, and Texas Department of Transportation.
Notes: 2006 through 2010 were not displayed because benefits were not estimated to begin to accrue until 2011 when the first priority group of projects was scheduled to be completed. Columns may not sum to totals due to rounding.

Between 2011 and 2030, the total number of crashes avoided by improving transportation infrastructure in the project Corridor is estimated to be 4,735. The benefit associated with the avoidance of those crashes is estimated to be $381.2 million in 2004 dollars. The total discounted benefit of reduction in crashes using 7.0 and 4.78 percent discount factors is estimated to be $114.3 million and $163.6 million in that time period, respectively.

The benefit of crash avoidance has also been estimated for each of the states along the project Corridor. Those estimates were calculated by aggregating section specific crash avoidance data to the state level. The estimated reduction in crashes, by type of crash, associated with improved transportation infrastructure is displayed in Exhibit 5.8-6 for each of the states along the project Corridor.

Exhibit 5.8-6: Estimated Reduction in Crashes by State

	Colorado				New Mexico				Oklahoma				Texas				
Year	PDO	Inj.	Fat.	Total	PDO	Inj.	Fat.	Total	PDO	Inj.	Fat.	Total	PDO	Inj.	Fat.	Total	Total
2011	18	7	0.4	26	0	0	0.0	0	9	4	0.2	12	39	16	0.8	56	**94**
2012	18	8	0.4	26	0	0	0.0	0	9	4	0.2	12	40	17	0.9	58	**97**
2013	19	8	0.4	27	0	0	0.0	0	9	4	0.2	12	42	17	0.9	60	**100**
2014	19	8	0.4	28	0	0	0.0	0	9	4	0.2	13	44	18	0.9	63	**103**
2015	20	8	0.4	28	0	0	0.0	0	9	4	0.2	13	45	19	1.0	65	**106**
2016	53	22	1.1	77	12	5	0.2	17	16	7	0.3	23	56	23	1.2	81	**197**
2017	54	23	1.2	78	12	5	0.2	17	17	7	0.4	24	58	24	1.2	83	**202**
2018	56	23	1.2	80	12	5	0.3	17	17	7	0.4	24	60	25	1.3	86	**207**
2019	57	24	1.2	82	12	5	0.3	18	17	7	0.4	24	62	26	1.3	89	**212**
2020	58	24	1.2	83	12	5	0.3	18	17	7	0.4	25	63	26	1.3	91	**217**
2021	59	25	1.3	85	25	10	0.5	36	18	7	0.4	25	89	37	1.9	128	**274**
2022	60	25	1.3	86	26	11	0.5	37	18	7	0.4	26	91	38	1.9	131	**279**
2023	61	25	1.3	88	26	11	0.6	37	18	8	0.4	26	93	39	2.0	134	**285**
2024	62	26	1.3	90	26	11	0.6	38	18	8	0.4	26	95	40	2.0	137	**291**
2025	64	26	1.4	91	27	11	0.6	39	19	8	0.4	27	97	40	2.1	140	**297**
2026	65	27	1.4	93	27	11	0.6	39	19	8	0.4	27	127	53	2.7	182	**342**
2027	66	27	1.4	95	28	12	0.6	40	19	8	0.4	27	130	54	2.8	186	**348**
2028	67	28	1.4	96	28	12	0.6	41	19	8	0.4	28	132	55	2.8	190	**355**
2029	68	28	1.4	98	29	12	0.6	41	20	8	0.4	28	135	56	2.9	194	**361**
2030	69	29	1.5	100	29	12	0.6	42	20	8	0.4	29	138	57	2.9	198	**368**
Total	**1,014**	**421**	**21.5**	**1,456**	**331**	**138**	**7.0**	**476**	**314**	**131**	**6.7**	**452**	**1,636**	**680**	**34.7**	**2,351**	**4,735**

Source: AECOM Consult, Inc., Colorado Department of Transportation, New Mexico Department of Transportation, Oklahoma Department of Transportation, and Texas Department of Transportation.
Notes: 2006 through 2010 were not displayed because benefits were not estimated to begin to accrue until 2011 when the first priority group of projects was scheduled to be completed. PDO- crash involving property damage only; Inj.-crash involving injury; Fat.-crash involving fatality. Columns and rows may not sum to totals due to rounding.

Between 2011 and 2030, the number of crashes occurring in Texas would be 2,351 fewer than would have otherwise occurred without any improvement in transportation infrastructure. In Colorado, the reduction in crashes in that period is estimated to be 1,456. Comparable figures for New Mexico and Oklahoma were 476 and 452, respectively.

Having an estimated reduction in crashes by type for each of the states along the project Corridor allowed the calculation of the benefit of crash avoidance for each of those states and is displayed in Exhibit 5.8-7. Those benefits shown are in millions of 2004 dollars and have also been discounted to better represent present value of future benefits.

Exhibit 5.8-7: Estimated Total Benefit of Reduction in Crashes by State
(Millions of 2004 Dollars)

Year	Total Benefit of Crash Reduction				Benefit of Crash Reduction Discounted at 7.0%				Benefit of Crash Reduction Discounted at 4.78%			
	CO	NM	OK	TX	CO	NM	OK	TX	CO	NM	OK	TX
2011	$2.1	$0.0	$1.0	$4.5	$1.3	$0.0	$0.6	$2.8	$1.5	$0.0	$0.7	$3.2
2012	$2.1	$0.0	$1.0	$4.7	$1.2	$0.0	$0.6	$2.7	$1.5	$0.0	$0.7	$3.2
2013	$2.2	$0.0	$1.0	$4.9	$1.2	$0.0	$0.5	$2.6	$1.4	$0.0	$0.7	$3.2
2014	$2.2	$0.0	$1.0	$5.0	$1.1	$0.0	$0.5	$2.6	$1.4	$0.0	$0.6	$3.2
2015	$2.3	$0.0	$1.0	$5.2	$1.1	$0.0	$0.5	$2.5	$1.4	$0.0	$0.6	$3.1
2016	$6.2	$1.3	$1.9	$6.5	$2.7	$0.6	$0.8	$2.9	$3.5	$0.8	$1.1	$3.7
2017	$6.3	$1.4	$1.9	$6.7	$2.6	$0.6	$0.8	$2.8	$3.4	$0.7	$1.0	$3.7
2018	$6.4	$1.4	$1.9	$6.9	$2.5	$0.5	$0.8	$2.7	$3.3	$0.7	$1.0	$3.6
2019	$6.6	$1.4	$2.0	$7.1	$2.4	$0.5	$0.7	$2.6	$3.3	$0.7	$1.0	$3.5
2020	$6.7	$1.4	$2.0	$7.3	$2.3	$0.5	$0.7	$2.5	$3.2	$0.7	$0.9	$3.5
2021	$6.8	$2.9	$2.0	$10.3	$2.2	$0.9	$0.6	$3.3	$3.1	$1.3	$0.9	$4.6
2022	$7.0	$3.0	$2.1	$10.5	$2.1	$0.9	$0.6	$3.1	$3.0	$1.3	$0.9	$4.5
2023	$7.1	$3.0	$2.1	$10.8	$2.0	$0.8	$0.6	$3.0	$2.9	$1.2	$0.9	$4.4
2024	$7.2	$3.1	$2.1	$11.0	$1.9	$0.8	$0.5	$2.8	$2.8	$1.2	$0.8	$4.3
2025	$7.4	$3.1	$2.2	$11.3	$1.8	$0.8	$0.5	$2.7	$2.8	$1.2	$0.8	$4.2
2026	$7.5	$3.2	$2.2	$14.7	$1.7	$0.7	$0.5	$3.3	$2.7	$1.1	$0.8	$5.3
2027	$7.6	$3.2	$2.2	$15.0	$1.6	$0.7	$0.5	$3.2	$2.6	$1.1	$0.8	$5.1
2028	$7.8	$3.3	$2.2	$15.3	$1.5	$0.6	$0.4	$3.0	$2.5	$1.1	$0.7	$5.0
2029	$7.9	$3.3	$2.3	$15.6	$1.5	$0.6	$0.4	$2.9	$2.5	$1.0	$0.7	$4.9
2030	$8.0	$3.4	$2.3	$15.9	$1.4	$0.6	$0.4	$2.7	$2.4	$1.0	$0.7	$4.7
Total	**$117.3**	**$38.3**	**$36.4**	**$189.3**	**$35.9**	**$10.1**	**$11.6**	**$56.7**	**$51.1**	**$15.1**	**$16.3**	**$81.1**

Source: AECOM Consult, Inc., Colorado Department of Transportation, National Highway Traffic Safety Administration, New Mexico Department of Transportation, Oklahoma Department of Transportation, and Texas Department of Transportation.
Notes: 2006 through 2010 were not displayed because benefits were not estimated to begin to accrue until 2011 when the first priority group of projects was scheduled to be completed. Columns may not sum to totals due to rounding.

Between 2011 and 2030, the benefit of a reduction in the total number of crashes associated with improved transportation infrastructure in the Texas portion of the project Corridor is estimated to be $189.3 million, in 2004 dollars. In Colorado, the comparable benefit is estimated to be $117.3 million. In both New Mexico and Oklahoma, the benefit of a reduction in crashes is estimated to be between $38 million and $36 million in 2004 dollars.

5.9 Roadside Services Benefits Associated with Improved Transportation

Traffic along the Ports to Plains Corridor is expected to increase by approximately 12 percent with the completion of the Corridor transportation improvements due to diversions from other less efficient routes between various origins and destinations between Laredo, Texas and Denver, Colorado.[18] This increase in traffic translates into increases in spending on lodging, food, gasoline, diesel, and other retail items by travelers along the Ports to Plains Corridor. To meet this increase in demand, there will be an expansion of commercial activity along the Corridor. These new roadside service expenditures are important because they generate additional revenues for small businesses which results in additional employment, earnings, and tax revenues for the Corridor counties.

When calculating the economic benefits associated with the new roadside service expenditures in the Ports to Plains Corridor, it is important to note that there are no state benefits from these expenditures. The traffic generating most of the new roadside service expenditures along the Corridor is diverted traffic from more congested routes in the states. In other words, the roadside service expenditures in the Ports to Plains Corridor would be spent in other travel routes in the states if the Ports to Plains Corridor project is not constructed.

[18] Ports to Plains Traffic Forecast Model.

This section estimates the economic benefits associated with the increase in roadside service expenditures along the Ports to Plains Corridor including increases in employment and earnings. The analysis begins with a description of the methodology used to estimate the increased roadside service expenditures along the Corridor. These increased expenditures are then allocated to each state by year, based on the projected VMT traveled in each Corridor section. Once the annual expenditures are known, the total employment and earnings benefits for the Ports to Plains Corridor are estimated using the Bureau of Economic Analysis' (BEA) RIMS II Multipliers.

5.9.1 Methodology for Estimating Increased Roadside Service Expenditures

To estimate the increase in roadside service expenditures on lodging, food, gasoline, diesel, and other retail along the Ports to Plains Corridor, an estimate of expenditures per vehicle mile traveled (VMT) is developed based on an analysis from the Appalachian Regional Commission's (ARC) *1998 Appalachian Development Highways Economic Impact Studies.*[19] The logic used to estimate lodging, food, gasoline, diesel, and other retail expenditures per VMT is the same as the ARC report; however, the dollar values assumed have been updated to reflect prices in 2004. The expenditure per VMT for lodging, food, gasoline, diesel, and other retail is described in detail in the following sections. Expenditure estimates have been converted to annual VMT to enable the calculation of economic benefits on an annual basis through 2030.

5.9.2 Lodging

Lodging expenditures are motel or other lodging facility stays, purchased by long-distance travelers along the Ports to Plains Corridor. It is assumed that the only travelers spending money on motels and other lodging facilities are non-truck travelers as truck travelers are highly likely to keep driving or pull off and sleep in their cabs. The lodging expenditures are derived using the following assumptions from the ARC Appalachian Development Highways Economic Impact Studies: travelers stay in motels or other lodging facilities if they drive 500 miles or more and only 20 percent of the induced Corridor traffic stays in a motel or lodging facility. The ARC study assumes that the average cost of lodging facilities is $50 in 1995 dollars, which results in an annual lodging expenditure of $8.40 per VMT in 1995 dollars.[20] In order to escalate the cost of lodging to 2004 dollars, the 1995 value is increased by the change in the U.S. Consumer Price Index (CPI) for other lodging including hotels and motels, 30.2 percent between the first half of 2004 and 1995 to an annual lodging expenditure of $10.93 per VMT.

5.9.3 Food

Food expenditures include food purchases by travelers as they stop for meals and snacks along the Corridor. These expenditures can be spent at restaurants as well as convenience centers. It is assumed that a portion of non-truck as well as truck traffic will stop for food while traveling along the Corridor. The food expenditures are derived using the following assumptions from the ARC Appalachian Development Highways Economic Impact Studies: there are 1.6 people per vehicle, they travel 500 miles, and only 30 percent of the travelers will stop for food because the other trips are less than 500 miles and do not require food stops. The ARC study assumes that the average cost of food per person each day is $20 in 1995 dollars, which results in an annual food expenditure of $7.67 per VMT in 1995 dollars. In order to escalate the cost of food to 2004 dollars, the 1995 value is increased by the change in the U.S. Consumer Price Index (CPI) for food away from home, 24.8 percent between the first half of 2004 and 1995 to an annual food expenditure of $9.57 per VMT.

[19] Appalachian Regional Commission, *Appalachian Development Highways Economic Impact Studies*, Prepared by Wilbur Smith Associates, July 1998.
[20] Hotel, food, gasoline, and other retail expenditures per VMT were obtained from the Appalachian Regional Commission's *Appalachian Development Highways Economic Impact Studies*, Prepared by Wilbur Smith Associates, July 1998.

5.9.4 Gasoline

Gasoline roadside expenditures represent the gasoline sales as non-truck travelers along the Ports to Plains Corridor refill their gas tanks. The gasoline expenditures are derived using the following assumptions: gasoline costs $1.875 per gallon, the average weekly price per gallon in the U.S. reported by the Department of Energy's Energy Information Administration (EIA) for the week of August 16, 2004, and gas vehicles average 23.7 miles per gallon, the average of fuel efficiencies for autos from the EIA's *Annual Energy Outlook 2004*.[21] The gasoline auto fuel efficiencies from the EIA are based on new vehicles; therefore, the 23.7 miles per gallon assumed in the analysis is conservative because new cars in general are more fuel efficient than older models, which are still in use. Assuming a $1.875 cost per gallon and a fuel efficiency of 23.7 miles per gallon, the annual cost of gasoline per VMT is $28.88 in 2004 dollars.

5.9.5 Diesel

Diesel roadside expenditures account for the fuel sales to diesel trucks traveling along the Ports to Plains Corridor. The annual expenditures on diesel fuel along the Corridor are derived in a similar fashion as the gasoline expenditures and assume: diesel fuel costs $1.825 per gallon, the average weekly price per gallon in the U.S. reported by the EIA for the week of August 16, 2004, and that medium and heavy trucks average 7.7 miles per gallon, the weighted average of the fuel efficiency of medium and heavy trucks from the Oak Ridge National Laboratory's *Transportation Energy Data Book, 2001*.[22] Assuming diesel fuel costs $1.825 per gallon and medium and heavy truck have a fuel efficiency of 7.7 miles per gallon, the annual cost of diesel per VMT is $86.51 in 2004 dollars.

5.9.6 Other Retail

Other retail expenditures account for other vehicle user costs, such as tires and repairs, as well as retail purchases made by travelers along the Ports to Plains Corridor. It is assumed that both non-tuck and truck travelers will incur these costs while traveling along the Corridor. Estimates for other retail expenditures are derived using the assumption from the ARC Appalachian Development Highways Economic Impact Studies. Those estimates suggest that annual other retail expenditures were $28.11 per VMT in 1995 dollars. In order to escalate the cost of other vehicle user costs and retail purchases along the Ports to Plains Corridor, the 1995 value is increased by the change in the U.S. CPI for all items, except food, shelter, energy, and used cars and trucks, 16.9 percent between the first half of 2004 and 1995 to an annual other retail expenditure of $32.86 per VMT. Exhibit 5.9-1 presents a summary of the annual lodging, food, gasoline, diesel, and other retail roadside expenditures per daily VMT used in the analysis.

Exhibit 5.9-1: Roadside Service Expenditures per Daily VMT, in 2004 Dollars

	Daily Expenditures per VMT	Annual Expenditures per VMT
Lodging	$0.030	$10.93
Food	$0.026	$9.57
Gasoline	$0.079	$28.88
Diesel	$0.237	$86.51
Other Retail	$0.090	$32.86

Source: AECOM Consult, Inc.

[21] Department of Energy's Energy Information Administration, *Supplemental Tables to the Annual Energy Outlook 2004*, Table 57: New Light-Duty Vehicle Fuel Economy.
[22] Oak Ridge National Laboratory, *Transportation Energy Data Book: Edition 21 – 2001*, Table 8.6: Truck Statistics by Size, 1997.

5.10 Economic Benefit Methodology

The calculation of the annual roadside service expenditures along the Port to Plains Corridor is based on the expenditures per VMT discussed above and the VMT associated with each Corridor section as it becomes open to traffic. The additional VMT per Corridor is based on 2030 traffic, which assumes that the entire Corridor is improved; however, the Corridor sections actually will be constructed in four phases and as each phase is complete, improved sections will be open to traffic and will experience new roadside service expenditures. Therefore, the Ports to Plains Corridor traffic experienced prior to 2030 is a portion of the 2030 VMT calculated as part of this study.

This section describes the methodology used to estimate the annual roadside service expenditures in the Ports to Plains Corridor counties. The first step in the analysis is to allocate the 2030 VMT for each Corridor section as it is improved and the sections connected to it that are also improved. After the VMT for each year is estimated, the annual roadside service expenditures are calculated by multiplying the VMT by state and the annual roadside service expenditures per VMT. Lastly, the total employment and earnings benefits are estimated using the annual roadside service expenditures and the BEA RIMS II Multipliers for the Ports to Plains Corridor counties.

5.10.1 Allocation of 2030 VMT

The additional VMT for the Ports to Plains Corridor is a 2030 estimate that assumes the entire Corridor between Laredo and Denver is improved. However, the Corridor will be constructed in four phases, which means that various sections will be improved starting in 2011 and will experience economic benefits from additional roadside service expenditures. To account for the construction phasing, a series of rules were developed to build up each section's VMT to the estimated 2030 VMT. In other words, it is assumed that a percentage of the 2030 VMT will be experienced by sections as they are improved and this percentage will continue to grow as connecting sections also are improved. The 2030 VMT estimate for each Corridor section is reached upon completion of the Ports to Plains Corridor after Phase IV of construction in 2026.

Exhibit 5.10-1 presents a summary of the daily VMT results by state when the logic described above is applied to the 2030 VMT and the Ports to Plains Corridor construction phases. For a detailed description of the logic and the resulting benefit on the VMT for each Corridor section, please see section 5.21.

Exhibit 5.10-1: Allocation of Daily 2030 VMT by State and Completion of Section Construction Phases

	Colorado	New Mexico	Oklahoma	Texas	Total
Phase I Complete - 2011					
Additional VMT with Improvements (non-truck)	54,565	0	4,852	222,049	**281,466**
Additional Truck VMT with Improvements (truck)	15,370	0	1,144	26,747	**43,261**
Total	**69,935**	**0**	**5,996**	**248,796**	**324,727**
Phase II Complete - 2016					
Additional VMT with Improvements (non-truck)	193,491	0	66,987	389,031	**649,509**
Additional Truck VMT with Improvements (truck)	55,679	0	15,758	54,178	**125,615**
Total	**249,170**	**0**	**82,745**	**443,209**	**775,124**
Phase III Complete - 2021					
Additional VMT with Improvements (non-truck)	344,667	-51,281	72,140	473,029	**838,555**
Additional Truck VMT with Improvements (truck)	104,830	-11,730	16,970	66,285	**176,355**
Total	**449,497**	**-63,011**	**89,110**	**539,314**	**1,014,910**
Phase IV Complete - 2026					
Additional VMT with Improvements (non-truck)	518,811	-102,562	103,057	640,947	**1,160,253**
Additional Truck VMT with Improvements (truck)	173,178	-23,459	24,242	110,200	**284,161**
Total	**691,989**	**-126,021**	**127,299**	**751,147**	**1,444,414**

Source: AECOM Consult, Inc. and Turner Collie & Braden.

5.10.2 Estimate of New Annual Roadside Service Expenditures

The new annual roadside service expenditures experienced along the Ports to Plains Corridor are estimated by multiplying the annual lodging, food, gasoline, diesel, and other retail expenditures per VMT shown in Exhibit 5.9-1 by the VMT shown in Exhibit 5.10-1. The annual roadside service expenditures by state are shown in Exhibits 5.10-2 through 5.10-5 in millions of 2004 dollars.

Exhibit 5.10-2: Annual Roadside Service Expenditures for Colorado (Millions of 2004 Dollars)

Year	Lodging	Food	Gas	Diesel	Other Retail	Total
2006	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2007	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2008	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2009	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2010	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2011	$0.6	$0.7	$1.6	$1.3	$2.3	**$6.5**
2012	$0.6	$0.7	$1.6	$1.3	$2.3	**$6.5**
2013	$0.6	$0.7	$1.6	$1.3	$2.3	**$6.5**
2014	$0.6	$0.7	$1.6	$1.3	$2.3	**$6.5**
2015	$0.6	$0.7	$1.6	$1.3	$2.3	**$6.5**
2016	$2.1	$2.4	$5.6	$4.8	$8.2	**$23.1**
2017	$2.1	$2.4	$5.6	$4.8	$8.2	**$23.1**
2018	$2.1	$2.4	$5.6	$4.8	$8.2	**$23.1**
2019	$2.1	$2.4	$5.6	$4.8	$8.2	**$23.1**
2020	$2.1	$2.4	$5.6	$4.8	$8.2	**$23.1**
2021	$3.8	$4.3	$10.0	$9.1	$14.8	**$41.9**
2022	$3.8	$4.3	$10.0	$9.1	$14.8	**$41.9**
2023	$3.8	$4.3	$10.0	$9.1	$14.8	**$41.9**
2024	$3.8	$4.3	$10.0	$9.1	$14.8	**$41.9**
2025	$3.8	$4.3	$10.0	$9.1	$14.8	**$41.9**
2026	$5.7	$6.6	$15.0	$15.0	$22.7	**$65.0**
2027	$5.7	$6.6	$15.0	$15.0	$22.7	**$65.0**
2028	$5.7	$6.6	$15.0	$15.0	$22.7	**$65.0**
2029	$5.7	$6.6	$15.0	$15.0	$22.7	**$65.0**
2030	$5.7	$6.6	$15.0	$15.0	$22.7	**$65.0**
Total	**$60.7**	**$69.9**	**$160.5**	**$151.0**	**$240.0**	**$682.1**

Source: AECOM Consult, Inc.
Note: Columns and rows may not sum to totals due to rounding.

Exhibit 5.10-3 shows that by 2026, the year the Ports to Plains construction Phase IV is completed, the annual roadside service expenditures in Colorado are estimated to increase by $65 million in 2004 dollars. These annual expenditures create direct and indirect employment and earnings in the Colorado counties along the Corridor, which are estimated in section 5.14.

Exhibit 5.10-3: Annual Roadside Service Expenditures for New Mexico (Millions of 2004 Dollars)

Year	Lodging	Food	Gas	Diesel	Other Retail	Total
2006	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2007	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2008	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2009	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2010	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2011	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2012	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2013	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2014	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2015	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2016	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2017	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2018	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2019	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2020	$0.0	$0.0	$0.0	$0.0	$0.0	**$0.0**
2021	-$0.6	-$0.6	-$1.5	-$1.0	-$2.1	**-$5.7**
2022	-$0.6	-$0.6	-$1.5	-$1.0	-$2.1	**-$5.7**
2023	-$0.6	-$0.6	-$1.5	-$1.0	-$2.1	**-$5.7**
2024	-$0.6	-$0.6	-$1.5	-$1.0	-$2.1	**-$5.7**
2025	-$0.6	-$0.6	-$1.5	-$1.0	-$2.1	**-$5.7**
2026	-$1.1	-$1.2	-$3.0	-$2.0	-$4.1	**-$11.5**
2027	-$1.1	-$1.2	-$3.0	-$2.0	-$4.1	**-$11.5**
2028	-$1.1	-$1.2	-$3.0	-$2.0	-$4.1	**-$11.5**
2029	-$1.1	-$1.2	-$3.0	-$2.0	-$4.1	**-$11.5**
2030	-$1.1	-$1.2	-$3.0	-$2.0	-$4.1	**-$11.5**
Total	**-$8.4**	**-$9.0**	**-$22.2**	**-$15.2**	**-$31.1**	**-$85.9**

Source: AECOM Consult, Inc.
Note: Columns and rows may not sum to totals due to rounding.

By 2026, the annual roadside service expenditures in New Mexico decline by $11.5 million in 2004 dollars due to a loss in VMT along the Corridor sections in the state. The declining expenditures result in a loss of direct and indirect employment and earnings along the Ports to Plains Corridor counties, which are estimated later in the chapter.

Exhibit 5.10-4: Annual Roadside Service Expenditures for Oklahoma (Millions of 2004 Dollars)

Year	Lodging	Food	Gas	Diesel	Other Retail	Total
2006	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.0**
2007	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.0**
2008	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.0**
2009	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.0**
2010	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.0**
2011	$0.05	$0.06	$0.14	$0.10	$0.20	**$0.5**
2012	$0.05	$0.06	$0.14	$0.10	$0.20	**$0.5**
2013	$0.05	$0.06	$0.14	$0.10	$0.20	**$0.5**
2014	$0.05	$0.06	$0.14	$0.10	$0.20	**$0.5**
2015	$0.05	$0.06	$0.14	$0.10	$0.20	**$0.5**
2016	$0.73	$0.79	$1.93	$1.36	$2.72	**$7.5**
2017	$0.73	$0.79	$1.93	$1.36	$2.72	**$7.5**
2018	$0.73	$0.79	$1.93	$1.36	$2.72	**$7.5**
2019	$0.73	$0.79	$1.93	$1.36	$2.72	**$7.5**
2020	$0.73	$0.79	$1.93	$1.36	$2.72	**$7.5**
2021	$0.79	$0.85	$2.08	$1.47	$2.93	**$8.1**
2022	$0.79	$0.85	$2.08	$1.47	$2.93	**$8.1**
2023	$0.79	$0.85	$2.08	$1.47	$2.93	**$8.1**
2024	$0.79	$0.85	$2.08	$1.47	$2.93	**$8.1**
2025	$0.79	$0.85	$2.08	$1.47	$2.93	**$8.1**
2026	$1.13	$1.22	$2.98	$2.10	$4.18	**$11.6**
2027	$1.13	$1.22	$2.98	$2.10	$4.18	**$11.6**
2028	$1.13	$1.22	$2.98	$2.10	$4.18	**$11.6**
2029	$1.13	$1.22	$2.98	$2.10	$4.18	**$11.6**
2030	$1.13	$1.22	$2.98	$2.10	$4.18	**$11.6**
Total	**$13.5**	**$14.6**	**$35.7**	**$25.1**	**$50.1**	**$139.0**

Source: AECOM Consult, Inc.
Note: Columns and rows may not sum to totals due to rounding.

By 2026, the first year the entire Ports to Plains Corridor is improved, the annual roadside service expenditures in Oklahoma increase by $11.6 million in 2004 dollars. The new roadside service expenditures create direct and indirect employment and earnings in the Corridor counties, which are estimated in the next section.

Exhibit 5.10-5: Annual Roadside Service Expenditures for Texas (Millions of 2004 Dollars)

Year	Lodging	Food	Gas	Diesel	Other Retail	Total
2006	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.0**
2007	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.0**
2008	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.0**
2009	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.0**
2010	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.0**
2011	$2.43	$2.38	$6.41	$2.31	$8.18	**$21.7**
2012	$2.43	$2.38	$6.41	$2.31	$8.18	**$21.7**
2013	$2.43	$2.38	$6.41	$2.31	$8.18	**$21.7**
2014	$2.43	$2.38	$6.41	$2.31	$8.18	**$21.7**
2015	$2.43	$2.38	$6.41	$2.31	$8.18	**$21.7**
2016	$4.25	$4.24	$11.23	$4.69	$14.56	**$39.0**
2017	$4.25	$4.24	$11.23	$4.69	$14.56	**$39.0**
2018	$4.25	$4.24	$11.23	$4.69	$14.56	**$39.0**
2019	$4.25	$4.24	$11.23	$4.69	$14.56	**$39.0**
2020	$4.25	$4.24	$11.23	$4.69	$14.56	**$39.0**
2021	$5.17	$5.16	$13.66	$5.73	$17.72	**$47.4**
2022	$5.17	$5.16	$13.66	$5.73	$17.72	**$47.4**
2023	$5.17	$5.16	$13.66	$5.73	$17.72	**$47.4**
2024	$5.17	$5.16	$13.66	$5.73	$17.72	**$47.4**
2025	$5.17	$5.16	$13.66	$5.73	$17.72	**$47.4**
2026	$7.00	$7.19	$18.51	$9.53	$24.68	**$66.9**
2027	$7.00	$7.19	$18.51	$9.53	$24.68	**$66.9**
2028	$7.00	$7.19	$18.51	$9.53	$24.68	**$66.9**
2029	$7.00	$7.19	$18.51	$9.53	$24.68	**$66.9**
2030	$7.00	$7.19	$18.51	$9.53	$24.68	**$66.9**
Total	**$94.3**	**$94.8**	**$249.1**	**$111.3**	**$325.7**	**$875.2**

Source: AECOM Consult, Inc.
Note: Columns and rows may not sum to totals due to rounding.

Exhibit 5.10-5 shows that 2026, the year the Ports to Plains Corridor construction phase IV is completed, the annual roadside service expenditures in Texas increase by almost $67 million in 2004 dollars. The new roadside service expenditures create direct and indirect employment and earnings in the Corridor counties, which are estimated in section 5.11.

These increases in annual roadside service expenditures along the Ports to Plains Corridor result in direct and indirect employment and earnings for the Corridor counties in Colorado, Oklahoma, and Texas. The direct employment and earnings are generated by the additional employees required to meet the new demand for roadside services along the Corridor. The indirect employment and earnings result from the increase demand for goods and services in other sectors such as retail and personal services. The total employment and earnings benefits are calculated using the annual roadside service expenditures and RIMS II multipliers, discussed below.

5.10.3 RIMS II Multipliers

Determining the direct and indirect benefits of the increase in roadside service expenditures is conducted by using employment and earnings multipliers. These multipliers are obtained from RIMS II published by BEA.[23] Using these multipliers, the direct and indirect employment and earnings benefits are calculated for the counties along the project Corridor. The final demand multipliers used to estimate these employment and earnings benefits are displayed in Exhibit 5.10-6. The final demand multipliers are multiplied by the total change in roadside service expenditures in order to estimate the direct and indirect employment and earnings. It is important to note that the final demand employment multipliers represent the number of jobs created per $1 million of construction expenditures in 2001

[23] RIMS II refers to the Regional Input-Output Modeling System. See section 5.20 for details on RIMS II multipliers.

dollars. Therefore, the roadside service expenditures shown in Exhibits 5.10-2 through 5.10-5 are deflated using the expenditure category's CPI to estimate the employment benefits.

Exhibit 5.10-6: RIMS II Final Demand Multipliers for the Counties in the Ports to Plains Corridor

	Colorado		New Mexico		Oklahoma		Texas	
	Corridor Counties	State	Corridor Counties	State	Corridor Counties	State	Corridor Counties	State
Lodging - Accommodation Multipliers								
Employment	13.3589	25.0295	27.8229	31.1747	24.5737	35.2863	21.6059	24.7335
Earnings	0.3140	0.6322	0.4710	0.5611	0.3800	0.6083	0.5470	0.6543
Food - Food Services and Drinking Places Multipliers								
Employment	17.2608	35.6053	36.8971	41.4452	33.6412	42.1511	31.3471	35.4828
Earnings	0.3140	0.7266	0.5131	0.6306	0.4875	0.7006	0.6207	0.7611
Gasoline - Retail Trade Multipliers								
Employment	11.9375	25.9886	23.6076	27.8877	22.5348	30.1724	21.5330	25.4009
Earnings	0.2866	0.6668	0.4595	0.5702	0.4208	0.6222	0.5270	0.6579
Diesel - Retail Trade Multipliers								
Employment	11.9375	25.9886	23.6076	27.8877	22.5348	30.1724	21.5330	25.4009
Earnings	0.2866	0.6668	0.4595	0.5702	0.4208	0.6222	0.5270	0.6579
Other Retail - Average of Retail Trade and Other Transportation and Support Services Multipliers								
Employment	10.9686	24.7339	21.8369	25.9224	21.6051	28.2407	20.7464	24.8211
Earnings	0.3114	0.7224	0.5364	0.6401	0.5276	0.6937	0.5992	0.7383

Source: BEA, RIMS II.

The multipliers shown in the exhibit above link each roadside service expenditure category with the RIMS II multipliers used. There is no specific multiplier for motor fuel sales; therefore the retail trade multipliers are used in the analysis. The other retail expenditures include both retail and other vehicle use costs; therefore the multipliers used in the analysis are an average of the retail trade and other transportation and support services multipliers.

5.11 Economic Benefits from Roadside Services in the Ports to Plains Corridor Counties

The final demand multipliers shown in Exhibit 5.10-6 are multiplied by the changes in output, in this case the changes in each roadside service expenditure category for the counties along the Ports to Plains Corridor shown in Exhibits 5.10-2 through 5.10-5, to estimate their total direct and indirect employment and earnings benefits.

In 2030, the new roadside service expenditures in the Colorado Ports to Plains Corridor counties result in a total employment benefit of approximately 707 jobs in these counties. Between 2006 and 2030, the estimated increase in earnings generated in Colorado's Corridor counties due to the increase in roadside service expenditures is about $205.0 million in 2004 dollars. To better represent the present value of these earnings benefits, the $205 million is discounted using both a 7.0 and 4.78 percent discount rate, which results in discounted earnings benefits of $55.7 and $82.4 million, respectively in Colorado's Corridor counties.

In 2030, the annual roadside service expenditures in the New Mexico Ports to Plains Corridor counties result in a total employment loss of approximately 253 jobs in these counties as traffic and roadside service expenditures are diverted away from New Mexico's portion of the Corridor. Between 2006 and 2030, the estimated decline in earnings in New Mexico's Corridor counties due to the decline in traffic and roadside service expenditures totals approximately $42.5 million in 2004 dollars. To better represent the present value of the earnings loss, the $42.5 million is discounted using both a 7.0 and 4.78 percent discount rate that results in discounted earnings losses of $9.5 and $15.1 million, respectively in New Mexico's Corridor counties.

In 2030, the new annual roadside service expenditures in the Oklahoma Ports to Plains Corridor counties result in a total employment benefit of approximately 244 jobs in these counties. Between 2006 and 2030, the estimated earnings generated in Oklahoma's Corridor counties due to the increase in roadside service expenditures total approximately $64.3 million in 2004 dollars. To better represent the present value of these earnings, the $64.3 million is discounted using both a 7.0 and 4.78 percent discount rate that results in discounted earnings benefits of $18.0 and $26.4 million, respectively in Oklahoma's Corridor counties.

In 2030, the new annual roadside service expenditures in the Texas Ports to Plains Corridor counties result in a total employment benefit of approximately 1,334 jobs in these counties. Between 2006 and 2030, the estimated earnings generated in Texas' Corridor counties due to increase in roadside service expenditures total approximately $495.5 million in 2004 dollars. To better represent the present value of these earnings benefits, the $495.5 million is discounted using both a 7.0 and 4.78 percent discount rate that results in discounted earnings benefits of $151.4 million and $215.3 million, respectively in the Texas Corridor counties.

5.12 Total Economic Benefits from Roadside Service Expenditures

This section summarizes the total employment and earnings benefits that result from the increase in roadside service expenditures along the Ports to Plains Corridor. These benefits include the change in employment and earnings in all Corridor counties and are shown in exhibit 5.12-1.

The 12 percent shift in traffic to the Corridor translates into an expansion in commercial activity along the Corridor counties. The total Ports to Plains Corridor county benefits for all four states due to the roadside service expenditures are approximately 2,031 jobs and earnings of approximately $722.4 million in 2004 dollars between 2006 and 2030. The discounted earnings benefit using the 7.0 and 4.78 percent discount rates total $215.6 and $309.1 million, respectively as shown in Exhibit 5.12-1. Exhibit 5.12-1 demonstrates the large economic benefit that the increase in roadside service expenditures has on the Ports to Plains Corridor. These benefits will continue to grow as traffic grows along the Corridor, long after the analysis period ends in 2030.

Exhibit 5.12-1: Total Employment and Earnings Benefits for All Ports to Plains Corridor Counties (Earnings in Millions of 2004 Dollars)

	Employment						Earnings							
Year	Lodging	Food	Gas	Diesel	Other Retail	Total	Lodging	Food	Gas	Diesel	Other Retail	Total	Discounted Earnings (7%)	Discounted Earnings (4.78%)
2006	0	0	0	0	0	**0**	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.00**	**$0.00**	**$0.00**
2007	0	0	0	0	0	**0**	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.00**	**$0.00**	**$0.00**
2008	0	0	0	0	0	**0**	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.00**	**$0.00**	**$0.00**
2009	0	0	0	0	0	**0**	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.00**	**$0.00**	**$0.00**
2010	0	0	0	0	0	**0**	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.00**	**$0.00**	**$0.00**
2011	59	82	129	55	191	**516**	$1.53	$1.72	$3.89	$1.64	$5.72	**$14.50**	**$9.03**	**$10.46**
2012	59	82	129	55	191	**516**	$1.53	$1.72	$3.89	$1.64	$5.72	**$14.50**	**$8.44**	**$9.98**
2013	59	82	129	55	191	**516**	$1.53	$1.72	$3.89	$1.64	$5.72	**$14.50**	**$7.89**	**$9.53**
2014	59	82	129	55	191	**516**	$1.53	$1.72	$3.89	$1.64	$5.72	**$14.50**	**$7.37**	**$9.09**
2015	59	82	129	55	191	**516**	$1.53	$1.72	$3.89	$1.64	$5.72	**$14.50**	**$6.89**	**$8.68**
2016	133	188	283	152	433	**1,189**	$3.27	$3.77	$8.34	$4.42	$12.71	**$32.50**	**$14.43**	**$18.56**
2017	133	188	283	152	433	**1,189**	$3.27	$3.77	$8.34	$4.42	$12.71	**$32.50**	**$13.49**	**$17.71**
2018	133	188	283	152	433	**1,189**	$3.27	$3.77	$8.34	$4.42	$12.71	**$32.50**	**$12.61**	**$16.91**
2019	133	188	283	152	433	**1,189**	$3.27	$3.77	$8.34	$4.42	$12.71	**$32.50**	**$11.78**	**$16.13**
2020	133	188	283	152	433	**1,189**	$3.27	$3.77	$8.34	$4.42	$12.71	**$32.50**	**$11.01**	**$15.40**
2021	159	227	341	194	527	**1,448**	$4.05	$4.66	$10.25	$5.77	$15.65	**$40.38**	**$12.78**	**$18.26**
2022	159	227	341	194	527	**1,448**	$4.05	$4.66	$10.25	$5.77	$15.65	**$40.38**	**$11.95**	**$17.42**
2023	159	227	341	194	527	**1,448**	$4.05	$4.66	$10.25	$5.77	$15.65	**$40.38**	**$11.16**	**$16.63**
2024	159	227	341	194	527	**1,448**	$4.05	$4.66	$10.25	$5.77	$15.65	**$40.38**	**$10.43**	**$15.87**
2025	159	227	341	194	527	**1,448**	$4.05	$4.66	$10.25	$5.77	$15.65	**$40.38**	**$9.75**	**$15.15**
2026	215	314	461	309	732	**2,031**	$5.51	$6.52	$13.94	$9.27	$21.85	**$57.09**	**$12.89**	**$20.44**
2027	215	314	461	309	732	**2,031**	$5.51	$6.52	$13.94	$9.27	$21.85	**$57.09**	**$12.04**	**$19.51**
2028	215	314	461	309	732	**2,031**	$5.51	$6.52	$13.94	$9.27	$21.85	**$57.09**	**$11.25**	**$18.62**
2029	215	314	461	309	732	**2,031**	$5.51	$6.52	$13.94	$9.27	$21.85	**$57.09**	**$10.52**	**$17.77**
2030	215	314	461	309	732	**2,031**	$5.51	$6.52	$13.94	$9.27	$21.85	**$57.09**	**$9.83**	**$16.96**
Total	**-**	**-**	**-**	**-**	**-**	**-**	**$71.80**	**$83.29**	**$182.06**	**$105.53**	**$279.67**	**$722.35**	**$215.55**	**$309.05**

Source: AECOM Consult, Inc.
Note: Columns and rows may not sum to totals due to rounding.

5.13 Manufacturing and Distribution Benefits Associated With Transportation Improvement

This section describes potential increases in employment growth that may occur as a result of increased investment in transportation infrastructure in the Ports to Plains Corridor. It is believed that improved transportation infrastructure in this Corridor would be most beneficial to the manufacturing and transportation/warehousing industries, therefore estimates of the direct employment benefits discussed in this report will be limited to those industries.

This section is divided into two parts. The first part will begin by estimating manufacturing and transportation/warehousing employment growth in the Corridor that could be attributable to improved transportation infrastructure. The second part will demonstrate that counties along the Ports to Plains Corridor are attractive locations for an industry to expand or relocate. That demonstration is included to show that other factors encouraging economic growth in the project Corridor are in place. Increased transportation investment, when combined with those characteristics, may act as a catalyst in encouraging economic growth.

5.14 Estimating Manufacturing and Transportation/Warehousing Employment Growth Associated with Transportation Improvement

The proposed increase in transportation investment along the Ports to Plains Corridor is expected to result in increased employment growth in the manufacturing and transportation/warehousing industries in that Corridor. Among the factors driving that expectation is the proximity of the project Corridor to the Mexican border and increased transportation service would likely enhance that area's attractiveness as a location for manufacturers or transportation/warehousing firms engaged in trade with Mexico. Also, a review of other Corridors demonstrates that counties with transportation infrastructure similar to that being proposed in the project Corridor have historically experienced higher employment growth rates in those industries.

In this section, the estimated employment gains that may result from increased transportation investment in the Ports to Plains Corridor will be discussed. Those estimates were calculated by first identifying other Corridors in Texas with similar transportation facilities to those being proposed for the project Corridor.[24] Once those selected multilane Corridors were identified, all counties in Texas were separated into two groups: those that were on a selected multilane Corridor and those that were not. Then, a weighted average employment growth rate for manufacturing and transportation/warehousing was calculated for each group of counties. A comparison of those growth rates demonstrates that, in those industries, counties on selected multilane Corridors have historically experienced higher employment growth rates than counties that were not on those Corridors.

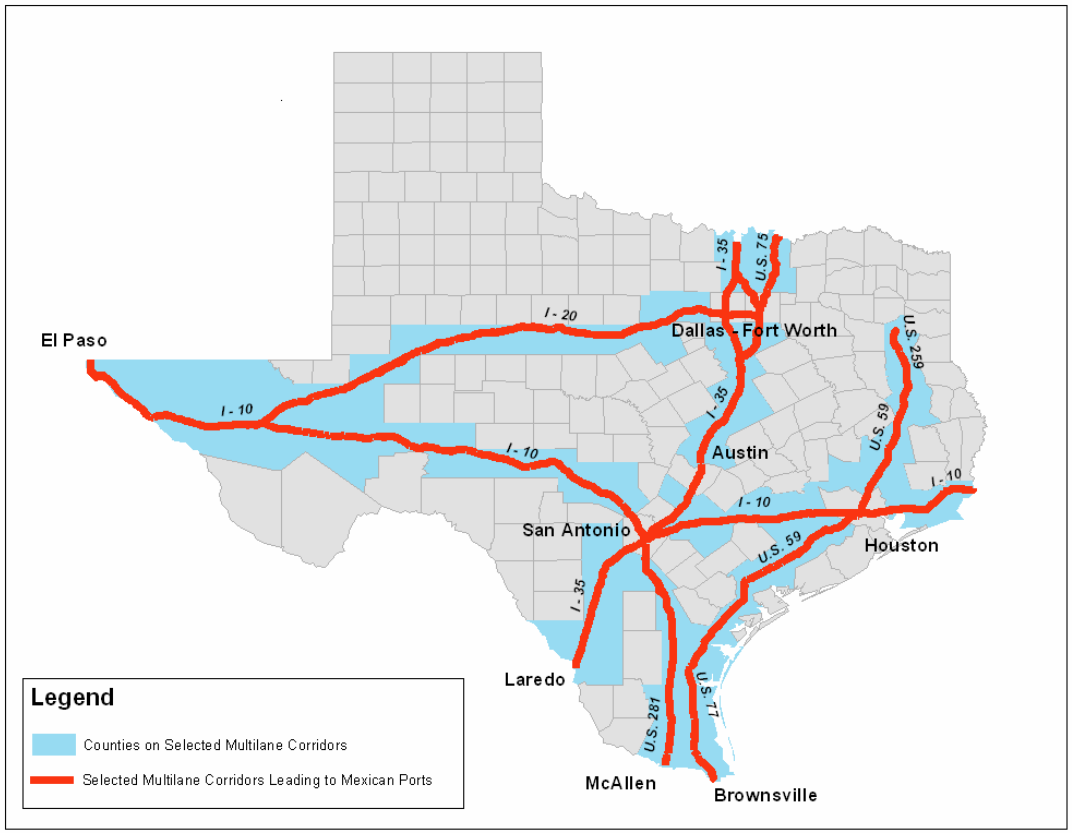
To estimate the employment gains resulting from the proposed transportation investment in the Corridor, the existing manufacturing and transportation/warehousing employment projections were adjusted upward to reflect the benefits associated with making the Corridor a four-lane divided facility. This increase in the projected rate of growth was based on the historic difference in the employment growth rates between counties on selected multilane Corridors and all other counties. In other words, employment projections in the counties along the Ports to Plains Corridor were enhanced to account for the increase in employment growth that may occur if those counties benefit from increased levels of transportation investment in a manner similar to that observed in counties along the selected multilane Corridors. Those increased levels of employment were then compared to baseline projections to quantify the employment growth that could be attributable to the transportation investment. This methodology is discussed in more detail below.

[24] Corridors included in that analysis were limited to Texas because they are most representative of the potential economic development, such as manufacturing and transportation/warehousing employment associated with NAFTA, which may take place along the Ports to Plains Corridor if transportation in that Corridor is improved.

5.14.1 Identifying Selected Multilane Corridors

Corridors that were selected for comparison were those with multilane transportation facilities that led to Mexican ports. Selected multilane Corridors used in this analysis included U.S. 77 from Brownsville to Victoria and U.S. 59/U.S. 259 from Victoria to Longview, U.S. 75 from the Texas border to Dallas, U.S. 281 from McAllen to San Antonio, I-20 west of Dallas to its interchange with I-10 in Reeves County, and the Texas portions of I-10 and I-35. Selected Multilane Corridors and the counties along those Corridors are displayed in Exhibit 5.14-1.

Exhibit 5.14-1 Selected Multilane Corridors in Texas



Source: AECOM Consult, Inc.

After identifying the selected multilane Corridors, counties in Texas were then separated into two groups; counties located on those Corridors and those that were not. Employment growth rates will be compared between those two sets of counties later in this section. However, prior to comparing employment growth rates, several counties were omitted from this analysis because it was believed that they were not suitable for comparison with counties along the Ports to Plains Corridor due to their large populations. The counties that were omitted were the Counties of Bexar, Comal, Dallas, Harris, Tarrant, and Travis, which were located within the metropolitan areas of Austin, Dallas, Houston, and San Antonio. After omitting these six counties, there were a total of 76 counties on selected multilane Corridors and the remaining 172 counties were classified as not positioned on those Corridors.

5.14.2 Comparison of Employment Growth Rates

Having separated all counties into two groups, a comparison of employment growth rates in manufacturing and transportation/ warehousing was conducted to determine if counties positioned on selected multilane Corridors had experienced higher levels of employment growth. That comparison

was conducted using data from Woods & Poole for the period between 1994, corresponding with the enactment of the North American Free Trade Agreement (NAFTA), and 2004.[25]

The Woods & Poole data are published under the one-digit Standard Industrial Classification (SIC) system, and as such, the data is aggregated for transportation, communication, and public utilities (TCPU).[26] Because this study analysis is limited to analyzing the transportation/warehousing sector, an adjustment factor is calculated to determine the percentage of total earnings listed in the TCPU that could be attributed to transportation and warehousing. This adjustment factor is calculated by summing the historic total earnings in transportation/ warehousing and dividing that figure by total earnings in TCPU.[27] That figure is calculated for each county in Texas using the 1994 to 2000 period.[28] Earnings in transportation/warehousing as a percent of TCPU are then multiplied by total TCPU employment to estimate employment in transportation/warehousing for each county in Texas. A similar adjustment was not required for manufacturing data as Woods & Poole publish those data without aggregation with other sectors.

Using this estimated employment for transportation/warehousing and the manufacturing employment data published by Woods & Poole for the 1994 to 2004 period, the employment growth rates for both industries are calculated for each county in Texas.

A weighted average employment growth rate, weighted on industry specific employment in 2004, is then calculated for each industry for the two classifications of counties analyzed in this study: those positioned on a selected multilane Corridor and those that were not. A comparison of those weighted average employment growth rates is displayed in Exhibit 5.14-2. A table displaying employment growth rates for manufacturing and transportation/warehousing for each county in Texas is displayed in in Exhibit 5.14-2.

Between 1994 and 2004, Texas counties on selected multilane Corridors experienced higher employment growth rates in both manufacturing and transportation/warehousing than were experienced in counties not located on those Corridors. Manufacturing employment growth rates in counties on selected multilane Corridors exceeded employment growth rates for other counties by 0.28 percent per year. Similarly, in transportation/warehousing, employment growth rates in counties on selected multilane Corridors exceeded employment growth rates for other counties by 1.36 percent per year.

These employment growth rate differentials will be applied to counties along the Ports to Plains Corridor to determine the increase in employment that might be expected if the Corridor was improved. This is based on the assumption that in these industries, the benefit gained from improved transportation facilities would be the same as that found in counties on the selected multilane Corridors.

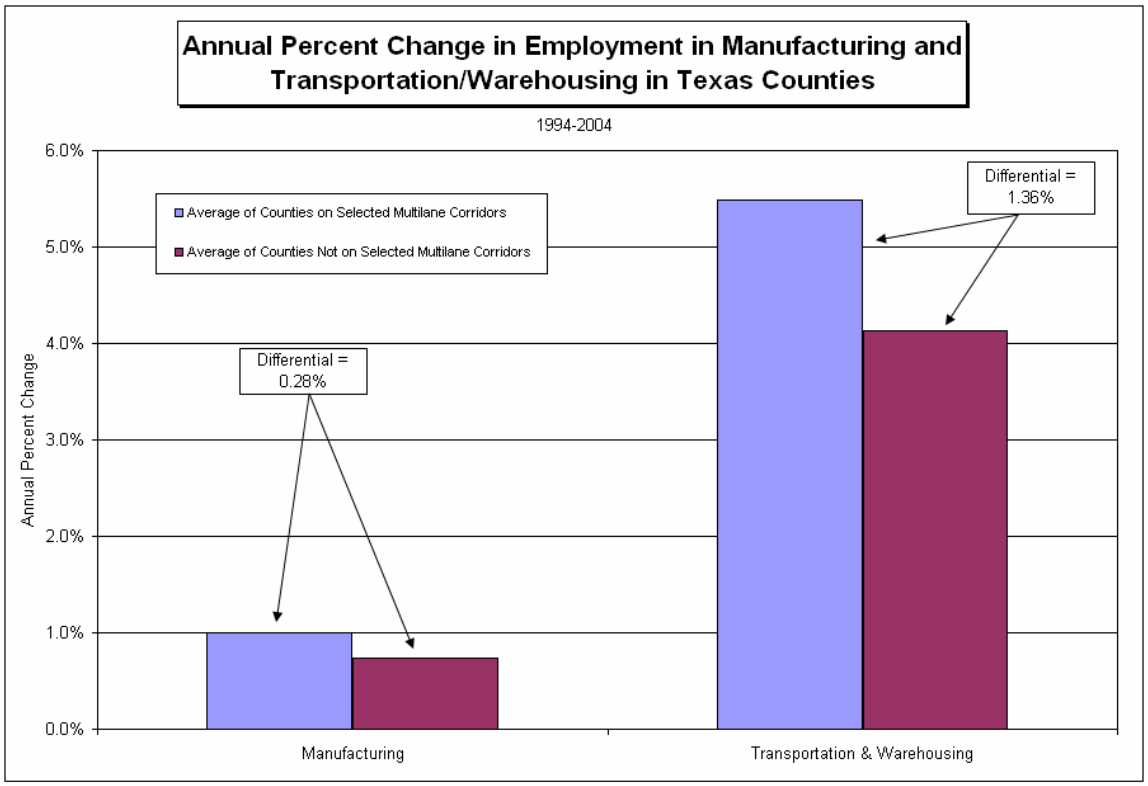
5.14.3 Estimating Increased Employment Growth

With an estimate for the increase in manufacturing and transportation/ warehousing employment growth rates that would be associated with improved transportation, it is then possible to quantify the number of new jobs that might be associated with increased transportation investment in the counties along the Ports to Plains Corridor. Measuring that new employment in the project Corridor is conducted by obtaining employment growth rates for each of those industries as projected by Woods &

[25] Woods & Poole Economics, Inc. is an independent firm that specializes in publishing historic and projected county economic and demographic data.
[26] The Standard Industrial Classification (SIC) system was developed by U.S. government to identify the primary business of all establishments. The system is designed to facilitate the collection, presentation, and analysis of data.
[27] Historic total earnings in transportation/warehousing and TCPU were obtained from the Bureau of Economic Analysis (BEA).
[28] In some cases, data for 1994 to 2000 were not available because of suppression. In those cases, this analysis used either a shorter period for which all data were available, or in the event that no data was available from that period, the most recent data available.

Poole, and then increasing those growth rates to account for improved transportation infrastructure. Baseline employment projections were obtained from Woods & Poole.[29]

Exhibit 5.14-2



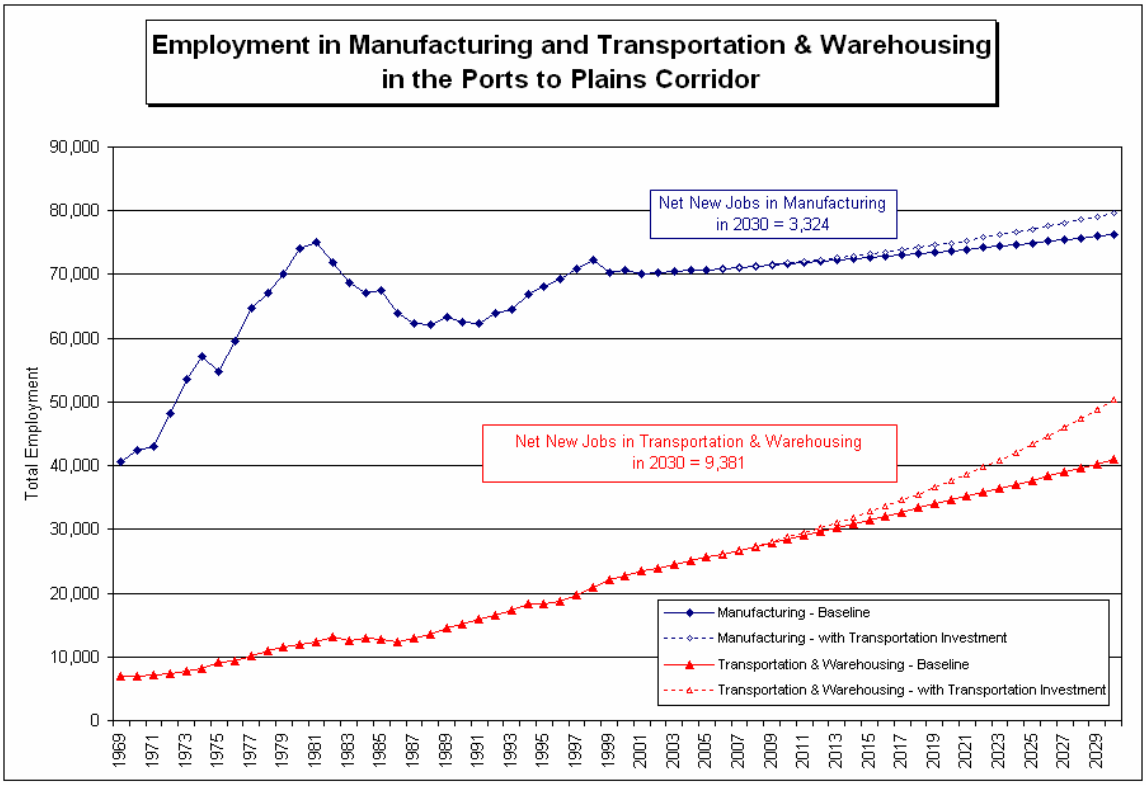
Source: AECOM Consult, Inc., Bureau of Economic Analysis, and Woods & Poole.

Having estimated the increase in employment growth rates that would occur as a result of improved transportation infrastructure, it is necessary to determine when those benefits would start. To more closely approximate increasing employment growth associated with transportation improvement, those growth rates are increased over time as the project progresses. Specifically, a review of the Ports to Plains Corridor improvement schedule demonstrated that, in terms of mileage, the project would start in 2006, would be 36.0 percent complete by 2011, 56.6 percent complete by 2016, 78.1 percent complete by 2021, and 100 percent complete by 2026.

Using those figures, the estimated completion of the project for each of the years between 2006 and 2030 is interpolated. Increased employment growth rates predicted to occur in the Corridor are then deflated by those factors for each of the years between 2006 and 2030. In this methodology, only in 2026 would the full benefit of increased employment growth rates be experienced by counties along the project Corridor. Baseline and adjusted employment in manufacturing and transportation/warehousing can be seen in Exhibit 5.14-3.

[29] Woods & Poole TCPU employment estimates were adjusted to represent only transportation/warehousing. That adjustment is described in section 6.1.2. Employment data for Colorado, New Mexico, and Oklahoma were published in 2001 and were adjusted to conform to 2004 Texas data using historic data from the Bureau of Economic Analysis (BEA).

Exhibit 5.14-3



Source: AECOM Consult, Inc., Bureau of Economic Analysis, and Woods & Poole.

For the counties along the project Corridor, increased annual employment growth rates associated with improved transportation infrastructure would result in the addition of approximately 3,324 net new manufacturing employees and about 9,381 net new transportation/warehousing employees in 2030. In manufacturing, total employment in 2030 given increased transportation investment would be 4.4 percent higher than the baseline figure while increased employment in transportation/warehousing would be 22.9 percent higher than the baseline figure.

Increases in manufacturing and transportation/warehousing employment attributable to transportation improvement would also result in increases in employment in other sectors of the economy. That employment increase, referred to as the indirect employment benefit, occurs as new employees demand goods and services from other sectors such as retail and personal services. That indirect employment would occur in counties along the project Corridor as well as counties not located along the project Corridor. Determining the indirect benefit that transportation improvement would have is conducted by using direct effect employment multipliers. Those multipliers were obtained from RIMS II published by the Bureau of Economic Analysis (BEA).[30] Using those multipliers, the indirect employment benefit is calculated for counties along the project Corridor as well as the rest of each state along the project Corridor.

The total direct and indirect employment benefits resulting from increased manufacturing and transportation/warehousing employment in the counties along the project Corridor are displayed in the following exhibits. Exhibit 5.14-4 shows the employment benefits associated with manufacturing while Exhibit 5.14-5 shows the employment benefits associated with transportation/warehousing.

[30] For employment and earnings, manufacturing and transportation/warehousing multipliers were aggregated from two-digit NAICS detail to one-digit NAICS detail using weighted average employment figures for each state along the project Corridor. In some cases, multipliers were published as being zero, likely due to the unavailability of data or employment with which to estimate multiplier benefits. Multipliers published as zero were replaced with a 'one' to avoid eliminating direct benefits.

Exhibit 5.14-4: Total Manufacturing Employment Benefits in the Counties

Year	Colorado			New Mexico			Oklahoma			Texas			Total Direct Benefit	Total Direct & Indirect Benefit
	Direct Benefit	RIMS II Multiplier	Total Benefit	Direct Benefit	RIMS II Multiplier	Total Benefit	Direct Benefit	RIMS II Multiplier	Total Benefit	Direct Benefit	RIMS II Multiplier	Total Benefit		
2006	0	2.13	0	0	1.37	0	0	1.00	0	0	2.97	0	0	0
2007	7	2.13	15	0	1.37	0	0	1.00	0	7	2.97	21	14	36
2008	21	2.13	45	0	1.37	0	0	1.00	0	21	2.97	63	42	108
2009	42	2.13	90	1	1.37	1	0	1.00	0	42	2.97	126	85	216
2010	70	2.13	150	1	1.37	1	0	1.00	0	71	2.97	211	142	362
2011	106	2.13	226	1	1.37	2	0	1.00	0	106	2.97	316	214	544
2012	146	2.13	311	2	1.37	2	0	1.00	0	146	2.97	435	294	748
2013	191	2.13	405	2	1.37	3	0	1.00	0	190	2.97	565	383	974
2014	240	2.13	509	3	1.37	4	0	1.00	0	238	2.97	709	481	1,222
2015	293	2.13	623	4	1.37	5	0	1.00	0	291	2.97	865	588	1,493
2016	352	2.13	747	4	1.37	6	0	1.00	0	348	2.97	1,034	704	1,787
2017	415	2.13	882	5	1.37	7	0	1.00	0	409	2.97	1,216	829	2,105
2018	484	2.13	1,028	6	1.37	8	0	1.00	0	475	2.97	1,412	965	2,448
2019	557	2.13	1,184	7	1.37	9	0	1.00	0	546	2.97	1,623	1,110	2,816
2020	636	2.13	1,352	8	1.37	10	0	1.00	0	621	2.97	1,847	1,265	3,209
2021	721	2.13	1,532	8	1.37	12	0	1.00	0	701	2.97	2,085	1,431	3,629
2022	811	2.13	1,724	10	1.37	13	0	1.00	0	786	2.97	2,338	1,607	4,075
2023	907	2.13	1,927	11	1.37	14	0	1.00	0	876	2.97	2,605	1,794	4,548
2024	1,009	2.13	2,144	12	1.37	16	0	1.00	0	971	2.97	2,888	1,992	5,048
2025	1,116	2.13	2,373	13	1.37	18	0	1.00	0	1,071	2.97	3,185	2,201	5,576
2026	1,230	2.13	2,615	14	1.37	19	0	1.00	0	1,177	2.97	3,498	2,421	6,132
2027	1,345	2.13	2,860	15	1.37	21	1	1.00	1	1,283	2.97	3,813	2,644	6,694
2028	1,462	2.13	3,108	17	1.37	23	1	1.00	1	1,389	2.97	4,129	2,868	7,260
2029	1,580	2.13	3,359	18	1.37	24	1	1.00	1	1,496	2.97	4,449	3,095	7,832
2030	1,700	2.13	3,613	19	1.37	26	1	1.00	1	1,604	2.97	4,770	3,324	8,409

Source: AECOM Consult, Inc., Bureau of Economic Analysis, and Woods & Poole.
Note: Rows may not sum to totals due to rounding.

Exhibit 5.14-5: Total Transportation/Warehousing Employment Benefits in the Counties along the Ports to Plain Corridor

	Colorado			New Mexico			Oklahoma			Texas				
Year	Direct Benefit	RIMS II Multiplier	Total Benefit	Direct Benefit	RIMS II Multiplier	Total Benefit	Direct Benefit	RIMS II Multiplier	Total Benefit	Direct Benefit	RIMS II Multiplier	Total Benefit	Total Direct Benefit	Total Direct and Indirect Benefit
2006	0	1.99	0	0	1.50	0	0	1.70	0	0	2.38	0	**0**	**0**
2007	12	1.99	23	0	1.50	0	0	1.70	0	14	2.38	33	**26**	**56**
2008	35	1.99	70	0	1.50	0	0	1.70	0	43	2.38	102	**79**	**173**
2009	73	1.99	144	0	1.50	0	0	1.70	0	88	2.38	209	**161**	**354**
2010	124	1.99	247	0	1.50	1	0	1.70	1	149	2.38	356	**274**	**604**
2011	191	1.99	379	1	1.50	1	1	1.70	1	229	2.38	545	**421**	**927**
2012	268	1.99	533	1	1.50	2	1	1.70	1	321	2.38	765	**590**	**1,300**
2013	356	1.99	709	1	1.50	2	1	1.70	2	426	2.38	1,015	**784**	**1,728**
2014	457	1.99	909	2	1.50	2	1	1.70	2	545	2.38	1,300	**1,005**	**2,213**
2015	570	1.99	1,134	2	1.50	3	1	1.70	2	679	2.38	1,620	**1,253**	**2,759**
2016	695	1.99	1,382	2	1.50	4	2	1.70	3	829	2.38	1,978	**1,528**	**3,366**
2017	834	1.99	1,659	3	1.50	4	2	1.70	3	997	2.38	2,377	**1,836**	**4,044**
2018	988	1.99	1,966	3	1.50	5	2	1.70	4	1,183	2.38	2,820	**2,177**	**4,795**
2019	1,158	1.99	2,304	4	1.50	6	3	1.70	4	1,388	2.38	3,310	**2,553**	**5,624**
2020	1,345	1.99	2,676	4	1.50	7	3	1.70	5	1,615	2.38	3,850	**2,967**	**6,537**
2021	1,546	1.99	3,076	5	1.50	7	3	1.70	6	1,863	2.38	4,442	**3,418**	**7,531**
2022	1,766	1.99	3,512	6	1.50	8	4	1.70	6	2,135	2.38	5,090	**3,910**	**8,617**
2023	2,004	1.99	3,987	6	1.50	9	4	1.70	7	2,431	2.38	5,797	**4,446**	**9,800**
2024	2,263	1.99	4,501	7	1.50	10	5	1.70	8	2,754	2.38	6,567	**5,029**	**11,086**
2025	2,543	1.99	5,059	8	1.50	12	5	1.70	9	3,105	2.38	7,404	**5,661**	**12,483**
2026	2,846	1.99	5,661	8	1.50	13	6	1.70	10	3,486	2.38	8,311	**6,346**	**13,994**
2027	3,161	1.99	6,288	9	1.50	14	6	1.70	11	3,883	2.38	9,257	**7,059**	**15,570**
2028	3,489	1.99	6,940	10	1.50	15	7	1.70	12	4,297	2.38	10,245	**7,803**	**17,212**
2029	3,829	1.99	7,617	11	1.50	16	7	1.70	12	4,729	2.38	11,275	**8,576**	**18,921**
2030	4,184	1.99	8,322	12	1.50	18	8	1.70	13	5,178	2.38	12,346	**9,381**	**20,699**

Source: AECOM Consult, Inc., Bureau of Economic Analysis, and Woods & Poole.
Note: Rows may not sum to totals due to rounding.

In 2030, it is estimated that the direct benefit of an increase of 3,324 manufacturing jobs would result in a total employment benefit of 8,409 jobs in project Corridor counties. Similarly, the direct transportation/warehousing employment benefit of about 9,381 would result in an increase of approximately 20,699 jobs in project Corridor counties. Combined, the total estimated direct and indirect benefit of increases in employment that is associated with transportation improvements in the project Corridor is estimated to be 29,108 jobs.

Putting this employment growth in perspective, without transportation improvements, total employment in all the counties along the project Corridor is projected to increase at a 1.65 percent rate annually between 2006 and 2030. Including the increased employment growth associated with the transportation improvements, employment growth in the project Corridor would increase at a 1.71 percent rate annually during the same period. Comparable employment growth rates for states along the project Corridor during the 2006 to 2030 period are projected to be 1.04 percent in Oklahoma, 1.51 percent in New Mexico, 1.47 percent in Colorado, and 1.65 percent in Texas.

Direct increases in manufacturing and transportation/warehousing employment in the project Corridor would also result in indirect employment growth in other parts of Colorado, New Mexico, Oklahoma, and Texas. Those employment growth benefits are also measured using employment multipliers. When measuring employment benefits in the remainder of each Corridor state, the direct effect employment multiplier for the Corridor portion of the state is first subtracted from the statewide direct effect employment multiplier. This yields the employment benefits that would occur in the remaining portion of each state.[31]

In the case of manufacturing in Texas, the statewide employment multiplier is 3.97 and the employment multiplier for the Corridor portion is 2.97. Therefore the multiplier used to determine indirect employment benefits in the rest of Texas is 1.00. Similarly, for transportation/ warehousing in Texas, the statewide employment multiplier is 3.24 and the employment multiplier for the Texas portion of the project Corridor is 2.38. Therefore the multiplier used to determine indirect employment benefits in the rest of Texas is 0.85. Employment benefits in the portions of each of the states that are not on the project Corridor can be seen in Exhibit 5.14-6 and Exhibit 5.14-7. Exhibit 5.14-6 contains employment benefits associated with manufacturing while Exhibit 5.14-7 contains employment benefits associated with transportation/warehousing.

It is estimated that the direct employment benefit of an increase of approximately 3,324 manufacturing jobs in the project Corridor would result in a total employment benefit of about 3,445 jobs in other counties outside the project Corridor. Similarly, the estimated transportation/warehousing employment increase of approximately 9,381 would result in an increase of about 7,082 jobs in other counties outside the project Corridor. Combined, the total estimated indirect benefit of increases in manufacturing and transportation/warehousing employment in counties outside the project Corridor, but within Colorado, New Mexico, Oklahoma, and Texas, is estimated to be 10,527 jobs in 2030.

Combining all direct and indirect employment benefits for the states along the project Corridor results in the total employment benefit that is associated with improved transportation infrastructure in the Ports to Plains Corridor. Those figures have been complied and are displayed in Exhibit 5.1-8.

[31] As an example, the statewide manufacturing multiplier for Texas of 3.97 suggests that the addition of one new manufacturing job in Texas will generate a total of 3.97 new jobs in Texas. Given the manufacturing multiplier of 2.97 for the Ports to Plains Corridor, if that job was created in the project Corridor, then 2.97 jobs would be created in the Corridor with the remaining job (3.97 jobs minus 2.97 jobs equals one job) being generated elsewhere in Texas.

Exhibit 5.14-6: Total Manufacturing Employment Benefits in the Rest of Each State

Year	Colorado			New Mexico			Oklahoma			Texas			Total Corridor Benefit
	Direct Benefit	RIMS II Multiplier	Total Benefit	Direct Benefit	RIMS II Multiplier	Total Benefit	Direct Benefit	RIMS II Multiplier	Total Benefit	Direct Benefit	RIMS II Multiplier	Total Benefit	
2006	0	1.07	0	0	1.31	0	0	2.40	0	0	1.00	0	**0**
2007	7	1.07	7	0	1.31	0	0	2.40	0	7	1.00	7	**15**
2008	21	1.07	22	0	1.31	0	0	2.40	0	21	1.00	21	**44**
2009	42	1.07	45	1	1.31	1	0	2.40	0	42	1.00	42	**88**
2010	70	1.07	75	1	1.31	1	0	2.40	0	71	1.00	71	**147**
2011	106	1.07	113	1	1.31	2	0	2.40	0	106	1.00	106	**222**
2012	146	1.07	156	2	1.31	2	0	2.40	0	146	1.00	146	**305**
2013	191	1.07	203	2	1.31	3	0	2.40	0	190	1.00	190	**397**
2014	240	1.07	256	3	1.31	4	0	2.40	0	238	1.00	238	**498**
2015	293	1.07	313	4	1.31	5	0	2.40	0	291	1.00	291	**609**
2016	352	1.07	375	4	1.31	6	0	2.40	0	348	1.00	348	**729**
2017	415	1.07	443	5	1.31	7	0	2.40	0	409	1.00	409	**859**
2018	484	1.07	516	6	1.31	8	0	2.40	0	475	1.00	475	**999**
2019	557	1.07	594	7	1.31	9	0	2.40	1	546	1.00	546	**1,150**
2020	636	1.07	679	8	1.31	10	0	2.40	1	621	1.00	621	**1,311**
2021	721	1.07	769	8	1.31	11	0	2.40	1	701	1.00	702	**1,482**
2022	811	1.07	865	10	1.31	12	0	2.40	1	786	1.00	787	**1,665**
2023	907	1.07	967	11	1.31	14	0	2.40	1	876	1.00	877	**1,859**
2024	1,009	1.07	1,076	12	1.31	15	0	2.40	1	971	1.00	972	**2,064**
2025	1,116	1.07	1,191	13	1.31	17	0	2.40	1	1,071	1.00	1,072	**2,281**
2026	1,230	1.07	1,312	14	1.31	19	0	2.40	1	1,177	1.00	1,177	**2,509**
2027	1,345	1.07	1,435	15	1.31	20	1	2.40	1	1,283	1.00	1,283	**2,740**
2028	1,462	1.07	1,560	17	1.31	22	1	2.40	1	1,389	1.00	1,390	**2,973**
2029	1,580	1.07	1,686	18	1.31	23	1	2.40	1	1,496	1.00	1,497	**3,208**
2030	1,700	1.07	1,814	19	1.31	25	1	2.40	2	1,604	1.00	1,605	**3,445**

Source: AECOM Consult, Inc., Bureau of Economic Analysis, and Woods & Poole.
Note: Employment multipliers for other counties outside of the project Corridor were calculated by subtracting multipliers specific to the project Corridor from corresponding statewide multipliers. Rows may not sum to totals due to rounding.

Exhibit 5.14-7: Total Transportation/Warehousing Employment Benefits in the Rest of Each State

	Colorado			New Mexico			Oklahoma			Texas			
Year	Direct Benefit	RIMS II Multiplier	Total Benefit	Direct Benefit	RIMS II Multiplier	Total Benefit	Direct Benefit	RIMS II Multiplier	Total Benefit	Direct Benefit	RIMS II Multiplier	Total Benefit	Total Corridor Benefit
2006	0	0.63	0	0	0.80	0	0	1.61	0	0	0.85	0	**0**
2007	12	0.63	7	0	0.80	0	0	1.61	0	14	0.85	12	**19**
2008	35	0.63	22	0	0.80	0	0	1.61	0	43	0.85	37	**59**
2009	73	0.63	46	0	0.80	0	0	1.61	0	88	0.85	75	**121**
2010	124	0.63	79	0	0.80	0	0	1.61	1	149	0.85	127	**207**
2011	191	0.63	121	1	0.80	1	1	1.61	1	229	0.85	195	**317**
2012	268	0.63	170	1	0.80	1	1	1.61	1	321	0.85	273	**445**
2013	356	0.63	226	1	0.80	1	1	1.61	2	426	0.85	363	**591**
2014	457	0.63	289	2	0.80	1	1	1.61	2	545	0.85	465	**757**
2015	570	0.63	361	2	0.80	2	1	1.61	2	679	0.85	579	**944**
2016	695	0.63	440	2	0.80	2	2	1.61	3	829	0.85	707	**1,151**
2017	834	0.63	528	3	0.80	2	2	1.61	3	997	0.85	850	**1,383**
2018	988	0.63	625	3	0.80	3	2	1.61	4	1,183	0.85	1,008	**1,640**
2019	1,158	0.63	733	4	0.80	3	3	1.61	4	1,388	0.85	1,183	**1,923**
2020	1,345	0.63	851	4	0.80	4	3	1.61	5	1,615	0.85	1,376	**2,235**
2021	1,546	0.63	979	5	0.80	4	3	1.61	5	1,863	0.85	1,587	**2,576**
2022	1,766	0.63	1,118	6	0.80	4	4	1.61	6	2,135	0.85	1,819	**2,947**
2023	2,004	0.63	1,268	6	0.80	5	4	1.61	7	2,431	0.85	2,072	**3,352**
2024	2,263	0.63	1,432	7	0.80	6	5	1.61	8	2,754	0.85	2,347	**3,792**
2025	2,543	0.63	1,610	8	0.80	6	5	1.61	8	3,105	0.85	2,646	**4,270**
2026	2,846	0.63	1,801	8	0.80	7	6	1.61	9	3,486	0.85	2,970	**4,787**
2027	3,161	0.63	2,001	9	0.80	7	6	1.61	10	3,883	0.85	3,309	**5,327**
2028	3,489	0.63	2,208	10	0.80	8	7	1.61	11	4,297	0.85	3,662	**5,889**
2029	3,829	0.63	2,424	11	0.80	9	7	1.61	12	4,729	0.85	4,030	**6,474**
2030	4,184	0.63	2,648	12	0.80	9	8	1.61	13	5,178	0.85	4,413	**7,082**

Source: AECOM Consult, Inc., Bureau of Economic Analysis, and Woods & Poole.
Note: Employment multipliers for other counties outside of the project Corridor were calculated by subtracting multipliers specific to the project Corridor from corresponding statewide multipliers. Rows may not sum to totals due to rounding.

Exhibit 5.14-8: Summary of Total Employment Benefits by State

Year	Colorado	New Mexico	Oklahoma	Texas	Total
2006	0	0	0	0	**0**
2007	52	0	0	73	**126**
2008	160	1	0	223	**384**
2009	325	2	1	452	**780**
2010	550	3	1	764	**1,319**
2011	839	5	2	1,163	**2,009**
2012	1,169	7	3	1,619	**2,798**
2013	1,543	9	3	2,134	**3,690**
2014	1,963	12	4	2,712	**4,690**
2015	2,431	14	5	3,355	**5,804**
2016	2,945	17	6	4,066	**7,034**
2017	3,512	20	7	4,852	**8,391**
2018	4,134	23	8	5,716	**9,882**
2019	4,815	27	9	6,662	**11,513**
2020	5,558	30	11	7,694	**13,292**
2021	6,355	34	12	8,816	**15,217**
2022	7,219	38	14	10,033	**17,303**
2023	8,150	43	15	11,351	**19,559**
2024	9,153	47	17	12,773	**21,991**
2025	10,232	52	19	14,306	**24,609**
2026	11,389	57	20	15,956	**27,423**
2027	12,584	63	22	17,662	**30,330**
2028	13,815	68	24	19,426	**33,333**
2029	15,086	73	26	21,250	**36,435**
2030	16,396	78	28	23,133	**39,636**

Source: AECOM Consult, Inc., Bureau of Economic Analysis, and Woods & Poole.
Note: Rows may not sum to totals due to rounding.

The total increase in employment in Colorado, New Mexico, Oklahoma, and Texas associated with improved transportation infrastructure is estimated to be 39,636. The majority of that increase would occur in Texas; however, a significant share of that employment growth is also expected to take place in Colorado. Employment growth associated with improved transportation in New Mexico and Oklahoma is expected to be more modest.

5.14.4 Estimating Increased Earnings

Increased employment in manufacturing and transportation/ warehousing and the associated indirect employment increases will introduce new earnings into the states along the project Corridor. The total value of those earnings can be determined by first estimating the total direct earnings benefit in manufacturing and transportation/ warehousing, and then multiplying those figures by the appropriate direct effect RIMS II earnings multipliers published by BEA.

Calculating the total direct earnings benefits associated with transportation improvement required that manufacturing and transportation/warehousing earnings per worker for each state and for each project Corridor portion of each state be obtained. State earnings per worker were obtained from Woods & Poole. Earnings per worker in the project Corridor portions of each state were estimated by adjusting state earnings per worker by a factor to represent earnings for counties along the project Corridor.

Adjusting those figures to account for differences in earnings per worker along the project Corridor relative to state averages is conducted by multiplying those figures by the ratio of earnings per worker for project Corridor portions of each state to state average earnings per worker.[32] In Colorado, that ratio is 115.6 percent, suggesting that localities along the Colorado portion of the project Corridor have earnings per worker that are higher than the state average. Comparable ratios for New Mexico, Oklahoma, and Texas are 69.3 percent, 46.5 percent, and 70.5 percent respectively. Estimated earnings

[32] Earnings per worker for project Corridor portions of each state and for each state average along the project Corridor were obtained from BEA and are from 2002.

per worker for project Corridor portions of each state and state average earnings per worker are displayed in 2004 dollars in Exhibit 5.14-9.[33]

Exhibit 5.14-9: Manufacturing and Transportation/Warehousing Earnings per Worker for Ports to Plains Corridor Counties and States (2004 Dollars)

Year	Average Earnings Per Worker in Ports to Plains Counties							
	Colorado		New Mexico		Oklahoma		Texas	
	Manufac-turing	Trans-portation/ Ware-housing	Manufac-turing	Trans-portation/ Ware-housing	Manufac-turing	Trans-portation/ Ware-housing	Manufac-turing	Trans-portation/ Ware-housing
2002	$63,377	$64,108	$30,562	$28,124	$23,699	$18,173	$43,412	$37,418
2003	$64,108	$64,678	$30,947	$28,330	$23,934	$18,316	$43,964	$37,733
2004	$64,831	$65,234	$31,325	$28,532	$24,168	$18,458	$44,518	$38,047
2005	$65,545	$65,777	$31,698	$28,730	$24,402	$18,597	$45,077	$38,362
2006	$66,268	$66,355	$32,080	$28,940	$24,630	$18,738	$45,635	$38,676
2007	$66,982	$66,919	$32,456	$29,146	$24,856	$18,877	$46,198	$38,992
2008	$67,688	$67,471	$32,827	$29,349	$25,082	$19,014	$46,764	$39,310
2009	$68,385	$68,009	$33,192	$29,548	$25,306	$19,150	$47,333	$39,629
2010	$69,074	$68,535	$33,552	$29,743	$25,529	$19,283	$47,905	$39,950
2011	$69,770	$69,108	$33,919	$29,951	$25,748	$19,421	$48,481	$40,273
2012	$70,457	$69,668	$34,281	$30,156	$25,966	$19,558	$49,059	$40,597
2013	$71,137	$70,215	$34,638	$30,357	$26,182	$19,693	$49,640	$40,925
2014	$71,808	$70,750	$34,991	$30,555	$26,397	$19,826	$50,224	$41,254
2015	$72,471	$71,273	$35,339	$30,751	$26,611	$19,957	$50,811	$41,585
2016	$73,132	$71,839	$35,686	$30,955	$26,820	$20,093	$51,399	$41,919
2017	$73,785	$72,392	$36,029	$31,157	$27,027	$20,228	$51,991	$42,256
2018	$74,431	$72,934	$36,368	$31,357	$27,233	$20,361	$52,584	$42,595
2019	$75,069	$73,464	$36,703	$31,553	$27,438	$20,492	$53,181	$42,936
2020	$75,700	$73,983	$37,034	$31,747	$27,642	$20,622	$53,780	$43,280
2021	$76,319	$74,540	$37,360	$31,948	$27,840	$20,756	$54,381	$43,626
2022	$76,931	$75,086	$37,683	$32,147	$28,036	$20,889	$54,984	$43,976
2023	$77,537	$75,621	$38,002	$32,343	$28,232	$21,021	$55,590	$44,328
2024	$78,135	$76,145	$38,318	$32,537	$28,426	$21,151	$56,199	$44,683
2025	$78,727	$76,658	$38,631	$32,729	$28,620	$21,280	$56,809	$45,041
2026	$79,371	$77,236	$38,972	$32,936	$28,824	$21,418	$57,422	$45,402
2027	$80,008	$77,801	$39,308	$33,141	$29,028	$21,555	$58,036	$45,766
2028	$80,637	$78,355	$39,641	$33,344	$29,230	$21,691	$58,653	$46,133
2029	$81,259	$78,898	$39,971	$33,544	$29,432	$21,826	$59,271	$46,503
2030	$81,875	$79,430	$40,297	$33,741	$29,632	$21,959	$59,893	$46,876

[33] State Earnings per worker data were reported in 1996 dollars and were adjusted to 2004 dollars using the Consumer Price Index (CPI) reported by the Bureau of Labor Statistics (BLS). Earnings per worker projections for transportation/warehousing, as opposed to TCPU, were not available. Therefore, those earnings were estimated by first dividing the 1994-1997 historic average earnings per worker in transportation/ warehousing for each state by the corresponding state TCPU earnings per worker, then multiplying each state's total earnings per worker in TCPU as reported by Woods & Poole by that factor. Historic earnings per worker for transportation/warehousing and TCPU were obtained from County Business Patterns. Earnings data for Colorado, New Mexico, and Oklahoma were published in 2001 and were adjusted to conform to 2004 Texas data using historic data from the Bureau of Economic Analysis (BEA).

Exhibit 5.14-9 (Continued)

Year	State Average Earnings Per Worker							
	Colorado		New Mexico		Oklahoma		Texas	
	Manufac-turing	Trans-portation/ Ware-housing	Manufac-turing	Trans-portation/ Ware-housing	Manufac-turing	Trans-portation/ Ware-housing	Manufac-turing	Trans-portation/ Ware-housing
2002	$54,839	$55,472	$44,131	$40,610	$50,980	$39,093	$61,554	$53,055
2003	$55,471	$55,964	$44,686	$40,908	$51,486	$39,401	$62,337	$53,501
2004	$56,097	$56,445	$45,233	$41,199	$51,990	$39,706	$63,122	$53,947
2005	$56,715	$56,915	$45,771	$41,485	$52,492	$40,005	$63,914	$54,394
2006	$57,340	$57,416	$46,322	$41,789	$52,983	$40,308	$64,707	$54,839
2007	$57,958	$57,904	$46,866	$42,087	$53,471	$40,608	$65,504	$55,288
2008	$58,569	$58,381	$47,401	$42,379	$53,956	$40,903	$66,307	$55,738
2009	$59,172	$58,847	$47,928	$42,666	$54,438	$41,194	$67,114	$56,190
2010	$59,768	$59,302	$48,448	$42,948	$54,918	$41,482	$67,925	$56,645
2011	$60,370	$59,797	$48,978	$43,249	$55,389	$41,779	$68,741	$57,103
2012	$60,965	$60,282	$49,501	$43,544	$55,857	$42,073	$69,561	$57,563
2013	$61,553	$60,755	$50,017	$43,835	$56,323	$42,363	$70,385	$58,027
2014	$62,134	$61,218	$50,526	$44,121	$56,785	$42,649	$71,213	$58,494
2015	$62,707	$61,671	$51,028	$44,403	$57,245	$42,932	$72,045	$58,964
2016	$63,279	$62,160	$51,529	$44,699	$57,694	$43,224	$72,879	$59,438
2017	$63,845	$62,639	$52,025	$44,990	$58,140	$43,513	$73,718	$59,915
2018	$64,403	$63,108	$52,514	$45,278	$58,583	$43,799	$74,560	$60,395
2019	$64,956	$63,567	$52,998	$45,561	$59,025	$44,082	$75,406	$60,879
2020	$65,501	$64,015	$53,476	$45,841	$59,463	$44,362	$76,255	$61,367
2021	$66,037	$64,498	$53,947	$46,132	$59,888	$44,651	$77,107	$61,858
2022	$66,567	$64,970	$54,413	$46,419	$60,311	$44,936	$77,963	$62,353
2023	$67,091	$65,433	$54,874	$46,703	$60,731	$45,219	$78,822	$62,853
2024	$67,609	$65,886	$55,331	$46,983	$61,150	$45,500	$79,684	$63,357
2025	$68,120	$66,330	$55,782	$47,259	$61,567	$45,777	$80,550	$63,865
2026	$68,678	$66,830	$56,274	$47,559	$62,006	$46,075	$81,419	$64,376
2027	$69,229	$67,320	$56,760	$47,855	$62,444	$46,370	$82,290	$64,892
2028	$69,773	$67,799	$57,241	$48,147	$62,880	$46,662	$83,165	$65,412
2029	$70,312	$68,269	$57,717	$48,436	$63,313	$46,951	$84,041	$65,937
2030	$70,844	$68,729	$58,188	$48,721	$63,744	$47,237	$84,922	$66,466

Source: AECOM Consult, Inc., Bureau of Economic Analysis, Bureau of Labor Statistics, County Business Patterns 1994-1997, and Woods & Poole.

For each of the states along the project Corridor, the estimated increase in direct manufacturing and transportation/warehousing employment was multiplied by the appropriate earnings per worker to determine the total direct increase in earnings. Then, the total direct increase in earnings in each state was multiplied by the appropriate direct effect earnings multiplier to estimate the total direct and indirect earnings benefit associated with transportation improvements. Those figures have been calculated and are presented in Exhibit 5.14-10 and Exhibit 5.14-11. Exhibit 5.14-10 contains earnings benefits associated with manufacturing while Exhibit 5.14-11 contains earnings benefits associated with transportation/warehousing. The discounted values of earnings have also been calculated and are included in Exhibits 5.14-10 and 5.14-11 using a 7.0 percent and a 4.78 percent discounting factor.

Exhibit 5.14-10: Total Manufacturing Earnings Benefits in the Counties along the Ports to Plain Corridor (2004 Dollars)

	Colorado					New Mexico				
Year	Direct Earnings Benefit	Rims II Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent	Direct Earnings Benefit	Rims II Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent
2006	$0	1.79	$0	$0	$0	$0	1.22	$0	$0	$0
2007	$466,560	1.79	$837,136	$683,352	$727,714	$2,821	1.22	$3,438	$2,806	$2,988
2008	$1,419,773	1.79	$2,547,460	$1,943,445	$2,113,459	$8,561	1.22	$10,432	$7,958	$8,655
2009	$2,879,944	1.79	$5,167,406	$3,684,289	$4,091,481	$17,317	1.22	$21,101	$15,045	$16,707
2010	$4,867,619	1.79	$8,733,838	$5,819,725	$6,599,861	$29,184	1.22	$35,561	$23,696	$26,872
2011	$7,406,625	1.79	$13,289,509	$8,276,038	$9,584,295	$44,274	1.22	$53,948	$33,596	$38,907
2012	$10,302,186	1.79	$18,484,936	$10,758,401	$12,723,038	$61,393	1.22	$74,808	$43,539	$51,490
2013	$13,566,869	1.79	$24,342,668	$13,240,799	$15,990,522	$80,593	1.22	$98,204	$53,417	$64,510
2014	$17,213,367	1.79	$30,885,483	$15,700,613	$19,362,902	$101,929	1.22	$124,202	$63,138	$77,865
2015	$21,254,517	1.79	$38,136,410	$18,118,333	$22,817,994	$125,450	1.22	$152,863	$72,624	$91,462
2016	$25,718,176	1.79	$46,145,434	$20,489,124	$26,350,448	$151,228	1.22	$184,274	$81,820	$105,226
2017	$30,624,746	1.79	$54,949,159	$22,801,948	$29,946,214	$179,396	1.22	$218,597	$90,710	$119,131
2018	$35,989,115	1.79	$64,574,303	$25,043,028	$33,586,304	$210,011	1.22	$255,902	$99,243	$133,099
2019	$41,826,411	1.79	$75,048,007	$27,200,852	$37,253,172	$243,128	1.22	$296,256	$107,377	$147,059
2020	$48,152,011	1.79	$86,397,862	$29,265,945	$40,930,654	$278,804	1.22	$339,727	$115,077	$160,944
2021	$55,004,328	1.79	$98,692,790	$31,243,610	$44,622,379	$317,086	1.22	$386,375	$122,316	$174,693
2022	$62,387,280	1.79	$111,939,823	$33,118,954	$48,302,935	$358,065	1.22	$436,308	$129,088	$188,270
2023	$70,317,944	1.79	$126,169,599	$34,886,946	$51,959,533	$401,798	1.22	$489,597	$135,378	$201,627
2024	$78,813,720	1.79	$141,413,343	$36,543,895	$55,580,507	$448,344	1.22	$546,314	$141,178	$214,721
2025	$87,892,352	1.79	$157,702,888	$38,087,311	$59,155,260	$497,762	1.22	$606,530	$146,485	$227,513
2026	$97,644,772	1.79	$175,201,393	$39,545,261	$62,720,987	$550,545	1.22	$670,848	$151,419	$240,159
2027	$107,648,659	1.79	$193,151,100	$40,744,623	$65,992,430	$604,254	1.22	$736,293	$155,319	$251,563
2028	$117,905,521	1.79	$211,554,711	$41,707,296	$68,982,867	$658,878	1.22	$802,853	$158,280	$261,791
2029	$128,416,899	1.79	$230,414,995	$42,453,773	$71,705,239	$714,409	1.22	$870,519	$160,392	$270,906
2030	$139,184,375	1.79	$249,734,788	$43,003,205	$74,172,138	$770,840	1.22	$939,280	$161,740	$278,970
Total	**$1,206,903,769**	**na**	**$2,165,515,041**	**$584,360,767**	**$865,272,334**	**$6,856,071**	**na**	**$8,354,229**	**$2,271,640**	**$3,355,129**

Exhibit 5.14-10 (Continued)

Year	Oklahoma					Texas				
	Direct Earnings Benefit	Rims II Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent	Direct Earnings Benefit	Rims II Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent
2006	$0	1.00	$0	$0	$0	$0	2.12	$0	$0	$0
2007	$72	1.00	$72	$59	$63	$325,736	2.12	$691,186	$564,214	$600,842
2008	$218	1.00	$218	$167	$181	$990,553	2.12	$2,101,880	$1,603,514	$1,743,791
2009	$441	1.00	$441	$314	$349	$2,008,149	2.12	$4,261,142	$3,038,135	$3,373,914
2010	$741	1.00	$741	$494	$560	$3,392,821	2.12	$7,199,310	$4,797,205	$5,440,271
2011	$1,122	1.00	$1,122	$698	$809	$5,159,134	2.12	$10,947,295	$6,817,425	$7,895,108
2012	$1,552	1.00	$1,552	$903	$1,068	$7,171,788	2.12	$15,217,994	$8,857,011	$10,474,427
2013	$2,033	1.00	$2,033	$1,106	$1,335	$9,439,861	2.12	$20,030,676	$10,895,361	$13,158,005
2014	$2,566	1.00	$2,566	$1,305	$1,609	$11,972,862	2.12	$25,405,512	$12,914,874	$15,927,368
2015	$3,153	1.00	$3,153	$1,498	$1,886	$14,779,993	2.12	$31,362,033	$14,899,876	$18,764,711
2016	$3,793	1.00	$3,793	$1,684	$2,166	$17,872,438	2.12	$37,923,971	$16,838,697	$21,655,742
2017	$4,491	1.00	$4,491	$1,864	$2,448	$21,269,845	2.12	$45,133,012	$18,728,595	$24,596,606
2018	$5,248	1.00	$5,248	$2,035	$2,730	$24,985,149	2.12	$53,016,608	$20,560,755	$27,574,930
2019	$6,066	1.00	$6,066	$2,198	$3,011	$29,027,616	2.12	$61,594,419	$22,324,652	$30,574,929
2020	$6,945	1.00	$6,945	$2,352	$3,290	$33,410,103	2.12	$70,893,726	$24,014,158	$33,585,630
2021	$7,885	1.00	$7,885	$2,496	$3,565	$38,142,172	2.12	$80,934,822	$25,621,892	$36,593,396
2022	$8,890	1.00	$8,890	$2,630	$3,836	$43,239,031	2.12	$91,749,973	$27,145,506	$39,590,852
2023	$9,961	1.00	$9,961	$2,754	$4,102	$48,720,459	2.12	$103,381,153	$28,585,750	$42,574,728
2024	$11,100	1.00	$11,100	$2,868	$4,363	$54,590,675	2.12	$115,837,310	$29,934,562	$45,528,210
2025	$12,306	1.00	$12,306	$2,972	$4,616	$60,862,962	2.12	$129,146,630	$31,190,601	$48,443,644
2026	$13,589	1.00	$13,589	$3,067	$4,865	$67,565,467	2.12	$143,368,842	$32,360,235	$51,325,136
2027	$14,891	1.00	$14,891	$3,141	$5,088	$74,433,177	2.12	$157,941,607	$33,317,290	$53,962,677
2028	$16,213	1.00	$16,213	$3,196	$5,287	$81,474,141	2.12	$172,882,002	$34,083,102	$56,372,634
2029	$17,555	1.00	$17,555	$3,234	$5,463	$88,697,931	2.12	$188,210,343	$34,677,601	$58,571,134
2030	$18,916	1.00	$18,916	$3,257	$5,618	$96,095,502	2.12	$203,907,432	$35,111,941	$60,561,247
Total	**$169,747**	**na**	**$169,747**	**$46,295**	**$68,307**	**$835,627,564**	**na**	**$1,773,138,879**	**$478,882,953**	**$708,889,932**

Exhibit 5.14-10 (Continued)

Year	Total Corridor		
	Total Corridor Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent
2006	$0	$0	$0
2007	$1,531,832	$1,250,431	$1,331,607
2008	$4,659,990	$3,555,084	$3,866,085
2009	$9,450,089	$6,737,783	$7,482,452
2010	$15,969,451	$10,641,119	$12,067,564
2011	$24,291,873	$15,127,758	$17,519,118
2012	$33,779,291	$19,659,855	$23,250,022
2013	$44,473,582	$24,190,682	$29,214,372
2014	$56,417,763	$28,679,930	$35,369,744
2015	$69,654,459	$33,092,332	$41,676,053
2016	$84,257,471	$37,411,325	$48,113,582
2017	$100,305,259	$41,623,117	$54,664,399
2018	$117,852,061	$45,705,061	$61,297,063
2019	$136,944,748	$49,635,079	$67,978,170
2020	$157,638,260	$53,397,532	$74,680,519
2021	$180,021,871	$56,990,314	$81,394,034
2022	$204,134,994	$60,396,179	$88,085,894
2023	$230,050,311	$63,610,828	$94,739,990
2024	$257,808,067	$66,622,504	$101,327,802
2025	$287,468,355	$69,427,370	$107,831,034
2026	$319,254,672	$72,059,983	$114,291,147
2027	$351,843,891	$74,220,372	$120,211,758
2028	$385,255,780	$75,951,875	$125,622,579
2029	$419,513,412	$77,295,001	$130,552,742
2030	$454,600,417	$78,280,143	$135,017,973
Total	**$3,947,177,897**	**$1,065,561,654**	**$1,577,585,703**

Source: AECOM Consult, Inc., Bureau of Economic Analysis, Bureau of Labor Statistics, County Business Patterns 1994-1997, and Woods & Poole.
Note: Columns and rows may not sum to totals due to rounding.

Exhibit 5.14-11: Total Transportation/Warehousing Earnings Benefits in the Counties along the Ports to Plain Corridor (2004 Dollars)

Year	Colorado					New Mexico				
	Direct Earnings Benefit	Rims II Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent	Direct Earnings Benefit	Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent
2006	$0	1.69	$0	$0	$0	$0	1.35	$0	$0	$0
2007	$770,774	1.69	$1,306,033	$1,066,112	$1,135,322	$1,447	1.35	$1,956	$1,597	$1,700
2008	$2,389,195	1.69	$4,048,359	$3,088,474	$3,358,656	$4,349	1.35	$5,877	$4,484	$4,876
2009	$4,938,483	1.69	$8,367,989	$5,966,260	$6,625,659	$8,713	1.35	$11,777	$8,397	$9,325
2010	$8,508,790	1.69	$14,417,677	$9,607,107	$10,894,942	$14,554	1.35	$19,672	$13,108	$14,865
2011	$13,182,530	1.69	$22,337,073	$13,910,406	$16,109,331	$21,987	1.35	$29,717	$18,506	$21,432
2012	$18,664,678	1.69	$31,626,272	$18,406,778	$21,768,116	$30,399	1.35	$41,088	$23,913	$28,280
2013	$25,019,440	1.69	$42,394,067	$23,059,564	$27,848,354	$39,821	1.35	$53,822	$29,275	$35,355
2014	$32,315,261	1.69	$54,756,435	$27,835,395	$34,328,215	$50,281	1.35	$67,960	$34,548	$42,606
2015	$40,625,136	1.69	$68,837,061	$32,703,992	$41,186,984	$61,814	1.35	$83,547	$39,693	$49,989
2016	$49,924,669	1.69	$84,594,609	$37,561,018	$48,306,098	$74,681	1.35	$100,939	$44,818	$57,639
2017	$60,379,033	1.69	$102,308,955	$42,454,579	$55,756,374	$88,836	1.35	$120,071	$49,825	$65,436
2018	$72,070,159	1.69	$122,118,926	$47,359,825	$63,516,339	$104,332	1.35	$141,016	$54,688	$73,345
2019	$85,085,268	1.69	$144,172,314	$52,254,681	$71,565,870	$121,230	1.35	$163,854	$59,388	$81,336
2020	$99,517,256	1.69	$168,626,526	$57,119,638	$79,886,167	$139,589	1.35	$188,670	$63,909	$89,382
2021	$115,269,288	1.69	$195,317,478	$61,832,512	$88,309,700	$159,044	1.35	$214,965	$68,052	$97,193
2022	$132,583,090	1.69	$224,654,764	$66,467,238	$96,940,340	$179,973	1.35	$243,252	$71,970	$104,965
2023	$151,560,968	1.69	$256,811,737	$71,010,585	$105,760,959	$202,433	1.35	$273,609	$75,655	$112,678
2024	$172,311,742	1.69	$291,972,784	$75,451,316	$114,755,759	$226,482	1.35	$306,114	$79,106	$120,314
2025	$194,951,208	1.69	$330,334,115	$79,780,012	$123,910,227	$252,184	1.35	$340,853	$82,320	$127,856
2026	$219,815,091	1.69	$372,464,601	$84,070,164	$133,339,964	$279,763	1.35	$378,128	$85,348	$135,367
2027	$245,939,283	1.69	$416,730,610	$87,908,023	$142,381,098	$308,000	1.35	$416,293	$87,816	$142,232
2028	$273,366,301	1.69	$463,204,184	$91,319,139	$151,039,666	$336,900	1.35	$455,356	$89,772	$148,480
2029	$302,140,109	1.69	$511,959,822	$94,328,176	$159,322,102	$366,471	1.35	$495,323	$91,263	$154,145
2030	$332,306,165	1.69	$563,074,547	$96,958,899	$167,235,183	$396,717	1.35	$536,204	$92,332	$159,255
Total	**$2,653,633,913**	**na**	**$4,496,436,939**	**$1,181,519,895**	**$1,765,281,425**	**$3,470,000**	**na**	**$4,690,064**	**$1,269,784**	**$1,878,052**

Exhibit 5.14-11 (Continued)

Year	Oklahoma					Texas				
	Direct Earnings Benefit	Rims II Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent	Direct Earnings Benefit	Rims II Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent
2006	$0	1.38	$0	$0	$0	$0	1.86	$0	$0	$0
2007	$695	1.38	$961	$785	$836	$546,189	1.86	$1,015,563	$829,002	$882,819
2008	$2,100	1.38	$2,906	$2,217	$2,411	$1,685,916	1.86	$3,134,728	$2,391,469	$2,600,676
2009	$4,236	1.38	$5,861	$4,179	$4,641	$3,471,167	1.86	$6,454,156	$4,601,724	$5,110,313
2010	$7,120	1.38	$9,853	$6,565	$7,445	$5,958,707	1.86	$11,079,391	$7,382,666	$8,372,314
2011	$10,620	1.38	$14,696	$9,152	$10,598	$9,210,203	1.86	$17,125,099	$10,664,651	$12,350,494
2012	$14,435	1.38	$19,974	$11,625	$13,748	$13,019,032	1.86	$24,207,090	$14,088,747	$16,661,551
2013	$18,552	1.38	$25,672	$13,964	$16,864	$17,429,295	1.86	$32,407,364	$17,627,459	$21,288,162
2014	$22,961	1.38	$31,773	$16,152	$19,919	$22,491,283	1.86	$41,819,431	$21,258,878	$26,217,675
2015	$27,651	1.38	$38,262	$18,178	$22,893	$28,252,584	1.86	$52,531,772	$24,957,466	$31,431,110
2016	$33,240	1.38	$45,996	$20,423	$26,265	$34,769,773	1.86	$64,649,584	$28,705,189	$36,916,881
2017	$39,360	1.38	$54,464	$22,601	$29,682	$42,125,448	1.86	$78,326,445	$32,502,690	$42,686,377
2018	$46,028	1.38	$63,691	$24,700	$33,127	$50,382,351	1.86	$93,679,014	$36,330,337	$48,724,209
2019	$53,264	1.38	$73,704	$26,714	$36,586	$59,609,103	1.86	$110,834,882	$40,171,662	$55,017,462
2020	$61,089	1.38	$84,532	$28,634	$40,046	$69,875,939	1.86	$129,924,645	$44,009,972	$61,551,301
2021	$69,543	1.38	$96,230	$30,464	$43,509	$81,268,151	1.86	$151,106,888	$47,836,571	$68,320,583
2022	$78,641	1.38	$108,819	$32,196	$46,956	$93,869,129	1.86	$174,536,664	$51,639,101	$75,313,976
2023	$88,407	1.38	$122,333	$33,826	$50,380	$107,771,389	1.86	$200,385,993	$55,408,397	$82,523,544
2024	$98,868	1.38	$136,809	$35,354	$53,771	$123,062,343	1.86	$228,817,407	$59,130,766	$89,933,434
2025	$110,052	1.38	$152,285	$36,779	$57,123	$139,858,790	1.86	$260,048,078	$62,805,014	$97,545,530
2026	$122,050	1.38	$168,888	$38,120	$60,461	$158,252,884	1.86	$294,249,352	$66,415,953	$105,339,401
2027	$134,340	1.38	$185,894	$39,214	$63,513	$177,690,508	1.86	$330,390,926	$69,694,936	$112,882,091
2028	$146,925	1.38	$203,307	$40,081	$66,294	$198,229,756	1.86	$368,580,817	$72,664,462	$120,185,277
2029	$159,806	1.38	$221,133	$40,744	$68,817	$219,891,008	1.86	$408,856,920	$75,331,551	$127,236,437
2030	$172,989	1.38	$239,374	$41,219	$71,095	$242,721,540	1.86	$451,307,137	$77,713,055	$134,039,857
Total	**$1,522,970**	**na**	**$2,107,416**	**$573,884**	**$846,979**	**$1,901,442,491**	**na**	**$3,535,469,346**	**$924,161,718**	**$1,383,131,474**

Exhibit 5.14-11 (Continued)

Year	Total Corridor		
	Total Corridor Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent
2006	$0	$0	$0
2007	$2,324,514	$1,897,496	$2,020,677
2008	$7,191,871	$5,486,644	$5,966,619
2009	$14,839,782	$10,580,560	$11,749,937
2010	$25,526,591	$17,009,446	$19,289,566
2011	$39,506,585	$24,602,716	$28,491,855
2012	$55,894,424	$32,531,063	$38,471,696
2013	$74,880,924	$40,730,261	$49,188,734
2014	$96,675,598	$49,144,972	$60,608,415
2015	$121,490,643	$57,719,329	$72,690,975
2016	$149,391,129	$66,331,448	$85,306,884
2017	$180,809,935	$75,029,695	$98,537,869
2018	$216,002,647	$83,769,551	$112,347,020
2019	$255,244,755	$92,512,445	$126,701,254
2020	$298,824,372	$101,222,153	$141,566,896
2021	$346,735,561	$109,767,599	$156,770,984
2022	$399,543,500	$118,210,505	$172,406,238
2023	$457,593,672	$126,528,463	$188,447,561
2024	$521,233,115	$134,696,542	$204,863,278
2025	$590,875,331	$142,704,125	$221,640,735
2026	$667,260,968	$150,609,585	$238,875,193
2027	$747,723,723	$157,729,989	$255,468,934
2028	$832,443,664	$164,113,455	$271,439,717
2029	$921,533,198	$169,791,734	$286,781,500
2030	$1,015,157,262	$174,805,505	$301,505,389
Total	**$8,038,703,765**	**$2,107,525,281**	**$3,151,137,929**

Source: AECOM Consult, Inc., Bureau of Economic Analysis, Bureau of Labor Statistics, County Business Patterns 1994-1997, and Woods & Poole.
Note: Columns and rows may not sum to totals due to rounding.

Between 2006 and 2030, the estimated increase in manufacturing employment in the Colorado and Texas portions of the project Corridor is expected to generate approximately $1.21 billion and $835.6 million in direct earnings, respectively. Comparable figures for New Mexico and Oklahoma are significantly smaller. After applying the earnings multipliers, the estimated total increase in earnings during that period would be $2.17 billion in Colorado and $1.77 billion in Texas. Combining direct and indirect benefits for all four states would result in a total earnings benefit associated with manufacturing employment of $3.95 billion for that period.

Using a 7.0 percent discounting factor, the total present value of new earnings associated with increased manufacturing employment in the Ports to Plains Corridor between 2006 and 2030 is estimated to be $1.07 billion. Using a 4.78 percent discounting factor, the total present value of new earnings associated with increased manufacturing employment in the Ports to Plains Corridor is estimated to be $1.58 billion.

Between 2006 and 2030, the estimated increase in transportation/ warehousing employment in the Colorado and Texas portions of the project Corridor is expected to generate approximately $2.65 billion and $1.90 billion in direct earnings, respectively. Again, comparable figures for New Mexico and Oklahoma are significantly smaller. After applying the earnings multipliers, the estimated increase in total earnings during that period would be $4.50 billion in Colorado and $3.54 billion in Texas. Combining direct and indirect benefits for all four states would result in a total earnings benefit associated with transportation/warehousing employment of $8.04 billion for that period.

Using a 7.0 percent discounting factor, the total present value of new earnings associated with increased transportation/warehousing employment in the Ports to Plains Corridor between 2006 and 2030 is estimated to be $2.11 billion. Using a 4.78 percent discounting factor, the total present value of new earnings associated with increased transportation/warehousing employment in the Ports to Plains Corridor is estimated to be $3.15 billion.

Similar to employment, direct increases in earnings in the project Corridor would result in increased earning in counties outside the project Corridor. Those earnings benefits are also measured by first determining the total direct earnings benefit and then applying earnings multipliers to those earnings. Estimating the total direct earnings benefit for employment in counties outside the project Corridor is conducted by multiplying the estimated increase in employment in those areas by state average earnings per worker listed in Exhibit 5.14-9. Total direct earnings benefits in the rest of Corridor states are displayed in Exhibits 5.14-12 and 5.14-13.

Again, when measuring total direct and indirect earnings benefits in the remaining portions of each of the states, the project Corridor direct effect earnings multiplier is first subtracted from the statewide direct effect earnings multiplier to determine the earnings benefits that would occur in the counties outside of the project Corridor. For example, the manufacturing earnings multiplier used to determine indirect earnings benefits in counties outside the project Corridor in Colorado was estimated to be 0.79, which was the statewide manufacturing earnings multiplier of 2.58 minus the project Corridor multiplier of 1.79. For transportation/warehousing, the multiplier used to determine indirect earnings benefits in counties outside the project Corridor in Colorado was estimated to be 0.46, which was the statewide transportation/ warehousing earnings multiplier of 2.15 minus the project Corridor multiplier of 1.69. Multipliers for New Mexico, Oklahoma, and Texas were similarly calculated by subtracting the project Corridor specific direct effect earnings multiplier from the statewide direct effect earnings multiplier. Earnings benefits in the counties outside of the project Corridor, but within Colorado, New Mexico, Oklahoma, and Texas, can be seen in the following exhibits. Exhibit 5.14-12 contains earnings benefits associated with manufacturing while Exhibit 5.14-13 contains earnings benefits associated with transportation/warehousing.

Exhibit 5.14-12: Total Manufacturing Earnings Benefits in the Rest of Each State (2004 Dollars)

Year	Colorado					New Mexico				
	Direct Earnings Benefit	RIMS II Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent	Direct Earnings Benefit	RIMS II Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent
2006	$0	0.79	$0	$0	$0	$0	0.92	$0	$0	$0
2007	$403,704	0.79	$317,644	$259,292	$276,125	$4,074	0.92	$3,727	$3,043	$3,240
2008	$1,228,499	0.79	$966,612	$737,423	$801,934	$12,362	0.92	$11,311	$8,629	$9,384
2009	$2,491,954	0.79	$1,960,728	$1,397,972	$1,552,477	$25,005	0.92	$22,880	$16,313	$18,116
2010	$4,211,847	0.79	$3,313,980	$2,208,245	$2,504,260	$42,140	0.92	$38,559	$25,693	$29,138
2011	$6,408,794	0.79	$5,042,590	$3,140,271	$3,636,678	$63,930	0.92	$58,496	$36,429	$42,187
2012	$8,914,262	0.79	$7,013,950	$4,082,183	$4,827,647	$88,649	0.92	$81,115	$47,209	$55,831
2013	$11,739,121	0.79	$9,236,616	$5,024,107	$6,067,466	$116,374	0.92	$106,484	$57,920	$69,948
2014	$14,894,359	0.79	$11,719,231	$5,957,463	$7,347,087	$147,182	0.92	$134,673	$68,461	$84,430
2015	$18,391,079	0.79	$14,470,532	$6,874,846	$8,658,092	$181,146	0.92	$165,751	$78,747	$99,173
2016	$22,253,388	0.79	$17,509,488	$7,774,422	$9,998,451	$218,368	0.92	$199,809	$88,718	$114,097
2017	$26,498,938	0.79	$20,849,986	$8,652,003	$11,362,833	$259,042	0.92	$237,026	$98,357	$129,175
2018	$31,140,612	0.79	$24,502,164	$9,502,362	$12,744,034	$303,249	0.92	$277,476	$107,610	$144,320
2019	$36,191,500	0.79	$28,476,321	$10,321,129	$14,135,395	$351,069	0.92	$321,232	$116,429	$159,457
2020	$41,664,906	0.79	$32,782,925	$11,104,711	$15,530,785	$402,584	0.92	$368,368	$124,779	$174,513
2021	$47,594,070	0.79	$37,448,130	$11,855,119	$16,931,578	$457,862	0.92	$418,949	$132,628	$189,421
2022	$53,982,380	0.79	$42,474,602	$12,566,702	$18,328,133	$517,034	0.92	$473,092	$139,971	$204,143
2023	$60,844,614	0.79	$47,873,969	$13,237,551	$19,715,597	$580,184	0.92	$530,874	$146,791	$218,626
2024	$68,195,828	0.79	$53,658,076	$13,866,267	$21,089,545	$647,394	0.92	$592,373	$153,080	$232,824
2025	$76,051,374	0.79	$59,839,004	$14,451,903	$22,445,955	$718,752	0.92	$657,665	$158,835	$246,694
2026	$84,489,934	0.79	$66,478,661	$15,005,109	$23,798,939	$794,970	0.92	$727,405	$164,185	$260,407
2027	$93,146,084	0.79	$73,289,523	$15,460,196	$25,040,260	$872,523	0.92	$798,367	$168,413	$272,772
2028	$102,021,127	0.79	$80,272,615	$15,825,475	$26,174,955	$951,398	0.92	$870,539	$171,624	$283,862
2029	$111,116,398	0.79	$87,428,987	$16,108,719	$27,207,936	$1,031,584	0.92	$943,910	$173,915	$293,745
2030	$120,433,265	0.79	$94,759,716	$16,317,196	$28,143,979	$1,113,068	0.92	$1,018,468	$175,376	$302,489
Total	**$1,044,308,039**	**na**	**$821,686,047**	**$221,730,664**	**$328,320,141**	**$9,899,943**	**na**	**$9,058,548**	**$2,463,155**	**$3,637,990**

Exhibit 5.14-12 (Continued)

Year	Oklahoma					Texas				
	Direct Earnings Benefit	RIMS II Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent	Direct Earnings Benefit	RIMS II Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent
2006	$0	1.52	$0	$0	$0	$0	0.73	$0	$0	$0
2007	$155	1.52	$236	$192	$205	$461,863	0.73	$334,950	$273,419	$291,169
2008	$470	1.52	$713	$544	$592	$1,404,512	0.73	$1,018,575	$777,066	$845,044
2009	$948	1.52	$1,440	$1,027	$1,140	$2,847,368	0.73	$2,064,957	$1,472,286	$1,635,005
2010	$1,594	1.52	$2,422	$1,614	$1,830	$4,810,702	0.73	$3,488,798	$2,324,734	$2,636,365
2011	$2,413	1.52	$3,665	$2,283	$2,643	$7,315,169	0.73	$5,305,078	$3,303,736	$3,825,983
2012	$3,338	1.52	$5,071	$2,952	$3,491	$10,168,924	0.73	$7,374,666	$4,292,123	$5,075,925
2013	$4,373	1.52	$6,644	$3,614	$4,364	$13,384,840	0.73	$9,706,900	$5,279,910	$6,376,392
2014	$5,520	1.52	$8,386	$4,263	$5,257	$16,976,397	0.73	$12,311,555	$6,258,570	$7,718,430
2015	$6,782	1.52	$10,302	$4,895	$6,164	$20,956,646	0.73	$15,198,095	$7,220,505	$9,093,411
2016	$8,159	1.52	$12,395	$5,504	$7,078	$25,341,444	0.73	$18,378,021	$8,160,061	$10,494,410
2017	$9,661	1.52	$14,676	$6,090	$7,998	$30,158,649	0.73	$21,871,534	$9,075,909	$11,919,557
2018	$11,290	1.52	$17,151	$6,651	$8,920	$35,426,602	0.73	$25,691,938	$9,963,777	$13,362,858
2019	$13,048	1.52	$19,822	$7,184	$9,839	$41,158,442	0.73	$29,848,761	$10,818,564	$14,816,663
2020	$14,939	1.52	$22,695	$7,687	$10,752	$47,372,398	0.73	$34,355,221	$11,637,302	$16,275,654
2021	$16,963	1.52	$25,768	$8,158	$11,651	$54,082,029	0.73	$39,221,152	$12,416,412	$17,733,222
2022	$19,125	1.52	$29,053	$8,596	$12,537	$61,308,897	0.73	$44,462,193	$13,154,759	$19,185,794
2023	$21,429	1.52	$32,553	$9,001	$13,406	$69,081,050	0.73	$50,098,683	$13,852,703	$20,631,786
2024	$23,877	1.52	$36,273	$9,374	$14,256	$77,404,467	0.73	$56,134,958	$14,506,340	$22,063,048
2025	$26,474	1.52	$40,217	$9,713	$15,086	$86,297,982	0.73	$62,584,677	$15,115,019	$23,475,872
2026	$29,233	1.52	$44,408	$10,023	$15,898	$95,801,506	0.73	$69,476,785	$15,681,825	$24,872,248
2027	$32,034	1.52	$48,664	$10,265	$16,627	$105,539,277	0.73	$76,538,772	$16,145,615	$26,150,405
2028	$34,878	1.52	$52,984	$10,446	$17,277	$115,522,704	0.73	$83,778,913	$16,516,729	$27,318,274
2029	$37,764	1.52	$57,368	$10,570	$17,853	$125,765,362	0.73	$91,207,053	$16,804,824	$28,383,671
2030	$40,692	1.52	$61,817	$10,645	$18,360	$136,254,426	0.73	$98,813,889	$17,015,306	$29,348,084
Total	**$365,158**	**na**	**$554,721**	**$151,289**	**$223,223**	**$1,184,841,653**	**na**	**$859,266,122**	**$232,067,495**	**$343,529,269**

Exhibit 5.14-12 (Continued)

Year	Total Corridor		
	Total Corridor Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent
2006	$0	$0	$0
2007	$656,557	$535,946	$570,739
2008	$1,997,211	$1,523,663	$1,656,954
2009	$4,050,004	$2,887,597	$3,206,738
2010	$6,843,758	$4,560,285	$5,171,593
2011	$10,409,829	$6,482,718	$7,507,491
2012	$14,474,802	$8,424,467	$9,962,893
2013	$19,056,643	$10,365,551	$12,518,170
2014	$24,173,844	$12,288,756	$15,155,203
2015	$29,844,680	$14,178,993	$17,856,840
2016	$36,099,713	$16,028,704	$20,614,035
2017	$42,973,223	$17,832,360	$23,419,564
2018	$50,488,729	$19,580,399	$26,260,133
2019	$58,666,135	$21,263,307	$29,121,354
2020	$67,529,209	$22,874,479	$31,991,703
2021	$77,113,999	$24,412,317	$34,865,872
2022	$87,438,940	$25,870,027	$37,730,607
2023	$98,536,078	$27,246,047	$40,579,415
2024	$110,421,679	$28,535,060	$43,399,674
2025	$123,121,563	$29,735,469	$46,183,606
2026	$136,727,259	$30,861,142	$48,947,491
2027	$150,675,325	$31,784,490	$51,480,063
2028	$164,975,050	$32,524,274	$53,794,368
2029	$179,637,318	$33,098,028	$55,903,205
2030	$194,653,891	$33,518,523	$57,812,912
Total	**$1,690,565,439**	**$456,412,603**	**$675,710,623**

Source: AECOM Consult, Inc., Bureau of Economic Analysis, Bureau of Labor Statistics, County Business Patterns 1994-1997, and Woods& Poole.
Note: Earnings multipliers for other counties outside of the project Corridor were calculated by subtracting multipliers specific to the project Corridor from corresponding statewide multipliers. Columns and rows may not sum to totals due to rounding.

Exhibit 5.14-13: Total Transportation/Warehousing Employment Benefits in the Rest of Each State (2004 Dollars)

Year	Colorado					New Mexico				
	Direct Earnings Benefit	RIMS II Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent	Direct Earnings Benefit	RIMS II Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent
2006	$0	0.46	$0	$0	$0	$0	0.64	$0	$0	$0
2007	$666,934	0.46	$306,963	$250,573	$266,840	$2,090	0.64	$1,342	$1,095	$1,166
2008	$2,067,319	0.46	$951,503	$725,897	$789,399	$6,279	0.64	$4,032	$3,076	$3,345
2009	$4,273,164	0.46	$1,966,765	$1,402,276	$1,557,258	$12,582	0.64	$8,078	$5,760	$6,396
2010	$7,362,474	0.46	$3,388,649	$2,258,000	$2,560,686	$21,016	0.64	$13,494	$8,992	$10,197
2011	$11,406,561	0.46	$5,249,979	$3,269,423	$3,786,246	$31,748	0.64	$20,385	$12,695	$14,701
2012	$16,150,147	0.46	$7,433,260	$4,326,225	$5,116,255	$43,895	0.64	$28,184	$16,404	$19,399
2013	$21,648,787	0.46	$9,964,062	$5,419,789	$6,545,320	$57,500	0.64	$36,919	$20,082	$24,252
2014	$27,961,705	0.46	$12,869,643	$6,542,274	$8,068,310	$72,605	0.64	$46,618	$23,698	$29,226
2015	$35,152,062	0.46	$16,179,074	$7,686,561	$9,680,356	$89,257	0.64	$57,310	$27,228	$34,290
2016	$43,198,749	0.46	$19,882,639	$8,828,129	$11,353,592	$107,837	0.64	$69,240	$30,744	$39,538
2017	$52,244,687	0.46	$24,046,118	$9,978,284	$13,104,663	$128,276	0.64	$82,364	$34,178	$44,887
2018	$62,360,768	0.46	$28,702,142	$11,131,185	$14,928,521	$150,653	0.64	$96,732	$37,514	$50,312
2019	$73,622,464	0.46	$33,885,445	$12,281,645	$16,820,437	$175,052	0.64	$112,398	$40,738	$55,793
2020	$86,110,155	0.46	$39,633,025	$13,425,077	$18,775,993	$201,563	0.64	$129,420	$43,839	$61,312
2021	$99,740,052	0.46	$45,906,316	$14,532,764	$20,755,812	$229,654	0.64	$147,457	$46,681	$66,670
2022	$114,721,314	0.46	$52,801,585	$15,622,084	$22,784,309	$259,875	0.64	$166,862	$49,368	$72,002
2023	$131,142,467	0.46	$60,359,578	$16,689,926	$24,857,458	$292,306	0.64	$187,685	$51,896	$77,293
2024	$149,097,668	0.46	$68,623,632	$17,733,651	$26,971,545	$327,033	0.64	$209,982	$54,263	$82,531
2025	$168,687,114	0.46	$77,639,863	$18,751,043	$29,123,159	$364,145	0.64	$233,812	$56,469	$87,704
2026	$190,201,301	0.46	$87,541,974	$19,759,376	$31,339,471	$403,968	0.64	$259,381	$58,546	$92,857
2027	$212,806,006	0.46	$97,946,006	$20,661,405	$33,464,448	$444,741	0.64	$285,561	$60,238	$97,565
2028	$236,538,018	0.46	$108,868,892	$21,463,134	$35,499,509	$486,473	0.64	$312,356	$61,580	$101,852
2029	$261,435,379	0.46	$120,328,142	$22,170,361	$37,446,166	$529,172	0.64	$339,772	$62,603	$105,737
2030	$287,537,423	0.46	$132,341,858	$22,788,671	$39,306,012	$572,846	0.64	$367,815	$63,336	$109,242
Total	**$2,296,132,715**	**na**	**$1,056,817,112**	**$277,697,755**	**$414,901,764**	**$5,010,567**	**na**	**$3,217,200**	**$871,022**	**$1,288,270**

Exhibit 5.14-13 (Continued)

Year	Oklahoma					Texas				
	Direct Earnings Benefit	RIMS II Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent	Direct Earnings Benefit	RIMS II Multiplier	Total Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent
2006	$0	0.82	$0	$0	$0	$0	0.50	$0	$0	$0
2007	$1,494	0.82	$1,228	$1,002	$1,068	$774,445	0.50	$383,484	$313,037	$333,359
2008	$4,518	0.82	$3,713	$2,833	$3,081	$2,390,472	0.50	$1,183,695	$903,035	$982,033
2009	$9,111	0.82	$7,488	$5,339	$5,929	$4,921,790	0.50	$2,437,134	$1,737,643	$1,929,689
2010	$15,317	0.82	$12,588	$8,388	$9,513	$8,448,888	0.50	$4,183,654	$2,787,745	$3,161,443
2011	$22,846	0.82	$18,777	$11,693	$13,542	$13,059,206	0.50	$6,466,555	$4,027,045	$4,663,631
2012	$31,052	0.82	$25,521	$14,853	$17,566	$18,459,769	0.50	$9,140,763	$5,320,007	$6,291,516
2013	$39,909	0.82	$32,801	$17,841	$21,547	$24,713,109	0.50	$12,237,243	$6,656,249	$8,038,556
2014	$49,394	0.82	$40,596	$20,637	$25,450	$31,890,534	0.50	$15,791,304	$8,027,498	$9,899,974
2015	$59,483	0.82	$48,887	$23,226	$29,251	$40,059,519	0.50	$19,836,358	$9,424,111	$11,868,603
2016	$71,506	0.82	$58,769	$26,094	$33,559	$49,300,283	0.50	$24,412,127	$10,839,276	$13,940,068
2017	$84,670	0.82	$69,588	$28,877	$37,924	$59,729,942	0.50	$29,576,603	$12,273,239	$16,118,669
2018	$99,014	0.82	$81,377	$31,560	$42,326	$71,437,457	0.50	$35,373,838	$13,718,584	$18,398,595
2019	$114,580	0.82	$94,171	$34,132	$46,746	$84,520,127	0.50	$41,852,012	$15,169,095	$20,774,971
2020	$131,413	0.82	$108,005	$36,585	$51,167	$99,077,540	0.50	$49,060,437	$16,618,468	$23,242,193
2021	$149,599	0.82	$122,952	$38,924	$55,591	$115,230,630	0.50	$57,058,997	$18,063,417	$25,798,321
2022	$169,170	0.82	$139,037	$41,136	$59,996	$133,097,638	0.50	$65,906,242	$19,499,279	$28,439,074
2023	$190,180	0.82	$156,304	$43,219	$64,370	$152,809,740	0.50	$75,667,126	$20,922,591	$31,161,457
2024	$212,684	0.82	$174,800	$45,172	$68,703	$174,490,881	0.50	$86,403,023	$22,328,183	$33,959,482
2025	$236,742	0.82	$194,573	$46,992	$72,986	$198,306,671	0.50	$98,195,938	$23,715,604	$36,833,861
2026	$262,553	0.82	$215,786	$48,706	$77,250	$224,387,774	0.50	$111,110,574	$25,079,119	$39,776,881
2027	$288,991	0.82	$237,515	$50,103	$81,150	$251,948,506	0.50	$124,757,881	$26,317,286	$42,625,052
2028	$316,062	0.82	$259,764	$51,212	$84,703	$281,071,236	0.50	$139,178,645	$27,438,599	$45,382,785
2029	$343,773	0.82	$282,539	$52,058	$87,926	$311,784,864	0.50	$154,387,178	$28,445,711	$48,045,352
2030	$372,131	0.82	$305,846	$52,665	$90,837	$344,156,421	0.50	$170,416,671	$29,344,983	$50,614,369
Total	**$3,276,192**	**na**	**$2,692,628**	**$733,247**	**$1,082,178**	**$2,696,067,438**	**na**	**$1,335,017,482**	**$348,969,805**	**$522,279,934**

Exhibit 5.14-13 (Continued)

Year	Total Corridor		
	Total Corridor Earnings Benefit	Discounted at 7 Percent	Discounted at 4.78 Percent
2006	$0	$0	$0
2007	$693,016	$565,708	$602,432
2008	$2,142,944	$1,634,841	$1,777,858
2009	$4,419,465	$3,151,018	$3,499,272
2010	$7,598,386	$5,063,125	$5,741,838
2011	$11,755,696	$7,320,856	$8,478,120
2012	$16,627,729	$9,677,490	$11,444,736
2013	$22,271,025	$12,113,962	$14,629,674
2014	$28,748,161	$14,614,107	$18,022,960
2015	$36,121,629	$17,161,126	$21,612,499
2016	$44,422,775	$19,724,243	$25,366,757
2017	$53,774,673	$22,314,578	$29,306,143
2018	$64,254,089	$24,918,844	$33,419,754
2019	$75,944,026	$27,525,610	$37,697,948
2020	$88,930,888	$30,123,968	$42,130,666
2021	$103,235,723	$32,681,786	$46,676,395
2022	$119,013,726	$35,211,867	$51,355,381
2023	$136,370,693	$37,707,633	$56,160,577
2024	$155,411,437	$40,161,269	$61,082,260
2025	$176,264,186	$42,570,108	$66,117,710
2026	$199,127,715	$44,945,747	$71,286,459
2027	$223,226,962	$47,089,032	$76,268,215
2028	$248,619,658	$49,014,525	$81,068,849
2029	$275,337,632	$50,730,732	$85,685,181
2030	$303,432,190	$52,249,656	$90,120,461
Total	**$2,397,744,422**	**$628,271,829**	**$939,552,146**

Source: AECOM Consult, Inc., Bureau of Economic Analysis, Bureau of Labor Statistics, County Business Patterns 1994-1997, and Woods & Poole.
Note: Earnings multipliers for other counties outside of the project Corridor were calculated by subtracting multipliers specific to the project Corridor from corresponding statewide multipliers. Columns and rows may not sum to totals due to rounding.

Between 2006 and 2030, the indirect benefit of increased manufacturing earnings in the counties outside the project Corridor is estimated to be $1.69 billion. For transportation/warehousing, the indirect benefit of increased earnings for the counties outside the project Corridor is estimated to be $2.40 billion.

Again, these earnings benefits have been discounted to better represent the present value of future benefits. Using a discounting factor of 7.0 percent, the estimated present value of increased earnings associated with increased manufacturing employment for the period between 2006 and 2030 in counties outside the project Corridor is estimated to be $456.4 million. The comparable figure using a discount factor of 4.78 percent is estimated to be $675.7 million. The estimated present value of increased earnings associated with increased transportation/ warehousing employment for the period between 2006 and 2030 in counties outside the project Corridor is estimated to be $628.3 million using a 7.0 percent discounting factor. The comparable figure using a 4.78 percent discounting factor is estimated to be $939.6 million for the same period.

Combining direct and indirect earnings benefits for all counties in the states along the project Corridor results in the total earnings benefit associated with improved transportation infrastructure in the Ports to Plains Corridor. Those figures have been complied and are displayed in Exhibit 5.14-14.

Exhibit 5.14-14: Summary of Total Earnings Benefits from Manufacturing and Transportation/Warehousing by State (2004 Dollars)

	Total Earnings Benefit in 2004 Dollars				
Year	Colorado	New Mexico	Oklahoma	Texas	Total
2006	$0	$0	$0	$0	$0
2007	$2,767,776	$10,463	$2,497	$2,425,183	$5,205,919
2008	$8,513,935	$31,653	$7,552	$7,438,878	$15,992,016
2009	$17,462,886	$63,836	$15,230	$15,217,388	$32,759,340
2010	$29,854,144	$107,285	$25,604	$25,951,153	$55,938,186
2011	$45,919,151	$162,547	$38,259	$39,844,027	$85,963,983
2012	$64,558,418	$225,194	$52,118	$55,940,514	$120,776,245
2013	$85,937,413	$295,429	$67,149	$74,382,183	$160,682,174
2014	$110,230,791	$373,453	$83,320	$95,327,802	$206,015,366
2015	$137,623,077	$459,472	$100,605	$118,928,258	$257,111,411
2016	$168,132,169	$554,262	$120,953	$145,363,702	$314,171,087
2017	$202,154,219	$658,058	$143,219	$174,907,595	$377,863,091
2018	$239,897,535	$771,125	$167,467	$207,761,399	$448,597,526
2019	$281,582,087	$893,740	$193,762	$244,130,074	$526,799,664
2020	$327,440,337	$1,026,185	$222,176	$284,234,030	$612,922,728
2021	$377,364,713	$1,167,745	$252,836	$328,321,859	$707,107,153
2022	$431,870,775	$1,319,513	$285,800	$376,655,072	$810,131,160
2023	$491,214,883	$1,481,765	$321,152	$429,532,954	$922,550,754
2024	$555,667,836	$1,654,784	$358,981	$487,192,697	$1,044,874,298
2025	$625,515,870	$1,838,860	$399,381	$549,975,324	$1,177,729,435
2026	$701,686,628	$2,035,763	$442,671	$618,205,553	$1,322,370,614
2027	$781,117,238	$2,236,514	$486,964	$689,629,186	$1,473,469,901
2028	$863,900,402	$2,441,104	$532,269	$764,420,377	$1,631,294,152
2029	$950,131,947	$2,649,525	$578,595	$842,661,493	$1,796,021,560
2030	$1,039,910,909	$2,861,768	$625,953	$924,445,129	$1,967,843,760
Total	**$8,540,455,140**	**$25,320,041**	**$5,524,513**	**$7,502,891,829**	**$16,074,191,522**

Exhibit 5.14-14 (Continued)

Year	Discounted Earnings Benefit Using 7 Percent Factor				
	Colorado	New Mexico	Oklahoma	Texas	Total
2006	$0	$0	$0	$0	$0
2007	$2,259,330	$8,541	$2,038	$1,979,672	$4,249,581
2008	$6,495,240	$24,148	$5,761	$5,675,084	$12,200,233
2009	$12,450,797	$45,514	$10,859	$10,849,787	$23,356,957
2010	$19,893,077	$71,489	$17,061	$17,292,349	$37,273,975
2011	$28,596,139	$101,226	$23,826	$24,812,857	$53,534,048
2012	$37,573,587	$131,065	$30,333	$32,557,888	$70,292,874
2013	$46,744,259	$160,694	$36,525	$40,458,979	$87,400,456
2014	$56,035,744	$189,845	$42,356	$48,459,820	$104,727,765
2015	$65,383,733	$218,292	$47,797	$56,501,958	$122,151,779
2016	$74,652,694	$246,099	$53,705	$64,543,222	$139,495,720
2017	$83,886,814	$273,071	$59,431	$72,580,434	$156,799,749
2018	$93,036,400	$299,056	$64,947	$80,573,452	$173,973,855
2019	$102,058,307	$323,932	$70,228	$88,483,974	$190,936,441
2020	$110,915,371	$347,604	$75,259	$96,279,900	$207,618,134
2021	$119,464,004	$369,678	$80,041	$103,938,292	$223,852,016
2022	$127,774,979	$390,396	$84,558	$111,438,645	$239,688,578
2023	$135,825,009	$409,720	$88,801	$118,769,441	$255,092,971
2024	$143,595,128	$427,628	$92,768	$125,899,851	$270,015,374
2025	$151,070,269	$444,109	$96,456	$132,826,238	$284,437,071
2026	$158,379,910	$459,498	$99,917	$139,537,132	$298,476,457
2027	$164,774,247	$471,786	$102,723	$145,475,127	$310,823,883
2028	$170,315,044	$481,255	$104,935	$150,702,894	$321,604,128
2029	$175,061,030	$488,173	$106,606	$155,259,687	$330,915,495
2030	$179,067,972	$492,784	$107,786	$159,185,285	$338,853,826
Total	**$2,265,309,081**	**$6,875,601**	**$1,504,715**	**$1,984,081,970**	**$4,257,771,367**

Exhibit 5.14-14 (Continued)

Year	Discounted Earnings Benefit Using 4.78 Percent Factor				
	Colorado	New Mexico	Oklahoma	Texas	Total
2006	$0	$0	$0	$0	$0
2007	$2,406,001	$9,095	$2,171	$2,108,188	$4,525,455
2008	$7,063,448	$26,260	$6,265	$6,171,544	$13,267,517
2009	$13,826,876	$50,544	$12,059	$12,048,921	$25,938,399
2010	$22,559,749	$81,072	$19,348	$19,610,393	$42,270,561
2011	$33,116,550	$117,227	$27,592	$28,735,216	$61,996,585
2012	$44,435,056	$154,999	$35,873	$38,503,419	$83,129,347
2013	$56,451,661	$194,065	$44,110	$48,861,115	$105,550,951
2014	$69,106,513	$234,127	$52,236	$59,763,447	$129,156,323
2015	$82,343,425	$274,914	$60,194	$71,157,834	$153,836,368
2016	$96,008,589	$316,501	$69,068	$83,007,101	$179,401,259
2017	$110,170,085	$358,629	$78,052	$95,321,210	$205,927,975
2018	$124,775,198	$401,077	$87,103	$108,060,592	$233,323,969
2019	$139,774,875	$443,645	$96,182	$121,184,025	$261,498,726
2020	$155,123,599	$486,151	$105,255	$134,654,777	$290,369,783
2021	$170,619,470	$527,977	$114,316	$148,445,521	$319,707,284
2022	$186,355,718	$569,381	$123,325	$162,529,697	$349,578,120
2023	$202,293,547	$610,225	$132,258	$176,891,515	$379,927,544
2024	$218,397,356	$650,389	$141,092	$191,484,175	$410,673,013
2025	$234,634,601	$689,767	$149,810	$206,298,907	$441,773,085
2026	$251,199,361	$728,790	$158,473	$221,313,665	$473,400,290
2027	$266,878,236	$764,132	$166,377	$235,620,226	$503,428,971
2028	$281,696,997	$795,985	$173,560	$249,258,970	$531,925,512
2029	$295,681,442	$824,533	$180,059	$262,236,594	$558,922,629
2030	$308,857,312	$849,955	$185,910	$274,563,556	$584,456,734
Total	**$3,373,775,664**	**$10,159,441**	**$2,220,687**	**$2,957,830,609**	**$6,343,986,401**

Source: AECOM Consult, Inc., Bureau of Economic Analysis, Bureau of Labor Statistics, County Business Patterns 1994-1997, and Woods & Poole.
Note: Columns and rows may not sum to totals due to rounding.

The total increase in earnings from manufacturing and transportation/ warehousing benefits in Colorado, New Mexico, Oklahoma, and Texas between 2006 and 2030 associated with transportation improvement in the Ports to Plains Corridor is estimated to be $16.1 billion in 2004 dollars. The majority of that increase would occur in Texas and Colorado. Using a discounting factor of 7.0 percent, the estimated present value of that increase in earnings is estimated to be $4.3 billion for that period. The comparable figure using a discount factor of 4.78 percent is estimated to be $6.3 billion.

An example of employment growth that may result from improved transportation infrastructure is provided in section 5.22. That demonstration will use the auto manufacturing industry as an example of how improved transportation infrastructure in the project Corridor would lead to increased employment in auto supplier establishments.

5.15 Competitiveness in the Ports to Plains Corridor

This portion of the study will demonstrate that the Ports to Plains Corridor is an attractive location for an industry to expand or relocate. A demonstration of selected characteristics that make the area attractive is conducted for manufacturing employers and is included to show that other factors encouraging economic growth in the project Corridor are in place. Increased transportation investment, when combined with those characteristics, may act as a catalyst in encouraging economic growth.

For several reasons, the metropolitan areas along the Ports to Plains Corridor are attractive candidates for relocation or expansion of manufacturing facilities.[34] First, those metropolitan areas offer significant

[34] According to the Office of Management and Budget, the Metropolitan Statistical Areas (MSAs) along the Ports to Plains Corridor include Amarillo, Denver, Laredo, Lubbock, Midland, Odessa, and San Angelo.

labor and travel cost savings relative to current production locations. Second, those metropolitan areas offer attractive economic development incentives.[35] Finally, the number of production workers in the metropolitan areas along the Ports to Plains Corridor is sufficiently large to accommodate the addition of a large manufacturing facility. It is believed that increased transportation investment along the Ports to Plains Corridor would further enhance the attractiveness of that area and would encourage manufacturers to consider relocation or expansion along that Corridor.

5.15.1 Metropolitan Areas along the Ports to Plains Corridor Offer Significant Cost Savings

Among the characteristics that make the project Corridor attractive for the relocation or expansion of a manufacturing facility is the potential to significantly reduce labor and travel costs. The analysis presented here will compare the labor and travel costs that could be expected for a manufacturer in the metropolitan areas along the Ports to Plains Corridor with those found in Midwestern states for industries producing commodities that are frequently exported to Mexico. Midwestern production locations are used as a comparison because it is believed that those areas are the most likely locations from which a company might relocate. Industries producing commodities most exported to Mexico are selected for comparison because it is believed that manufacturers making those commodities would be most interested in locating a facility along the Ports to Plains Corridor given that Corridor's proximity to the Mexican border.

This analysis will begin by identifying the commodities most exported to Mexico. In 2003, the value of U.S. exports to Mexico totaled $99.4 billion, in 2004 dollars. Although those exports were distributed across hundreds of categories, more than half of their value in that year was contained within 20 categories.[36] The value of exports from the U.S. to Mexico by category and their cumulative percent of total exports to Mexico can be seen in Exhibit 5.15-1.

Exhibit 5.15-1: Value of U.S. Exports to Mexico, 2003

Description	Value of Exports	Cumulative Percent of Exports
Valves/Transistors/Etc.	$6,181,743	6.2%
Motor Vehicle Parts/Accessories	$6,053,283	12.3%
Electric Circuit Equipment	$4,336,406	16.7%
Office Equipment Parts and Accessories	$4,031,224	20.7%
Telecommunications Equipment, NES	$3,168,215	23.9%
Articles, NES of Plastics	$2,870,281	26.8%
Computer Equipment	$2,740,186	29.6%
Passenger Cars, Etc.	$2,559,615	32.1%
Electrical Equipment, NES	$2,528,750	34.7%
Manufactures Of Base Metal, NES	$2,213,168	36.9%
Heavy Petroleum/Bituminous Oils	$2,206,706	39.1%
Internal Combustion Piston Engines	$2,039,206	41.2%
Equipment For Distributing Electricity, NES	$1,781,998	43.0%
Measuring, Checking, Analyzing and Controlling Instruments, NES	$1,301,458	44.3%
Plastics, NES, In Primary Forms	$1,127,622	45.4%
Cut Paper/Board Articles	$1,094,107	46.5%
Rotating Electric Plant And Parts Thereof, NES.	$1,088,070	47.6%
Oil Seeds Etc. - Soft Oil	$1,081,525	48.7%
Pumps (not For Liquids), Fans, Filters, and Gas	$1,071,124	49.8%
Hydrocarbons, NES and their Derivatives	$1,047,970	50.8%
Total	**$99,364,196**	**na**

Source: U.S. International Trade Statistics, Census Bureau, 2003.
Notes: Most exported as measured by value; NES – not elsewhere specified; na – not applicable. Value data are in thousands of 2004 U.S. Dollars.

[35] Specifically, the incentives offered in Texas are competitive with almost all other southern states. The incentives offered in other states along the Ports to Plains Corridor are not as competitive.
[36] In this section, categories refer to three-digit Standard International Trade Classification (SITC) system commodity groups.

Most exported among all categories was semiconductor devices such as valves and transistors, much of which was likely used as intermediate goods in the fabrication of final goods for re-export back to the U.S. That category accounted for 6.2 percent of all exports to Mexico in 2003, in terms of value. Labor cost savings will be calculated for industries producing the commodities shown in Exhibit 5.15-1.

In order to compare labor costs, it is first necessary to determine the Midwestern state that was the largest export producer of each commodity found on Exhibit 5.15-1.[37] Then, labor costs are estimated for a hypothetical firm in that state and for a similar firm in each of the metropolitan areas along the Ports to Plains Corridor. Finally, those labor costs are compared to determine if the metropolitan areas along the project Corridor are competitive. That analysis has been conducted and is described below.

A hypothetical manufacturing firm with 100 employees is generated for each category appearing in Exhibit 5.15-1. Then, employees in each of those firms are assigned to various occupations based on national trends observed in the U.S. industry-occupation matrix.[38] Location specific wages for each occupation are then multiplied by the number of employees in each occupation group. Finally, those wages are summed to arrive at a total labor cost for a firm in each of the metropolitan areas of the project Corridor and a firm in the comparison state. These labor cost estimates are presented in Exhibit 5.15-2.

Exhibit 5.15-2: Estimated Annual Labor Costs for Firms Producing Commodities Most Exported to Mexico (Millions of 2004 Dollars)

Commodity Group	Labor Costs in Midwestern State with Highest Volume of Exports		Labor Costs in MSAs Along Ports to Plains Corridor				
	State	Labor Costs	Amarillo	Laredo	Lubbock	Odessa-Midland	San Angelo
Valves/Transistors/Etc.	Illinois	$4.49	$3.84	$3.52	$3.46	$4.16	$3.65
Motor Vehicle Parts/Accessories	Michigan	$4.34	$3.21	$2.83	$2.96	$3.51	$3.04
Electric Circuit Equipment	Ohio	$3.99	$3.37	$3.01	$3.08	$3.68	$3.20
Office Equipment Parts and Accessories	Illinois	$4.13	$3.52	$3.17	$3.20	$3.83	$3.34
Telecommunications Equipment, NES	Illinois	$4.49	$3.84	$3.52	$3.46	$4.16	$3.65
Articles, NES of Plastics	Ohio	$3.42	$2.83	$2.46	$2.65	$3.10	$2.66
Computer Equipment	Illinois	$4.49	$3.84	$3.52	$3.46	$4.16	$3.65
Passenger Cars, Etc.	Michigan	$4.34	$3.22	$2.84	$2.96	$3.51	$3.05
Electrical Equipment, NES	Ohio	$3.80	$3.19	$2.83	$2.94	$3.48	$3.02
Manufactures Of Base Metal, NES	Illinois	$3.63	$3.08	$2.71	$2.84	$3.37	$2.90
Heavy Petroleum/Bituminous Oils	Illinois	$3.86	$3.23	$2.89	$3.03	$3.54	$3.07
Internal Combustion Piston Engines	Illinois	$3.79	$3.21	$2.83	$2.96	$3.51	$3.04
Equipment For Distributing Electricity, NES	Michigan	$4.04	$2.98	$2.62	$2.77	$3.26	$2.82
Measuring, Checking, Analyzing and	Ohio	$3.93	$3.30	$2.94	$3.03	$3.61	$3.13
Plastics, NES, In Primary Forms	Ohio	$4.03	$3.41	$3.05	$3.17	$3.84	$3.25
Cut Paper/Board Articles	Ohio	$3.38	$2.79	$2.41	$2.61	$3.06	$2.62
Rotating Electric Plant and Parts Thereof,	Illinois	$3.68	$3.13	$2.75	$2.88	$3.43	$2.95
Pumps (not For Liquids), Fans, Filters, and	Illinois	$3.72	$3.16	$2.78	$2.91	$3.46	$2.99
Hydrocarbons, NES and their Derivatives	Illinois	$3.94	$3.32	$2.97	$3.10	$3.69	$3.16

Source: AECOM Consult, Inc. and Bureau of Labor Statistics.
Notes: Midwestern wages for production of Oil Seeds, etc. were not available. Denver did not generate labor cost savings in this analysis and was therefore not displayed. Data are representative of 2002 but are inflated using the CPI to be shown in 2004 dollars.

In Illinois, a 100-employee firm making valves and transistors paid estimated labor costs of $4.49 million in 2002. In each of the metropolitan areas along the Ports to Plains Corridor, estimated labor costs for the same firm are significantly lower. In Lubbock, the comparable figure of $3.46 million is

[37] Production location data were obtained from the Census Bureau's Manufacturing and Construction Division (MCD).
[38] Industry-occupational matrices are published by the Bureau of Labor Statistics (BLS).

lowest among the selected metropolitan areas. It is clear that a firm in this industry relocating from Illinois to a metropolitan area along the Ports to Plains Corridor would likely realize significant labor cost savings. A further review of Exhibit 5.15-2 reveals that for manufacturers of any of the commodities most exported from the U.S. to Mexico, there would be significant labor cost savings realized by relocating from current Midwestern locations to the Ports to Plains Corridor.

Comparing labor costs for a firm in each metropolitan area along the Ports to Plains Corridor with labor costs in the comparison Midwestern state allows the calculation of labor cost savings that could be realized given relocation. Those calculations are completed and are reported in Exhibit 5.15-3. In this exhibit, the annual savings and savings as a percent of wages in the comparison state are displayed.

Exhibit 5.15-3: Estimated Labor Cost Savings
(Millions of 2004 Dollars)

Commodity Group	Amarillo		Laredo		Lubbock		Odessa-Midland		San Angelo	
	Annual Savings	Percent Savings	Annual Savings	Percent Savings	Annual Savings	Percent Savings	Annual Savings	Percent Savings	Annual Savings	Percent Savings
Valves/Transistors/Etc.	$0.65	14.5%	$0.97	21.5%	$1.03	23.0%	$0.33	7.3%	$0.83	18.6%
Motor Vehicle Parts/Accessories	$1.13	26.0%	$1.50	34.7%	$1.38	31.8%	$0.83	19.0%	$1.30	30.0%
Electric Circuit Equipment	$0.62	15.5%	$0.98	24.5%	$0.91	22.8%	$0.31	7.9%	$0.79	19.9%
Office Equipment Parts and Accessories	$0.61	14.8%	$0.96	23.2%	$0.93	22.4%	$0.30	7.2%	$0.79	19.1%
Telecommunications Equipment, NES	$0.65	14.5%	$0.97	21.5%	$1.03	23.0%	$0.33	7.3%	$0.83	18.6%
Articles, NES of Plastics	$0.60	17.4%	$0.96	28.1%	$0.77	22.6%	$0.32	9.3%	$0.77	22.4%
Computer Equipment	$0.65	14.5%	$0.97	21.5%	$1.03	23.0%	$0.33	7.3%	$0.83	18.6%
Passenger Cars, Etc.	$1.12	25.8%	$1.50	34.5%	$1.38	31.7%	$0.83	19.0%	$1.29	29.7%
Electrical Equipment, NES	$0.61	16.1%	$0.97	25.5%	$0.86	22.7%	$0.32	8.4%	$0.79	20.7%
Manufactures Of Base Metal, NES	$0.55	15.2%	$0.93	25.5%	$0.79	21.7%	$0.26	7.2%	$0.73	20.1%
Heavy Petroleum/Bituminous Oils	$0.63	16.4%	$0.97	25.2%	$0.83	21.6%	$0.32	8.4%	$0.79	20.4%
Internal Combustion Piston Engines	$0.58	15.2%	$0.95	25.2%	$0.83	21.9%	$0.28	7.3%	$0.75	19.8%
Equipment For Distributing Electricity, NES	$1.06	26.2%	$1.43	35.3%	$1.27	31.3%	$0.78	19.3%	$1.23	30.3%
Measuring, Checking, Analyzing And Controlling Instruments, NES	$0.62	15.9%	$0.99	25.1%	$0.90	22.9%	$0.32	8.1%	$0.80	20.4%
Plastics, NES, In Primary Forms	$0.62	15.4%	$0.98	24.4%	$0.86	21.4%	$0.19	4.8%	$0.78	19.4%
Cut Paper/Board Articles	$0.59	17.5%	$0.97	28.6%	$0.77	22.7%	$0.32	9.5%	$0.76	22.5%
Rotating Electric Plant And Parts Thereof, NES	$0.55	14.9%	$0.93	25.3%	$0.79	21.6%	$0.25	6.7%	$0.72	19.7%
Pumps (not For Liquids), Fans, Filters, and Gas	$0.56	15.1%	$0.94	25.3%	$0.81	21.8%	$0.26	7.0%	$0.73	19.7%
Hydrocarbons, NES and their Derivatives	$0.62	15.7%	$0.97	24.6%	$0.84	21.3%	$0.25	6.4%	$0.78	19.7%
Average	$0.69	17.2%	$1.04	26.3%	$0.95	23.8%	$0.37	9.3%	$0.86	21.6%

Source: AECOM Consult, Inc. and Bureau of Labor Statistics.
Notes: Midwestern wages for production of Oil Seeds, etc. were not available. Denver did not generate labor cost savings in this analysis and was therefore not displayed. Data are representative of 2002 but are inflated using the CPI to be shown in 2004 dollars.

In 2002, a typical firm employing 100 persons located in Lubbock, Texas making valves and transistors could have realized annual labor cost savings of approximately $1.03 million, or 23.0 percent, as compared to a similar firm located in Illinois. A further review of Exhibit 5.2-3 reveals that in many cases, labor cost savings associated with the relocation of any manufacturer producing commodities most exported to Mexico would exceed $500,000 annually, or 15 percent of total labor costs. In some cases, those savings could approach $1.5 million annually, or 35 percent.

Further enhancing the cost savings of a location along the Ports to Plains Corridor would be the potential for travel cost savings. Travel cost savings can be quantified by first calculating the distance between their current location and Mexican ports that a Midwestern producer would save if their commodities were to begin shipment from a metropolitan area along the Ports to Plains Corridor. For simplicity, the capital of each Midwestern state was used as a reference point. The distance saved by relocating is then multiplied by total trucking costs per mile, found previously, to determine total savings per truckload. In 2001, total trucking costs per mile including wages and benefits, fuel, tires, taxes and licenses, and other costs were estimated to be $2.07 per mile.[39] Savings per truckload are displayed in Exhibit 5.15-4.

Exhibit 5.15-4: Total One-Way Savings per Truck, (2004 Dollar)

Metropolitan Statistical Area	Lansing, MI	Columbus, OH	Springfield, IL
Denver, CO	$625	$384	-$179
Amarillo, TX	$1,988	$1,746	$1,184
Laredo, TX	$3,478	$3,237	$2,674
Lubbock, TX	$2,256	$2,014	$1,452
Odessa-Midland, TX	$2,467	$2,225	$1,663
San Angelo, TX	$2,677	$2,435	$1,873

Source: AECOM Consult, Inc., American Trucking Trends, 2003, American Trucking Association, Inc., and Map Quest.com, Inc. Data are displayed in 2004 dollars.

With the exception of a relocation from Illinois to Denver, relocation from any Midwestern state to any metropolitan area along the Ports to Plains Corridor will generate transportation savings. In some cases those savings will exceed $2,000 per truckload.

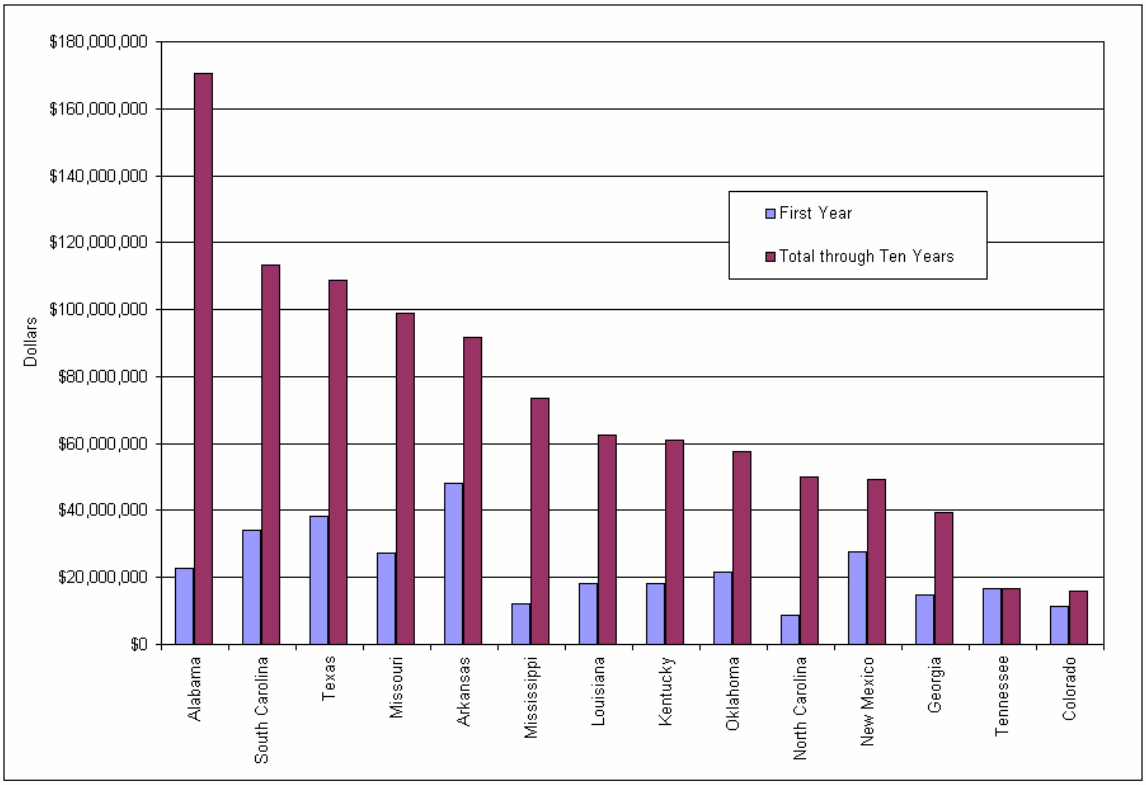
5.15.2 Metropolitan Areas along the Ports to Plains Corridor Offer Competitive Incentives

Adding to the attractiveness of the Ports to Plains Corridor is the value of the economic development incentives offered to relocating or expanding employers. The structure of incentives varies dramatically across states making their comparison difficult. However, given a set of assumptions, it is possible to calculate and compare the value of those incentives. That comparison will be conducted for states along the Ports to Plains Corridor and other selected southern states.

The total value of economic development incentives is estimated for a hypothetical manufacturing company based on published incentive structures. For this analysis, it is assumed that the company obtaining those incentives is a manufacturer employing 1,000 workers, making an investment of $300 million, comprised of $90 million in land and buildings and $210 million in manufacturing equipment. It is also assumed that the average annual wage for each employee will be $35,000 and that total payroll will be $35 million, annually. Finally, it is assumed that the manufacturing facility will be located in an enterprise zone and will be eligible for all benefits associated with that location. The total value of the incentives offered in the states along the project Corridor and other selected states is estimated for the first year and for the first ten years and is displayed in Exhibit 5.15-5.

[39] 2001 Trucking costs per mile were obtained from American Trucking Association's American Trucking Trends, 2003.

Exhibit 5.15-5 Estimated Value of Economic Development Incentives in Selected States, 2004



Source: Various State Departments of Economic Development and Departments of Taxation.

The incentives offered by Alabama are estimated to be $170.4 million during the first ten years of operation and are larger than all other selected states. Incentives in Texas are largest among states along the project Corridor, totaling $108.9 million. With the exception of Denver, all metropolitan areas along the Ports to Plains Corridor are located in Texas and therefore are able to offer incentives that would be competitive with most other southern locations. It is important to note, however, that the estimated values of incentives in other states along the Ports to Plains Corridor, which include Colorado, New Mexico, and Oklahoma, are relatively low compared to incentives found in many southern states.

5.15.3 Metropolitan Areas along the Ports to Plains Corridor Offer a Comparable Labor Force

Also adding to the project Corridor's attractiveness is the finding that there is a sufficiently large production oriented workforce in several of the metropolitan areas along the Ports to Plains Corridor. In fact, some metropolitan areas in the Ports to Plains Corridor have a labor market with production employment equal to or exceeding that found in metropolitan areas that have recently experienced a large manufacturing expansion. Specifically, in 2003, Amarillo and Odessa-Midland each had approximately 7,000 production workers. That compares with 7,600 in Tuscaloosa, AL and 5,600 in Bloomington, IN, each of which has recently added a large manufacturing facility. The total number of production workers in selected metropolitan areas having recently announced large manufacturing employment expansions is displayed in Exhibit 5.15-6. For comparison, the number of production workers for each of the metropolitan areas along the Ports to Plains Corridor is also listed. It is important to note that in each of the locations having recently announced a large manufacturing expansion found in Exhibit 5.15-6, that location is in close proximity to a multilane highway.

Exhibit 5.15-6: Production Workers in Ports to Plains MSAs and Selected MSAs with Recent Manufacturing Announcements

Location	Manufacturing Firm	Nearest Metro Area	Announced Employment	Production Workers
Lincoln, AL	Honda	Birmingham, AL	1,500	30,390
Canton, MS	Nissan	Jackson, MS	4,000	12,300
Hope Hull, AL	Hyundai	Montgomery, AL	2,000	11,010
Nash County, NC	Universal Leaf North America	Rocky Mount, NC	1,000	8,820
Crenshaw, AL	ShinYoung Metal Industrial Co.	Tuscaloosa, AL	400	7,620
Vance, AL	Mercedes	Tuscaloosa, AL	2,400	7,620
Jackson County, GA	Denso and Toyota	Athens, GA	300	6,900
Martinsburg, WV	Quad Graphics	Hagerstown, WV	700	6,370
Bloomington, IN	Baxter Healthcare	Bloomington, IN	700	5,600
New Bern, NC	BSH Home Appliances	Goldsboro, NC	1,400	3,730
Denver	na	Denver	na	51,410
Amarillo	na	Amarillo	na	7,020
Odessa-Midland	na	Odessa-Midland	na	6,990
Lubbock	na	Lubbock	na	5,370
San Angelo	na	San Angelo	na	2,980
Laredo	na	Laredo	na	1,640

Source: Various Departments of Economic Development, trade and site selection periodicals, and Bureau of Labor Statistics.
Note: Each expansion in the table above was scheduled to begin operation between 2001 and 2006.

In summary, it is demonstrated that the metropolitan areas along the Ports to Plains Corridor are good candidates for relocation or expansion of manufacturing industry, particularly those industries associated with production of commodities most exported to Mexico. Further, it is believed that investment in the Ports to Plains Corridor Projects improve the Corridor's attractiveness and may act as a catalyst in encouraging manufacturing employers to consider a location along the project Corridor.

5.16 Economic Benefit of Increased Tourism from Winter Texans

Seasonal visitors to Texas from colder northern locations, known as Winter Texans, represent a significant economic boon to the communities where they reside for the season. Texas communities across the state garner 12 percent of the national winter visitor market, supporting jobs, incomes, and tax revenues. As many of these tourists bypass the larger metro areas in favor of small metropolitan or rural locations, the benefit of their spending can be a vital part of their host communities' economies. Visitors to the communities in South Texas alone account for $250 million in direct spending annually, according to the biennial Rio Grande Valley Winter Visitor Study, 2002-2003 published by the University of Texas Pan-American[40] (cited as RGV Winter Visitor Study hereafter).

5.16.1 How the Ports to Plains Corridor Investment Could Support Development of the Winter Texan Market

Investment in the Ports to Plains Corridor could accommodate growth in industries that serve the seasonal travel market in several ways.

1. The improved highway would improve travelers' access to West Texas communities. Although the communities along the Ports to Plains Corridor are not prime destinations for seasonal visitors to Texas, they do attract a measurable share of this travel market. While a better highway, by itself, will not cause RV travelers and other snowbirds to select Ports to Plains communities for

[40] Vincent, Vern, William Thompson, and Mark Williamson. "2002-03 Rio Grande Valley Winter Visitor Survey" Center for Tourism Research, University of Texas – Pan American, August 2003.

their winter vacation, it removes an impediment to their making this selection. Road quality is important to this tourist group. Given the size and cost of modern RVs, this is a significant investment that makes road quality more than an issue of comfort. This concern is echoed in the interviews for this study as well as those reported in the RGV Winter Visitor Study where the condition of streets and highways was identified by Winter Texans as the leading issue to be addressed in order to improve the area.

2. Many Winter Texans will be attracted to the Ports to Plains Corridor as a more convenient route to South Texas, the state's leading destination for seasonal travelers. These "pass through" travelers will come from two sources.

    a. First, the improved highway Corridor will be a closer route to South Texas for those travelers originating in the Pacific and Mountain West states.
    b. Second, some travelers will be diverted from I-35 to the Ports to Plains Corridor as an alternative to interstate driving.

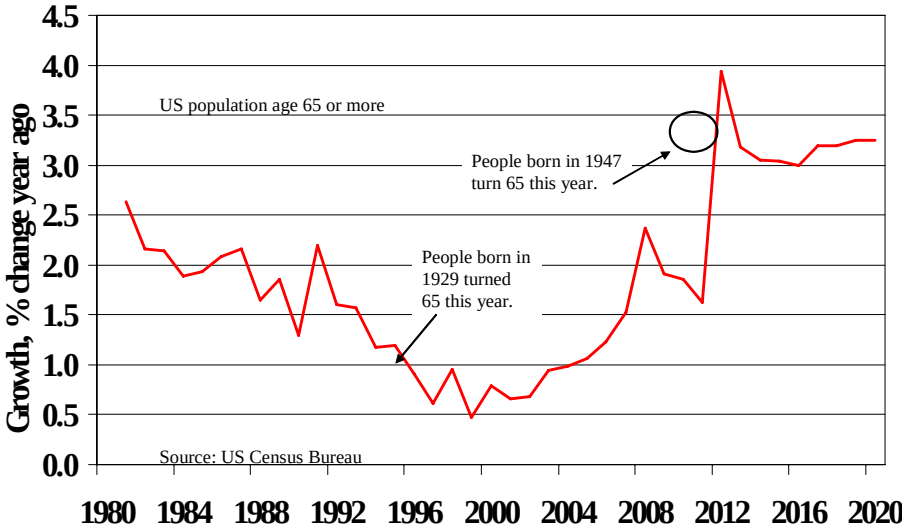
Although in both cases South Texas is their primary destination, these visitors would be expected to increase expenditures as they stop along the Corridor on their way to their seasonal destination.

The purpose of this section is to evaluate the economic development potential of the first economic benefit identified above. The economic benefits of increased roadside spending are considered in another section of this report. They are omitted here to avoid double counting.

5.16.2 Feasibility of Developing a Significant Winter Texan Market among the Ports to Plains Corridor Communities

The 2000 Census showed 35 million people aged 65 or more in the U.S. This represents a 12 percent increase over the 1990 numbers, the first time in Census history that the growth of this population section has lagged that of the total population. As the chart in Exhibit 5.16.2-1 illustrates however, growth of the retiree population has just passed its nadir and is expected to accelerate steadily over the course of this decade and rise sharply in the next. Growth is shown as a year-over-year percentage growth rate. So for example, the 1994 data point is calculated as {[(Pop 65+ in 1994)-(Pop 65+ in 1993)]/(Pop 65 + in 1993)} X 100.

Exhibit 5.16.2-1: U.S. Retiree Growth Set to Accelerate



Although the national pool of retirees will expand rapidly in the next 20 years, thus creating favorable conditions for Winter Texan tourism development in the Corridor communities, the potential pool of Ports to Plains Winter Texans is constrained by several factors including its location relative to potential

feeder markets and significant competition from more established in-state rivals. A summary of the main pros and cons to Winter Texan market development in the Corridor is presented in Exhibit 5.16-2.

Exhibit 5.16-2: Summary of Winter Texan Market Development Pros and Cons

Pros	Cons
Small existing base on which to build. Industry is not completely new to region.	Corridor faces strong in-state competition from established and more developed Corpus Christi and Brownsville area markets.
Lower cost than out-of-state competitor Arizona, the winter tourism market with the most similar climate.	Many winter tourists prefer access to water at their vacation location.
National demographics favor Corridor's ability to attract new visitors and build Corridor's own client base.	Strong "lock-in" effect among existing Winter Texans makes it difficult to tap existing market.
Baby boomer generation has differed from parent generation in preference for more active, participatory activities.	Region is not perceived as having sufficient amenities for a long vacation.

Source: AECOM Consult, Inc.

Supporting the potential for seasonal tourism development among the Corridor communities is the existence of a small base of seasonal tourists that already select the Corridor for their winter retreat. The most recent data available on the location preferences of winter seasonal travel to Texas indicates that the Odessa-Midland and San Angelo Designated Market Area (DMA) markets are among the top ten markets in the state, albeit at numbers 9 and 10 on the list.[41] So although the Corpus Christi and Brownsville area communities are the prime destination for winter tourists, offering a significant range of RV and lodging amenities in addition to coastal access, there is evidence that some winter travelers prefer other amenities. The second largest winter tourist market in the U.S. is Arizona, with no coastal access, similar access to Mexico and higher costs. Taken in total, these trends suggest that there is real potential for the Ports to Plains communities to carve out a larger niche of the Winter Texan market.

Such development will be a gradual process as it was for the current market leader, Brownsville. There is a strong “lock-in” effect among existing winter travelers to Texas, as many visitors from the north return to the same vacation areas where they meet up with friends. Seasonal migration for many is a substitute for permanent migration as “it captures the advantages of climate and amenity improvements during the winters, without the disadvantages of cutting ties to the home community.”[42] This means that Ports to Plains communities will need to attract new visitors from the national market. This is a viable alternative. As illustrated above, growth in the national pool of retirees and those close to retirement is poised to accelerate just as the improved Corridor is coming into use. Thus, the pool of potential visitors is growing rapidly just as Corridor communities will be working to attract them.

A second argument for gradual development reflects the need to develop a tourism infrastructure to support and retain winter visitors year after year. While the road improvements are an important part of a Winter Texan development strategy, successful realization of this approach also requires constructing RV parks and offering a large range of amenities, development of the Corridor’s own unique cultural, historical and natural resource assets, and a marketing plan that is coordinated among the Corridor

[41] Texas Department of Economic Development, Tourism Division. 1997. “1991-1996 Winter Texan Report” prepared by D.K. Shifflet and Associates. This is the most recent data available on the intra-state preferences for winter tourists to Texas. Although the actual counts presented in the report are now outdated, the information on feeder markets and destination preferences is in all likelihood still valid. Data from the biennial survey of the Brownsville Winter Texan market, for which there is a long time series indicates that these are very stable elements of the winter tourism market.

[42] Longino, Charles. *Retirement Migration in America*. 1995. Vacation Publications. Houston, TX.

communities. These will take time to develop, implement, and "be discovered" by the public. Again, these are realistic goals given emerging trends among the potential pool of new Winter Texans. As the interviews with Corridor residents reveal, the assets of the Corridor are numerous, distinct, and varied including everything from the Mexican Border, to fishing/hunting, bird watching, wineries, museums, dinosaur tracks, petroglyphs, scenic byways, golf, rodeos and historic sites. While these are not the traditional winter vacation amenities of coastal access, they provide a variety of things to do in one region. The large-scale RV parks of south Texas are less like trailer parks and more like "winter camps for elders" according to Longino.[43] Research into the activities of seasonal tourists has found that many used their winter home as a base of operations from which to explore nearby areas, supporting the feasibility of developing this industry in the Corridor.[43]

5.16.3 Estimating the Size of the Winter Texan Market

There were 24 million leisure trips to Texas by non-Texans in 2002, the last year for which data are available.[44] These were trips to destinations across the entire state for all types of leisure travelers, not just Winter Texans. Analysis of travel patterns for the state indicates that 6 percent of all leisure trips to Texas by non-Texans are winter trips (November 1 to March 31) of 6 days duration or more, providing an estimate of 1.44 million winter trips to all destinations within the state in 2002.[45] The requirement of 6 days or more excludes weekend getaways. Of these leisure trips, 21.6 percent were made by Seniors aged 65 or more. This refines the market estimate to 311,040 trips by Seniors to all Texas destinations during the winter season.

Estimating the Ports to Plains Winter Texan market requires consideration of which markets in the U.S. are likely to use the Corridor highway on their way to a wintering spot in Texas and the growth of this feeder population. Exhibit 5.16-3 shows the origin markets for Winter Texas travel and the relative share of these markets. Although the upper Midwest is clearly the dominant market, roughly 20 percent of Winter Texans originate from states west of the Corridor. This means the first good southbound highway in Texas that this group would encounter would be the Ports to Plains Corridor. This is the origin market used in this analysis. In reality, the region would likely attract visitors from the Midwest and East as well. For example, the top three feeder markets for the El Paso are Illinois (18.5%), Arizona (12.6%), and Georgia (11.7%).

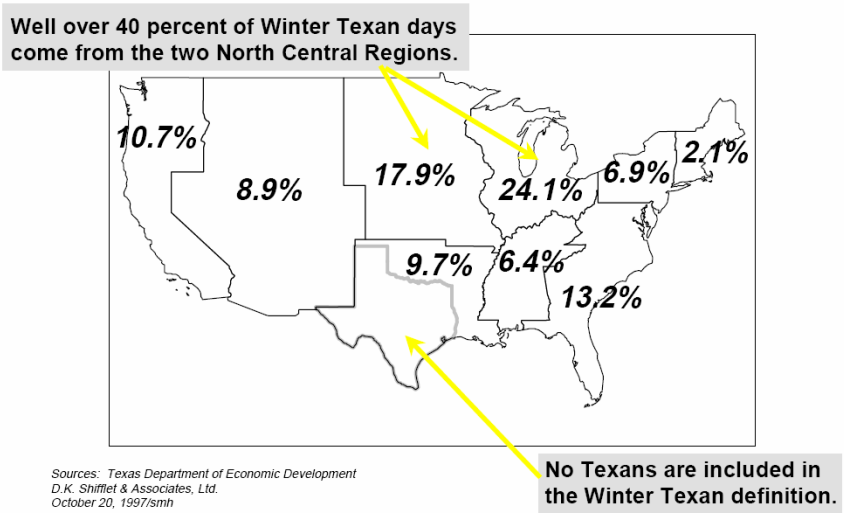
The estimates developed here are for traditional Winter Texans (Seniors traveling by RV or camper for an extended period) who use the Ports to Plains Corridor. This is not an estimate of the total market.

[43] McHugh, Kevin and Robert Mings. 1991. "On the Road Again: Seasonal Migration to a Sunbelt Metropolis," *Urban Geography* 12:pp. 1-18 cited in Longino (1995).

[44] Full Year 2002 Texas Travel Trends, Office of the Governor, Economic Development and Tourism.

[45] This section relies heavily on data from the Winter Texan report cited in footnote 41 and the report cited in footnote 45 above.

Exhibit 5.16-3: Market Origins of Winter Travelers to Texas



Applying the 19.6 percent share (10.7 Pacific + 8.9 Mountain) shown in Exhibit 5.16-3 to the number of Senior winter trips yields a potential market of 60,964 trips in 2002. These are winter trips by Seniors to all Texas destinations within the state from the Mountain West and Pacific regions of the U.S. If Ports to Plains Corridor communities or South Texas are their destination, they would be expected to use the Corridor. If instead a community in the Gulf Coast of Texas is the destination, they would likely continue past the Corridor and select an alternative highway. The split between coming south on the Corridor and continuing on to eastern Texas was based on the relative market share among Texas travel markets along the Mexican border, South Texas and the Corpus Christi coastal market. These markets were the focus based on the assumption that traditional Winter Texans are selecting southern locations within the state. Allowing for some diversions to select small markets elsewhere in the state such as Galveston, the split implies that 75 percent would utilize the Ports to Plains highway and 25 percent would utilize a different highway. This reduces the market share of the Ports to Plains Corridor to 45,723. The Ports to Plains Corridor share is large in this case because it is a good route to the state's Winter Texan Mecca in the Lower Rio Grande Valley.

Of these estimated 45,723 Senior leisure travelers using the Corridor in the winter months, roughly 31 percent will stay somewhere along the Ports to Plains Corridor and the remainder will go on to the Lower Rio Grande Valley. This division is based on an analysis of RV establishments in the Ports to Plains Corridor in the County Business Patterns data. It is important to stress that this is not an estimate of the Winter Texan market in these two places; this is an estimate of the Winter Texans using the Ports to Plains Corridor to get to one of two destinations from the Mountain West and Pacific U.S. The dominant feeder market to the Lower Rio Grande Valley is the Midwest and the most popular route is I-35. This provides an estimate of 14,174 senior travelers using the Ports to Plains highway to travel to a winter spot along the Corridor by any travel mode [31% X 45,723 = 14,174]. Among winter travelers, 16.3 percent arrive via RV or camper providing a final estimated market size of 2,310 trips by traditional Winter Texans.

Although this is a comparatively small number, the benefit of these travelers is disproportionately large due to the duration of their stay. The average length of stay for a traditional Winter Texan is 3.5 months, magnifying the economic activity associated with those trips. Again, this is not an estimate of the total Winter Texan market in the Corridor; rather it is an estimate of the Winter Texan market arriving by way of the Ports to Plains Corridor route.

5.16.4 Assessing Potential Growth in the Ports to Plains Winter Texan Market

Tourism market growth is a cumulative process. The Lower Rio Grande market initially grew because it had an advantageous mix of desirable seasonal tourist qualities: warm climate, coastal access, good roads, and low costs. As it had these features earlier than other areas in the state, it has a head start in

terms of market development relative to other possible markets in the state. As people visited and as the popularity of the destination grew, investments in more parks, amenities and attractions were made. The result of these investments is that there are now more reasons to visit than just good road access and weather. It became more of a destination in its own right.

Most recently, the Lower Rio Grande market has begun a transition from being a "drive in" market catering to RVs and motor homes to a vacation condominium market. The tourism infrastructure has developed sufficiently to support this transition. As travelers find that they are going to the same place over and over, some are purchasing small condominiums in South Texas. This is an economic decision as an RV depreciates but the condominium holds value or appreciates as the region develops as a tourism destination.

The Lower Rio Grande market offers a case study model for tourism development in the Ports to Plains Corridor. Corridor communities will never have coastal access, but they have a good climate and low costs. The road improvements associated with this project add the remaining ingredient for success by improving access to the market. Moreover, as Arizona's success shows—coastal access is favorable, but not essential. The communities themselves can develop amenities, activities, programs, and tours. The introduction of a Branson type theater area would appeal to this market section and may lengthen the season, for example.

The improved highway will not cause visitors to select communities in the Ports to Plains Corridor for their vacation. The improved road, in concert with coordinated marketing among the communities would, however, accommodate an increase in the number of traditional Winter Texan visitors.

This growth does not come at the expense of existing markets within Texas. As noted above, there is a firm "lock-in" effect among traditional Winter Texans who tend to return year-after-year to the same locations, developing ties to the area. Growth in the market share is most likely to come from new travelers.

The most likely feeder market for Winter Texans in the Ports to Plains Corridor is the Mountain and Pacific regions. Within this region, 6.7 million residents are aged 65 or more. Given an RV ownership rate of 9.8% for the 55 to 75 age group, this puts the potential winter traveler market in this region at 672,000.[46] A finer age breakout of RV ownership rates is not available.

In practice, most of these RV households will stay home or travel to other locations in the U.S. such as California or Arizona. Using the estimates above, the traditional Winter Texans using the Ports to Plains Corridor to travel to a Ports to Plains community or the Lower Rio Grande Valley accounts for 1.1 percent (45,725 senior Winter Texan trips using the Corridor adjusted for the 16.3 percent that arrive by RV or camper) of the senior aged, RV owning population in the feeder region, with 0.3 percent (2,310 / 672,000) destined for the Corridor and the balance (0.8 percent) (1.1 percent total users of the Corridor less 0.3 percent destined for the Ports to Plains Corridor) going down to the Rio Grande Valley.

This provides an upper and lower bound for potential growth in the Ports to Plains Winter Texan market. The current estimated value of 2,310 provides a floor. The market share of the Rio Grande Valley provides a ceiling. Given its head start in the market and its coastal access, the Ports to Plains Corridor is unlikely to have a market share greater than its neighboring success story. This sets the context for two scenarios.

Midpoint Scenario

The first scenario assumes that the Ports to Plains market share grows to half of what the Lower Grande Valley is currently over the course of the road's construction period. While this may seem optimistic, it implies only that the estimate of the current market share of 0.3 percent rises to 0.55 percent. This takes place as the overall senior market expands rapidly and as the Lower Rio Grande market itself

[46] Data obtained from Recreational Vehicle Industry Association study conducted by the University of Michigan.

continues to expand. Moreover, it recognizes that as the Lower Rio Grande market is increasingly built up and continues its transition to a condo market, growth will begin to spill over to other nearby markets such as those in the Corridor. Of note, in the 1986-87 season, the now-successful (but then far less popular) Lower Rio Grande market attracted 71,000 visitors. In the 14 years leading up the pre-recession peak in 2001, visitation to this region doubled even as the growth rate for the over 65 population was decelerating nationwide. In essence, the communities organize and invest to build market share as the road is being constructed. The midpoint of this range implies that the Ports to Plains Corridor would increase its market share gradually as the road is built from 0.30 to 0.55 percent of the senior aged, RV owning population in the Mountain West and Pacific regions. Applied to the 2026 population base, the first year the full Corridor is open, this would increase visits to the Corridor by approximately 2,551 trips.

Assuming that these travelers stay an average of 3.5 months as in the neighboring Rio Grande Valley, this translates into an additional 267,855 person days. The growth described here does not come at the expense of existing Texas markets; rather it is likely that the overall Texas market (including the Ports to Plains Corridor and Lower Rio Grande markets) will expand robustly over the forecast horizon as this lower cost location gains market share from higher cost markets such as Arizona, Florida, California, and elsewhere in the U.S. One of the findings of the University of Texas-Pan American (UTPA) Winter Visitor Survey is that Winter Texans are more price-conscious than the typical consumer. In terms of living costs, Texas has much more favorable costs than competitor states for Winter visitors. For example, the American Chamber of Commerce Researchers/Missouri Economic Research and Information Center (ACCRA/MERIC) state cost of living index, a composite of costs for groceries, health care, housing, transportation, utilities, and miscellaneous goods finds that costs in Texas are just 90.1 percent of the national average, while those for Arizona (103.1), California (146.1) and Florida (100.0) are at or above the national average[47]. Thus, a visitor in Texas saves ten cents of every dollar spent compared with a visitor in Florida. The savings is even greater between Texas and the other states. This cost differential is an important factor in the state's success in developing the Winter Texan market.

High Scenario

An alternative view is that the Ports to Plains Corridor grows to the market share currently enjoyed by the Lower Rio Grande Valley. This is a far more optimistic assumption and is included here as an upper bound on the market growth for the Ports to Plains Corridor. It is not presented as a likely scenario. Such a scenario assumes that the Valley continues to gain in popularity, but that growth begins to spill to neighboring regions such as Laredo and other parts of the project Corridor. Local communities invest in providing upscale amenities, especially once investors begin to see increases in the market share in the early years of the Corridor's operation. Marketing begins to increase awareness of this travel option and the Corridor locks in its own Winter Texan base. This scenario implies approximately 5,143 additional trips and 539,997 additional person days.

5.16.5 Estimating the Economic Benefit of Traditional Winter Texans

In order to convert trips to expenditures, the National Park Service's Money Generation Model (MGM2) was applied. That model is designed by the National Park Service as a way for national park employees to estimate the overall economic effects of their park on the local area or to evaluate a change in policy. The model estimates the direct and secondary economic benefits of visitor spending in terms of sales, income, employment, and value added. The model is described in greater detail in section 5.23. Estimated benefits associated with increased Winter Texan visitations have been estimated using that model and can be seen in Exhibits 5.16-4 and 5.16-5. The direct effects are those that are generated as tourism-related employers hire new workers to meet the demand created new Winter Texans. The secondary effects are distributed across all industries as newly-hired tourism workers spend their wages on housing, goods and services in the local economy, generating additional demand for workers.

[47] Cost of Living, 2nd Quarter 2004. Missouri Economic Research and Information Center (MERIC) state aggregation of American Chamber of Commerce Researchers Association (ACCRA) Cost of Living Index.

Exhibit 5.16-4: Midpoint Scenario Results: Annual Benefits at Full Buildout of the Ports to Plains Corridor (Thousands of 2004 Dollars)

Sector/Spending category	Direct Sales	Jobs	Personal Income
Motel, hotel, cabin, or B&B	$0.0	0.0	$0.0
Camping fees	$0.0	0.0	$0.0
Restaurants & bars	$3,528.7	94.6	$1,201.8
Admissions & fees	$1,202.1	33.3	$416.0
Gambling	$0.0	0.0	$0.0
Other vehicle expenses	$147.9	1.6	$45.1
Local Transportation	$0.0	0.0	$0.0
Retail Trade	$1,924.0	49.3	$981.5
Wholesale Trade	$335.8	3.6	$135.6
Local Production of Goods	$559.7	2.1	$53.3
Total Direct Effects	$7,698.2	184.5	$2,833.2
Secondary Effects	$3,178.0	41.2	$1,139.8
Total Effects	$10,876.2	225.7	$3,973.0

Source: AECOM Consult calculations using the MGM2 Model.
Note: Columns may not sum to total due to rounding.

Exhibit 5.16-5: High Growth Scenario Results: Annual Benefits at Full Buildout of the Ports to Plains Corridor (Thousands of 2004 Dollars)

Sector/Spending category	Direct Sales	Jobs	Personal Income
Motel, hotel, cabin, or B&B	$0.0	0.0	$0.0
Camping fees	$0.0	0.0	$0.0
Restaurants & bars	$7,113.9	190.7	$2,422.8
Admissions & fees	$2,423.4	67.1	$838.6
Gambling	$0.0	0.0	$0.0
Other vehicle expenses	$298.1	3.2	$91.0
Local Transportation	$0.0	0.0	$0.0
Retail Trade	$3,878.8	99.5	$1,978.6
Wholesale Trade	$677.0	7.2	$273.4
Local Production of Goods	$1,128.3	4.3	$107.4
Total Direct Effects	$15,519.6	371.9	$5,711.8
Secondary Effects	$6,406.9	83.2	$2,297.8
Total Effects	$21,926.5	455.0	$8,009.6

Source: AECOM Consult calculations using the MGM2 Model.
Note: Columns may not sum to total due to rounding.

Having an estimated of the employment benefit associated with increased Winter Texan visitations allows the earnings benefit to be estimated. As tourism jobs are not typically high paying, (the implied average wage in this analysis is $17,600 per year) the benefit of workers' spending is less than for the same number of manufacturing jobs. Similarly, as largely service and retail industries, the inputs

purchased in order to provide the service have a lower labor content than manufacturing which might purchase other manufactured goods from the local economy. Even so, these are jobs that can be taken by residents with skills. The employment and earnings benefits associated with increased Winter Texan visitations can be seen in Exhibits 5.16-6 (Midpoint Scenario) and 5.16-7 (High Scenario).

Exhibit 5.16-6: Employment and Earnings in Thousands of 2004 Dollars: Midpoint Scenario

	Texas			
Year	Jobs	Earnings	Discounted Earnings at 7%	Discounted Earnings at 4.78%
2006	11	$189	$165	$172
2007	22	$378	$309	$329
2008	32	$568	$433	$471
2009	43	$757	$540	$599
2010	54	$946	$630	$715
2011	65	$1,135	$707	$819
2012	75	$1,324	$771	$912
2013	86	$1,514	$823	$994
2014	97	$1,703	$866	$1,067
2015	108	$1,892	$899	$1,132
2016	118	$2,081	$924	$1,188
2017	129	$2,270	$942	$1,237
2018	140	$2,459	$954	$1,279
2019	151	$2,649	$960	$1,315
2020	161	$2,838	$961	$1,344
2021	172	$3,027	$958	$1,369
2022	183	$3,216	$952	$1,388
2023	194	$3,405	$942	$1,402
2024	204	$3,595	$929	$1,413
2025	215	$3,784	$914	$1,419
2026	226	$3,973	$897	$1,422
2027	226	$3,973	$838	$1,357
2028	226	$3,973	$783	$1,295
2029	226	$3,973	$732	$1,236
2030	226	$3,973	$684	$1,180
Total	**-**	**$59,595**	**$19,512**	**$27,057**

Source: AECOM Consult calculations using MGM 2 Model.
Note: Columns may not sum to totals due to rounding.

Exhibit 5.16-7: Employment and Earnings in Thousands of 2004 Dollars: High Scenario

	Texas			
Year	Jobs	Earnings	Discounted Earnings at 7%	Discounted Earnings at 4.78%
2006	22	$381,429	$333,154	$347,421
2007	43	$762,857	$622,719	$663,144
2008	65	$1,144,286	$872,970	$949,338
2009	87	$1,525,714	$1,087,813	$1,208,040
2010	108	$1,907,143	$1,270,810	$1,441,162
2011	130	$2,288,571	$1,425,207	$1,650,501
2012	152	$2,670,000	$1,553,964	$1,837,740
2013	173	$3,051,429	$1,659,775	$2,004,461
2014	195	$3,432,857	$1,745,090	$2,152,146
2015	217	$3,814,286	$1,812,140	$2,282,185
2016	238	$4,195,714	$1,862,947	$2,395,881
2017	260	$4,577,143	$1,899,352	$2,494,453
2018	282	$4,958,571	$1,923,019	$2,579,046
2019	303	$5,340,000	$1,935,462	$2,650,729
2020	325	$5,721,429	$1,938,046	$2,710,505
2021	347	$6,102,857	$1,932,008	$2,759,310
2022	368	$6,484,286	$1,918,466	$2,798,022
2023	390	$6,865,714	$1,898,427	$2,827,458
2024	412	$7,247,143	$1,872,799	$2,848,387
2025	433	$7,628,571	$1,842,400	$2,861,521
2026	455	$8,010,000	$1,807,962	$2,867,529
2027	455	$8,010,000	$1,689,685	$2,736,714
2028	455	$8,010,000	$1,579,144	$2,611,867
2029	455	$8,010,000	$1,475,836	$2,492,715
2030	455	$8,010,000	$1,379,286	$2,378,999
Total	**-**	**$120,150,000**	**$39,338,483**	**$54,549,275**

Source: AECOM Consult calculations.
Note: Columns may not sum to totals due to rounding.

These scenarios measure the benefit to the Corridor counties of the Winter Texans' visits. The MGM2 model is used in this analysis as it is a means to translate visitor nights into job and income benefits. In order to extend these benefits to the broader state economy, the direct effect RIMS multipliers for the state are applied to the direct jobs and earnings in order to obtain the state benefits. As a result, in the Midpoint Scenario Texas gains approximately 54 additional jobs and $7.5 million in earnings (2004 dollars discounted at 7 percent) beyond those created in the Corridor. The total benefit is thus 280 jobs and $27 million in total earnings over the project period (2004 dollars discounted at 7 percent). Under the High Scenario Texas gains approximately 110 additional jobs and $15.1 million in earnings (2004 dollars discounted at 7 percent) beyond those created in the Corridor. The total benefit is thus 565 jobs and $54.4 million in total earnings over the project period (2004 dollars discounted at 7 percent).

5.16.6 Risks

While the information presented above represents a detailed evaluation of the potential success of a seasonal leisure migrant development strategy, there are a number of risks, both positive and negative that will influence the ultimate outcome of this strategy. These include:

- Changes in the retirement age (upside)

- Marketing/coordination (upside)
- Competition from other locations (downside)

Retirement Age Risk

Early retirement is a critical factor that changes the outlook, presenting an upside risk for the Ports to Plains communities' ability to develop a seasonal migrant market. Statistics from both the Bureau of Labor Statistics and the Social Security Administration indicate that there is a trend towards early retirement.[48] The benefit of this is the increase in the pool of retirees who might travel. It also increases the length of time that they are "active retirees," those who are most likely to spend money at local businesses as well as volunteer for local community organizations. Exhibit 5.16-8 provides additional detail on early retirement trends in the U.S.

Exhibit 5.16-8: Trends in the U.S. Retirement Age over Time

Time Period	Social Security Data (a)		Labor Force Data (b)	
	Men	Women	Men	Women
1950-55	68.5	67.9	66.9	67.6
1955-60	67.6	66.4	65.7	66.1
1960-65	65.0	65.0	65.1	64.6
1965-70	63.9	64.3	64.2	64.2
1970-75	62.9	62.9	63.4	62.9
1975-80	62.8	62.7	63.0	63.2
1980-85	62.9	62.8	62.8	62.7
1985-90	62.8	62.8	62.6	62.8
1990-95	62.7	62.6	62.4	62.3
1995-2000	62.6	62.5	62.0	61.4

Source: Monthly Labor Review, October 2001, p. 14.
Notes: (a) Mean age at initial award of benefit for disability or retirement. The mean for individuals awarded disability benefits is limited to those 50 to 65 years of age. (b) Median age at exit from the labor force of 5-year cohorts aged 50-54 years through 75 or older for reasons other than death.

Marketing Risk

The highway investment on its own will not cause tourism development. It does, however, reduce an impediment to expansion of this industry. The degree to which communities can capitalize on this investment relies in large part on their marketing and the investments in amenities made within these communities.

Particularly because existing Winter Texans are "locked in" to their current vacation locations, success of a tourist-focused economic development strategy depends in large part on marketing. One respondent to the Economic Benefit Interview Summary discussed in section 5.19.4 suggested that community tourism officials may attend State Fairs in the target regions and have booths and brochures on the Ports to Plains Corridor's attractions. The fairs are at the end of the summer at a time when people are just starting to make plans for winter travel. Whether at fairs, or by some other means, contacting potential travelers as they are making their plans, and before they have an established routine is critical to expanding market share.

Good signage is critical to connecting travelers with tourism attractions and roadside services. Part of the tourism infrastructure needed in order for communities to leverage the highway investment is informational signs along the highway telling visitors what is ahead and available at exits. Although coordinating signage along the Corridor is not easy as each state has its own signing policies, the effort would be expected to yield benefits. A benefit to travelers, there is evidence that such signs are a boon

[48] Gendell, Murray. "Retirement Age Declines Again in 1990s," *Monthly Labor Review*, October 2001, pp. 12-21.

to the businesses they advertise. Several respondents to the survey made this point when asked what other types of investments would be required in their communities in order to capitalize on the opportunities opened up by the Ports to Plains highway construction.

The benefits of such signs are real for commercial establishments. A small group of states have begun to charge local businesses to place logos or the name of a commercial establishment on a sign along local highways. With the introduction of the cost to place a name on the sign comes greater attention to how much benefit is derived by such placement. Highway workers in Maryland say "a few participants in the program have reported as much as a 90 percent increase in visitors after getting on exit ramp signs on Interstate 95, and losses of as much as 33 percent when they lose their placement," according to the American Association of State Highway and Transportation Officials Journal (AASHTO).[49] Those percentages may not apply to the Ports to Plains Corridor which is far less traveled than Interstate 95, but the example illustrates that the signs do make a difference.

Charging for logo placement relieves some of the financial burden of accumulating the necessary tourism infrastructure to support this industry. Costs vary where the charge is currently imposed. In Colorado, there are two separate programs authorized by federal legislation that the state has chosen to implement. The LOGO program is for signs alerting motorists to gas, food, lodging, and attractions available at interstate exits. The Tourist Oriented Directional Signs program is for signs alerting motorists to tourist oriented businesses/attractions at intersections along rural conventional highways. The charge is $750 per year per direction for a mainline LOGO sign. The annual charge per direction for a mainline TODS sign is $250. CDOT has privatized both programs.[50]

Risk from Competing Destinations

Competition from other locations represents the third main risk to successfully developing a winter tourism industry in the Corridor. Many locations within Texas and outside of the state will vie for this attractive niche of the tourism market. The competitive advantage of alternative winter destinations is not static; other locations are investing and marketing to develop their own local attractions. Such investments will provide competition for the Corridor over the long term and underscore the need for coordinated marketing among Corridor communities and with the state in order to leverage the full potential benefits of the Ports to Plains Corridor investment.

5.17 Fiscal Benefits Associated with Increased Transportation Investment in the Ports to Plains Corridor

Transportation investment in the Ports to Plains Corridor will generate increases in employment, income, roadside expenditures, and tourism. This section will estimate the benefit that those changes will have on selected tax revenues in the jurisdictions along the Ports to Plains Corridor. Estimated tax revenue increases will be reported for retail sales, individual and corporate income, hotel occupancy, franchise, unemployment insurance, and fuel taxes.[51] Those taxes were selected because they were relevant to the increased economic activity generated by improved transportation infrastructure in the project Corridor. These benefits will be reported for each of the counties along the project Corridor along with aggregated state and project Corridor figures.

The estimation of fiscal benefits reported in this section relied on employment, earnings, retail sales, and accommodation expenditure benefits reported in previous sections. Also, tax structure characteristics were collected from state departments of taxation or departments of revenue for each jurisdiction along the project Corridor.[52]

---

[49] AASHTO Journal, July 30, 2004, page 6.
[50] Information provided by Roadside Advertising group within the Colorado Department of Transportation, October 19, 2004.
[51] In New Mexico, a gross receipts tax is levied instead of a sales tax. That tax will be referred to here as a sales tax.
[52] Other sources of tax structure characteristics included The Federation of Tax Administrators, The Tax Foundation, the American Petroleum Institute, individual state departments of economic development, individual state employment security commissions, the University of New Mexico, Bureau of Business and Economic Research, the State of Wisconsin Legislative Fiscal Bureau, and various municipal internet sites.

This section will begin by reporting the estimated fiscal benefit resulting from increased construction employment, increased roadside service expenditures, increased manufacturing and distribution employment, and increased Winter Texan visitations in the Ports to Plains Corridor. These benefits will be presented for each tax revenue for each state and county along the project Corridor. Then, this section will describe the characteristics and rates of each of those taxes. Also, a brief description of the methodology used to estimate the fiscal benefit of each of those tax revenues will be included.

It is important to note that for each of those taxes, estimated increases in revenue are based on current tax rates and legislation. Therefore, implicit in this analysis is the assumption that tax rates and other characteristics regarding each jurisdiction's tax structure will not change between 2004 and 2030. Also, because it was difficult to estimate where employment benefits in the remainder of each state, outside of the project Corridor, would occur, and since those benefits are a relatively small percentage of total employment benefits, they are not included in the analysis. Tax revenue data displayed in this section are adjusted for inflation, are in 2004 dollars, and have been discounted to better represent the present value of future benefits.

5.18 Estimated Fiscal Benefits of Increased Transportation Investment

The total fiscal benefit of increased transportation investment on selected tax revenues has been estimated for the states, counties, and municipalities along the Ports to Plains Corridor. These estimates have been aggregated to the county and state level and are displayed in Exhibit 5.18-1.

The total fiscal benefit of sales, income, hotel occupancy, unemployment insurance, franchise, and fuel taxes through the forecast horizon year for state and local government is estimated to be $741.97 million. Comparable estimates for individual states are $394.4 million in Colorado, $-4.4 million in New Mexico, $17.0 million in Oklahoma, and $334.9 million in Texas. Estimated tax revenues are higher in Colorado than in Texas primarily because Colorado levies an individual and corporate income tax.

When measuring future benefits, it is required to discount these benefits to better represent their present value. Therefore, the discounted values of earnings have also been calculated and are included in Exhibits 5.18-2 and 5.18-3 using a 7.0 percent discounting factor and a 4.78 percent factor.

The total fiscal benefit of selected tax revenues when discounted using a 7.0 percent factor for state and local government is estimated to be $211.26 million through the forecast horizon year. Comparable estimates for individual states are $107.3 million in Colorado, $-0.4 million in New Mexico, $6.1 million in Oklahoma, and $98.2 million in Texas.

The total fiscal benefit of selected tax revenues for state and local governments when discounted using a 4.78 percent factor is estimated to be $306.8 million through the forecast horizon year. Comparable estimates for individual states are $158.3 million in Colorado, $-1.0 million in New Mexico, $8.2 million in Oklahoma, and $141.2 million in Texas.

Exhibit 5.18-1: Fiscal Benefits for Selected State and Local Taxes, 2006-2030
(Millions of 2004 Dollars)

	Sales Tax		Income Tax		Hotel Occupancy					Total		
	State	County and Municipality	Individual	Corporate	State	County and Municipality	Unemployment Insurance Tax	Franchise Tax	Gasoline and Diesel Tax	State	Local	Total
Colorado	$60.76	na	$179.54	$11.60	$1.76	na	$31.25	$0.00	$25.97	**$310.89**	**na**	**$310.89**
Adams	na	$70.73	na	na	na	$0.06	na	na	na	**na**	**$70.78**	**$70.78**
Arapahoe	na	$5.26	na	na	na	$0.17	na	na	na	**na**	**$5.43**	**$5.43**
Baca	na	$0.19	na	na	na	$0.03	na	na	na	**na**	**$0.22**	**$0.22**
Cheyenne	na	$0.57	na	na	na	$0.02	na	na	na	**na**	**$0.59**	**$0.59**
Elbert	na	$0.12	na	na	na	$0.00	na	na	na	**na**	**$0.12**	**$0.12**
Kiowa	na	$0.30	na	na	na	$0.07	na	na	na	**na**	**$0.38**	**$0.38**
Lincoln	na	$2.73	na	na	na	$0.63	na	na	na	**na**	**$3.36**	**$3.36**
Prowers	na	$2.36	na	na	na	$0.24	na	na	na	**na**	**$2.60**	**$2.60**
New Mexico	-$1.35	na	$0.47	-$0.08	$0.00	na	-$0.15	$0.00	-$2.51	**-$3.62**	**na**	**-$3.62**
Colfax	na	-$0.02	na	na	na	-$0.09	na	na	na	**na**	**-$0.11**	**-$0.11**
Union	na	-$0.38	na	na	na	-$0.26	na	na	na	**na**	**-$0.64**	**-$0.64**
Oklahoma	$4.32	na	$4.06	$0.49	$0.01	na	$0.66	$0.49	$3.71	**$13.76**	**na**	**$13.76**
Cimarron	na	$3.28	na	na	na	$0.00	na	na	na	**na**	**$3.28**	**$3.28**
Texas	$184.15	na	$0.00	$0.00	$5.66	na	$42.25	$16.85	$28.41	**$277.31**	**na**	**$277.31**
Coke	na	$0.76	na	na	na	$0.00	na	na	na	**na**	**$0.76**	**$0.76**
Dallam	na	-$0.05	na	na	na	-$0.21	na	na	na	**na**	**-$0.25**	**-$0.25**
Dawson	na	$1.51	na	na	na	$0.31	na	na	na	**na**	**$1.81**	**$1.81**
Dimmit	na	$0.89	na	na	na	$0.08	na	na	na	**na**	**$0.98**	**$0.98**
Edwards	na	$0.06	na	na	na	$0.02	na	na	na	**na**	**$0.08**	**$0.08**
Glasscock	na	$0.00	na	na	na	$0.25	na	na	na	**na**	**$0.25**	**$0.25**

Exhibit 5.18-1 (Continued)

	Sales Tax		Income Tax		Hotel Occupancy					Total		
	State	County and Municipality	Individual	Corporate	State	County and Municipality	Unemployment Insurance Tax	Franchise Tax	Gasoline and Diesel Tax	State	Local	Total
Hale	na	$0.74	na	na	na	$0.01	na	na	na	**na**	**$0.75**	**$0.75**
Hartley	na	-$0.14	na	na	na	$0.00	na	na	na	**na**	**-$0.14**	**-$0.14**
Howard	na	$1.03	na	na	na	$0.36	na	na	na	**na**	**$1.39**	**$1.39**
Kinney	na	$0.16	na	na	na	$0.00	na	na	na	**na**	**$0.16**	**$0.16**
Lubbock	na	$6.80	na	na	na	$0.25	na	na	na	**na**	**$7.05**	**$7.05**
Lynn	na	$4.54	na	na	na	$0.00	na	na	na	**na**	**$4.54**	**$4.54**
Martin	na	$0.14	na	na	na	$0.00	na	na	na	**na**	**$0.14**	**$0.14**
Maverick	na	$2.72	na	na	na	$0.42	na	na	na	**na**	**$3.14**	**$3.14**
Midland	na	$2.72	na	na	na	$0.06	na	na	na	**na**	**$2.77**	**$2.77**
Moore	na	$2.23	na	na	na	$0.55	na	na	na	**na**	**$2.78**	**$2.78**
Potter	na	$4.82	na	na	na	$0.47	na	na	na	**na**	**$5.29**	**$5.29**
Randall	na	$0.87	na	na	na	$0.01	na	na	na	**na**	**$0.88**	**$0.88**
Schleicher	na	$0.26	na	na	na	$0.00	na	na	na	**na**	**$0.26**	**$0.26**
Sherman	na	$0.55	na	na	na	$0.14	na	na	na	**na**	**$0.69**	**$0.69**
Sterling	na	$0.59	na	na	na	$0.00	na	na	na	**na**	**$0.59**	**$0.59**
Sutton	na	$0.21	na	na	na	$0.01	na	na	na	**na**	**$0.21**	**$0.21**
Swisher	na	$0.11	na	na	na	$0.01	na	na	na	**na**	**$0.12**	**$0.12**
Tom Green	na	$3.22	na	na	na	$0.40	na	na	na	**na**	**$3.63**	**$3.63**
Val Verde	na	$2.07	na	na	na	$0.51	na	na	na	**na**	**$2.57**	**$2.57**
Webb	na	$17.18	na	na	na	$0.00	na	na	na	**na**	**$17.18**	**$17.18**
Project Corridor	**$247.88**	**$139.13**	**$184.07**	**$12.01**	**$7.43**	**$4.50**	**$74.01**	**$17.35**	**$55.58**	**$598.33**	**$143.64**	**$741.97**

Source: AECOM Consult, Inc.
Notes: County and municipal figures include special purpose tax revenues. Columns and rows may not sum to totals due to rounding.

Exhibit 5.18-2: Fiscal Benefits for Selected State and Local Taxes Discounted Using a 7.0 Percent Factor, 2006-2030 (Millions of 2004 Dollars)

	Sales Tax		Income Tax		Hotel Occupancy		Unemploy-ment Insurance Tax	Franchise Tax	Gasoline and Diesel Tax	Total		
	State	County and Municipality	Individual	Corporate	State	County and Municipality				State	Local	Total
Colorado	$16.48	na	$48.69	$3.20	$0.48	na	$8.62	$0.00	$7.32	**$84.78**	**na**	**$84.78**
Adams	na	$18.75	na	na	na	$0.02	na	na	na	**na**	**$18.77**	**$18.77**
Arapahoe	na	$1.43	na	na	na	$0.05	na	na	na	**na**	**$1.48**	**$1.48**
Baca	na	$0.04	na	na	na	$0.01	na	na	na	**na**	**$0.05**	**$0.05**
Cheyenne	na	$0.17	na	na	na	$0.01	na	na	na	**na**	**$0.17**	**$0.17**
Elbert	na	$0.03	na	na	na	$0.00	na	na	na	**na**	**$0.03**	**$0.03**
Kiowa	na	$0.08	na	na	na	$0.02	na	na	na	**na**	**$0.09**	**$0.09**
Lincoln	na	$0.87	na	na	na	$0.18	na	na	na	**na**	**$1.05**	**$1.05**
Prowers	na	$0.78	na	na	na	$0.06	na	na	na	**na**	**$0.84**	**$0.84**
New Mexico	-$0.09	na	$0.28	$0.04	$0.00	na	$0.08	$0.00	-$0.57	**-$0.26**	**na**	**-$0.26**
Colfax	na	$0.03	na	na	na	-$0.02	na	na	na	**na**	**$0.01**	**$0.01**
Union	na	-$0.05	na	na	na	-$0.06	na	na	na	**na**	**-$0.11**	**-$0.11**
Oklahoma	$1.49	na	$1.75	$0.20	$0.00	na	$0.26	$0.20	$1.08	**$4.99**	**na**	**$4.99**
Cimarron	na	$1.13	na	na	na	$0.00	na	na	na	**na**	**$1.13**	**$1.13**
Texas	$53.45	na	$0.00	$0.00	$1.74	na	$12.44	$4.96	$9.12	**$81.71**	**na**	**$81.71**
Coke	na	$0.25	na	na	na	$0.00	na	na	na	**na**	**$0.25**	**$0.25**
Dallam	na	$0.08	na	na	na	-$0.04	na	na	na	**na**	**$0.04**	**$0.04**
Dawson	na	$0.44	na	na	na	$0.09	na	na	na	**na**	**$0.53**	**$0.53**
Dimmit	na	$0.28	na	na	na	$0.02	na	na	na	**na**	**$0.30**	**$0.30**
Edwards	na	$0.01	na	na	na	$0.00	na	na	na	**na**	**$0.02**	**$0.02**
Glasscock	na	$0.00	na	na	na	$0.08	na	na	na	**na**	**$0.08**	**$0.08**
Hale	na	$0.20	na	na	na	$0.00	na	na	na	**na**	**$0.20**	**$0.20**

Exhibit 5.18-2 (Continued)

	Sales Tax		Income Tax		Hotel Occupancy					Total		
	State	County and Municipality	Individual	Corporate	State	County and Municipality	Unemployment Insurance Tax	Franchise Tax	Gasoline and Diesel Tax	State	Local	Total
Hartley	na	-$0.01	na	na	na	$0.00	na	na	na	**na**	**-$0.01**	**-$0.01**
Howard	na	$0.32	na	na	na	$0.11	na	na	na	**na**	**$0.43**	**$0.43**
Kinney	na	$0.05	na	na	na	$0.00	na	na	na	**na**	**$0.05**	**$0.05**
Lubbock	na	$1.86	na	na	na	$0.07	na	na	na	**na**	**$1.93**	**$1.93**
Lynn	na	$1.24	na	na	na	$0.00	na	na	na	**na**	**$1.24**	**$1.24**
Martin	na	$0.05	na	na	na	$0.00	na	na	na	**na**	**$0.05**	**$0.05**
Maverick	na	$0.80	na	na	na	$0.12	na	na	na	**na**	**$0.92**	**$0.92**
Midland	na	$0.85	na	na	na	$0.02	na	na	na	**na**	**$0.87**	**$0.87**
Moore	na	$0.68	na	na	na	$0.17	na	na	na	**na**	**$0.84**	**$0.84**
Potter	na	$1.37	na	na	na	$0.14	na	na	na	**na**	**$1.51**	**$1.51**
Randall	na	$0.24	na	na	na	$0.00	na	na	na	**na**	**$0.25**	**$0.25**
Schleicher	na	$0.09	na	na	na	$0.00	na	na	na	**na**	**$0.09**	**$0.09**
Sherman	na	$0.17	na	na	na	$0.04	na	na	na	**na**	**$0.21**	**$0.21**
Sterling	na	$0.21	na	na	na	$0.00	na	na	na	**na**	**$0.21**	**$0.21**
Sutton	na	$0.06	na	na	na	$0.00	na	na	na	**na**	**$0.06**	**$0.06**
Swisher	na	$0.03	na	na	na	$0.00	na	na	na	**na**	**$0.03**	**$0.03**
Tom Green	na	$1.01	na	na	na	$0.14	na	na	na	**na**	**$1.15**	**$1.15**
Val Verde	na	$0.61	na	na	na	$0.12	na	na	na	**na**	**$0.73**	**$0.73**
Webb	na	$4.52	na	na	na	$0.00	na	na	na	**na**	**$4.52**	**$4.52**
Project Corridor	**$71.33**	**$38.70**	**$50.72**	**$3.44**	**$2.23**	**$1.34**	**$21.40**	**$5.16**	**$16.94**	**$171.22**	**$40.04**	**$211.26**

Source: AECOM Consult, Inc.
Notes: County and municipal figures include special purpose tax revenues. Columns and rows may not sum to totals due to rounding.

Exhibit 5.18-3: Fiscal Benefits for Selected State and Local Taxes Discounted Using a 4.78 Percent Factor, 2006-2030 (Millions of 2004 Dollars)

	Sales Tax		Income Tax		Hotel Occupancy					Total		
	State	County and Municipality	Individual	Corporate	State	County and Municipality	Unemployment Insurance Tax	Franchise Tax	Gasoline and Diesel Tax	State	Local	Total
Colorado	$24.35	na	$71.91	$4.70	$0.71	na	$12.65	$0.00	$10.70	**$125.01**	**na**	**$125.01**
Adams	na	$27.93	na	na	na	$0.02	na	na	na	**na**	**$27.96**	**$27.96**
Arapahoe	na	$2.11	na	na	na	$0.07	na	na	na	**na**	**$2.18**	**$2.18**
Baca	na	$0.07	na	na	na	$0.01	na	na	na	**na**	**$0.08**	**$0.08**
Cheyenne	na	$0.24	na	na	na	$0.01	na	na	na	**na**	**$0.25**	**$0.25**
Elbert	na	$0.05	na	na	na	$0.00	na	na	na	**na**	**$0.05**	**$0.05**
Kiowa	na	$0.12	na	na	na	$0.03	na	na	na	**na**	**$0.14**	**$0.14**
Lincoln	na	$1.22	na	na	na	$0.26	na	na	na	**na**	**$1.48**	**$1.48**
Prowers	na	$1.07	na	na	na	$0.09	na	na	na	**na**	**$1.16**	**$1.16**
New Mexico	-$0.29	na	$0.33	$0.03	$0.00	na	$0.05	$0.00	-$0.90	**-$0.78**	**na**	**-$0.78**
Colfax	na	$0.03	na	na	na	-$0.03	na	na	na	**na**	**$0.00**	**$0.00**
Union	na	-$0.10	na	na	na	-$0.09	na	na	na	**na**	**-$0.19**	**-$0.19**
Oklahoma	$2.03	na	$2.22	$0.25	$0.01	na	$0.34	$0.25	$1.57	**$6.67**	**na**	**$6.67**
Cimarron	na	$1.54	na	na	na	$0.00	na	na	na	**na**	**$1.54**	**$1.54**
Texas	$77.09	na	$0.00	$0.00	$2.47	na	$17.85	$7.12	$12.77	**$117.30**	**na**	**$117.30**
Coke	na	$0.35	na	na	na	$0.00	na	na	na	**na**	**$0.35**	**$0.35**
Dallam	na	$0.06	na	na	na	-$0.06	na	na	na	**na**	**$0.00**	**$0.00**
Dawson	na	$0.63	na	na	na	$0.13	na	na	na	**na**	**$0.76**	**$0.76**
Dimmit	na	$0.40	na	na	na	$0.03	na	na	na	**na**	**$0.43**	**$0.43**
Edwards	na	$0.02	na	na	na	$0.01	na	na	na	**na**	**$0.03**	**$0.03**
Glasscock	na	$0.00	na	na	na	$0.11	na	na	na	**na**	**$0.11**	**$0.11**

Exhibit 5.18-3 (Continued)

	Sales Tax		Income Tax		Hotel Occupancy					Total		
	State	County and Municipality	Individual	Corporate	State	County and Municipality	Unemployment Insurance Tax	Franchise Tax	Gasoline and Diesel Tax	State	Local	Total
Hale	na	$0.29	na	na	na	$0.00	na	na	na	**na**	**$0.30**	**$0.30**
Hartley	na	-$0.03	na	na	na	$0.00	na	na	na	**na**	**-$0.03**	**-$0.03**
Howard	na	$0.45	na	na	na	$0.15	na	na	na	**na**	**$0.61**	**$0.61**
Kinney	na	$0.07	na	na	na	$0.00	na	na	na	**na**	**$0.07**	**$0.07**
Lubbock	na	$2.74	na	na	na	$0.10	na	na	na	**na**	**$2.84**	**$2.84**
Lynn	na	$1.83	na	na	na	$0.00	na	na	na	**na**	**$1.83**	**$1.83**
Martin	na	$0.06	na	na	na	$0.00	na	na	na	**na**	**$0.06**	**$0.06**
Maverick	na	$1.14	na	na	na	$0.18	na	na	na	**na**	**$1.32**	**$1.32**
Midland	na	$1.20	na	na	na	$0.02	na	na	na	**na**	**$1.22**	**$1.22**
Moore	na	$0.96	na	na	na	$0.24	na	na	na	**na**	**$1.20**	**$1.20**
Potter	na	$2.00	na	na	na	$0.20	na	na	na	**na**	**$2.19**	**$2.19**
Randall	na	$0.36	na	na	na	$0.00	na	na	na	**na**	**$0.36**	**$0.36**
Schleicher	na	$0.13	na	na	na	$0.00	na	na	na	**na**	**$0.13**	**$0.13**
Sherman	na	$0.24	na	na	na	$0.06	na	na	na	**na**	**$0.30**	**$0.30**
Sterling	na	$0.28	na	na	na	$0.00	na	na	na	**na**	**$0.28**	**$0.28**
Sutton	na	$0.09	na	na	na	$0.00	na	na	na	**na**	**$0.09**	**$0.09**
Swisher	na	$0.05	na	na	na	$0.00	na	na	na	**na**	**$0.05**	**$0.05**
Tom Green	na	$1.43	na	na	na	$0.19	na	na	na	**na**	**$1.62**	**$1.62**
Val Verde	na	$0.88	na	na	na	$0.19	na	na	na	**na**	**$1.06**	**$1.06**
Webb	na	$6.75	na	na	na	$0.00	na	na	na	**na**	**$6.75**	**$6.75**
Project Corridor	**$103.18**	**$56.65**	**$74.45**	**$4.98**	**$3.19**	**$1.92**	**$30.90**	**$7.38**	**$24.13**	**$248.21**	**$58.57**	**$306.78**

Source: AECOM Consult, Inc.
Notes: County and municipal figures include special purpose tax revenues. Columns and rows may not sum to totals due to rounding.

5.18.1 Characteristics and Estimation of Selected Tax Revenues

The tax structure of each of the taxes reviewed in this section differs by states, counties, and municipalities. In this section, specific characteristics of each of the tax revenues for which fiscal benefits are calculated will be described. Also, the methodology used to estimate fiscal benefits for each of those taxes will be discussed.

5.18.2 Retail Sales Tax

A retail sales tax is levied at the state level in each of the states along the project Corridor. These rates vary from 2.9 percent in Colorado to 6.0 percent in Texas. Also, half of the 38 counties along the project Corridor levy retail sales tax in addition to the state rate with rates varying from 0.25 percent to 2.0 percent. In many cases, cities, towns, and villages along the project Corridor also levy a sales tax, which are in addition to the county and state levies. Finally, several jurisdictions levy a special purpose tax, most of which are associated with transit, health services, or public safety. Sales tax rates for each state and county along the project Corridor can be seen in Exhibit 5.18-4. This exhibit also displays a range of city, town, and village sales tax rates where applicable, and tax rates for each of the taxes being analyzed in this section.

In the jurisdictions along the project Corridor, sales taxes are levied on all retail transactions with several exceptions. For example, the sale of food for consumption off premises is not taxed in Colorado or Texas. Also, purchases of prescription drugs are exempt from sales tax in all four states along the project Corridor while purchases of non-prescription drugs are exempt in Texas.

Estimating the retail sales tax benefit that would result from improved transportation infrastructure required that the increase in retail sales associated with that improvement be estimated. That increase took two forms. First, increases in retail sales associated with increased roadside expenditure and increased Winter Texan visitations would add to retail sales in the area. These increased retail sales have been estimated elsewhere in the study. Estimating retail sales tax revenues generated by these expenditures is conducted by multiplying these expenditures by the appropriate state, county, and municipal sales tax rates.

Second, increased retail sales would be generated by increases in earnings associated with new employment in the project Corridor. In previous sections, these earnings have been estimated. To determine the benefit that these earnings would have on retail sales, it is first required to determine how much of these earnings would be spent on taxable retail sales. That figure is estimated by reviewing trends in consumption patterns as reported by the Consumer Expenditure Survey.[53]

Using data from that survey, a factor is calculated to determine how much of the increase in total earnings would result in increased retail sales expenditures. That factor is calculated by measuring the share of total before tax income that is spent on items that are typically subject to retail sales tax. Given differences in exemptions such as food purchased for off premises consumption, different factors are calculated for the states along the projected Corridor. These factors are presented in Exhibit 5.18-5.

[53] The 2002 Consumer Expenditure Survey was obtained from the Bureau of Labor Statistics (BLS). Data representing southern states were selected because that area contained Texas. A similar analysis was conducted on western states and yielded nearly identical factors.

Exhibit 5.18-4: Tax Rates in the States and Counties along the Project Corridor

	Sales Tax			Income Tax		Hotel Occupancy/Lodgers' Tax			Unemployment Insurance Tax**	Franchise Tax***	Fuel Tax****	
	State	County	Other	Individual	Corporate	State	County	Other			Gasoline	Diesel
Colorado	2.9%	na	na	4.63%	4.63%	2.9%	na	na	2.5%	na	$0.220	$0.205
Adams	na	0.7%	2.0% to 4.0%	na	na	na	0.7%	2.0% to 3.5%	na	na	na	na
Arapahoe	na	0.3%	2.5% to 3.75%	na	na	na	0.3%	3.8%	na	na	na	na
Baca	na	na	2.0%	na	na	na	na	2.0%	na	na	na	na
Cheyenne	na	na	2.0%	na	na	na	na	2.0%	na	na	na	na
Denver	na	na	3.5%	na	na	na	na	3.5%	na	na	na	na
Elbert	na	na	1.5% to 4.0%	na	na	na	na	na	na	na	na	na
Kiowa	na	na	2.0%	na	na	na	na	2.00%	na	na	na	na
Lincoln	na	2.0%	2.0%	na	na	na	2.0%	2.00%	na	na	na	na
Prowers	na	1.0%	1% to 3.25%	na	na	na	1.0%	3.25%	na	na	na	na
New Mexico	5.0%	na	na	7.7%*	7.6%*	0.0%	na	na	2.0%	$50	$0.180	$0.190
Colfax	na	0.6%	0.4% to 2.6%	na	na	na	0.0%	3.0% to 5.0%	na	na	na	na
Union	na	0.3%	1.7% to 1.8%	na	na	na	0.0%	5.0%	na	na	na	na
Oklahoma	4.5%	na	na	6.75%*	6.0%	0.1%	na	na	1.0%	0.125%	$0.170	$0.140
Cimarron	na	2.0%	3.0%	na	na	na	na	na	na	na	na	na
Texas	6.3%	na	na	na	na	6.0%	na	na	2.7%	0.25%	$0.200	$0.200
Coke	na	na	1.0% to 2.0%	na	na	na	na	na	na	na	na	na
Dallam	na	na	1.0% to 2.0%	na	na	na	na	5.0%	na	na	na	na
Dawson	na	0.5%	1.0% to 1.5%	na	na	na	na	5.0%	na	na	na	na
Dimmit	na	0.5%	1.0% to 1.5%	na	na	na	na	7.0%	na	na	na	na
Edwards	na	na	1.8%	na	na	na	na	5.0%	na	na	na	na
Glasscock	na	na	na	na	na	na	4.0%	na	na	na	na	na
Hale	na	0.5%	1.0% to 1.5%	na	na	na	na	7.0%	na	na	na	na

Exhibit 5.18-4 (Continued)

	Sales Tax			Income Tax		Hotel Occupancy/Lodgers' Tax			Unemployment Insurance Tax**	Franchise Tax***	Fuel Tax****	
	State	County	Other	Individual	Corporate	State	County	Other			Gasoline	Diesel
Hartley	na	na	1.0% to 2.0%	na	na	na	na	na	na	na	na	na
Howard	na	na	1.0% to 2.0%	na	na	na	na	7.0%	na	na	na	na
Kinney	na	0.5%	na	na	na	na	na	na	na	na	na	na
Lubbock	na	0.5%	1.0% to 1.5%	na	na	na	na	4.0% to 7.0%	na	na	na	na
Lynn	na	na	1.0%	na	na	na	na	na	na	na	na	na
Martin	na	na	1.0%	na	na	na	na	na	na	na	na	na
Maverick	na	0.5%	1.0%	na	na	na	7.0%	7.0%	na	na	na	na
Midland	na	0.5%	0.5% to 1.5%	na	na	na	na	7.0%	na	na	na	na
Moore	na	na	1.0% to 2.0%	na	na	na	na	5.0%	na	na	na	na
Potter	na	na	2.0%	na	na	na	na	7.0%	na	na	na	na
Randall	na	na	1.0% to 2.0%	na	na	na	na	4.0% to 7.0%	na	na	na	na
Schleicher	na	0.5%	1.0%	na	na	na	na	na	na	na	na	na
Sherman	na	na	1.5%	na	na	na	na	na	na	na	na	na
Sterling	na	na	1.5%	na	na	na	na	2.0%	na	na	na	na
Sutton	na	na	1.5%	na	na	na	na	7.0%	na	na	na	na
Swisher	na	0.5%	1.0% to 1.5%	na	na	na	na	5.0%	na	na	na	na
Tom Green	na	0.5%	1.0% to 1.5%	na	na	na	na	7.0%	na	na	na	na
Val Verde	na	0.5%	1.0% to 1.5%	na	na	na	7.0%	7.0%	na	na	na	na
Webb	na	0.5%	1.0% to 1.25%	na	na	na	7.0%	7.0%	na	na	na	na

Source: Various departments of taxation or revenue and others as listed in footnote 47.
*Notes: Other includes municipal rates and special purpose tax rates. * Reported rate represent highest tax bracket. ** Reported rate represents introductory tax rate. *** Reported rate assumes option to tax capital as opposed to earned surplus was used in Texas. **** Rate reported in cents per gallon.*

Exhibit 5.18-5: Calculating the Share of Income Subject to Retail Tax in Project Corridor States

	Average Annual Income and Expenditure
Income before taxes	$45,641
Total expenditures	$37,281
Food	$5,102
Food at home	$2,961
Alcoholic beverages	$282
Housing	$11,766
Apparel and services	$1,592
Transportation	$7,393
Public transportation	$265
Health care	$2,431
Entertainment	$1,705
Personal care products and services	$509
Reading	$103
Education	$487
Tobacco products and smoking supplies	$321
Miscellaneous	$764
Cash contributions	$1,193
Personal insurance and pensions	$3,632
New Mexico and Oklahoma	
Total Expenditures Subject to Retail Tax (includes food, alcoholic beverages, apparel and services, transportation (excluding public), entertainment, personal care products and services, reading, tobacco products, and miscellaneous)	$17,506
Percent of before tax income subject to retail tax	38.4%
Texas and Colorado	
Total Expenditures Subject to Retail Tax (includes food (excluding food at home), alcoholic beverages, apparel and services, transportation (excluding public), entertainment, personal care products and services, reading, tobacco products, and miscellaneous)	$14,545
Percent of before tax income subject to retail tax	31.9%

Source: AECOM Consult, Inc. and Bureau of Labor Statistics.

In New Mexico and Oklahoma, it is estimated that the share of total before tax income that would be subject to retail sales tax would be 38.4 percent. In Colorado and Texas, it is estimated that the share of total before tax income that would be subject to retail sales tax would be 31.9 percent. Those factors are then multiplied by the increase in earnings associated with transportation improvement in the project Corridor to estimate the increase in retail sales that would be generated by that improvement. Then, estimates of the increase in retail sales are multiplied by the appropriate tax rates to estimate the increase in retail sales tax revenue for each jurisdiction in the project Corridor. These figures are then added to the sales tax revenue benefits of increased roadside expenditures and Winter Texan visitations discussed above to arrive at a total sales tax revenue benefit for each jurisdiction.

It is important to note that in counties containing municipalities that levy a sales tax, the portion of the total county retail sales occurring in that municipality is estimated by first determining the share of county-wide household income that residents in that municipality earned and then multiplying the

estimated increase in county-wide retail sales by that share. In other words, it is assumed that a municipality's share of increased retail sales would be the same as that municipality's share of total county household income. Therefore, appropriate municipal sales tax rates are applied to only the portions of retail sales estimated to have occurred within that municipality. Total household income figures for this analysis were obtained from 2000 Census data.

5.18.3 Individual and Corporate Income Tax

Individual income tax is levied at the state level in each of the states along the Ports to Plains Corridor with the exception of Texas. In Colorado, the individual income tax rate is a flat 4.63 percent. In New Mexico, individual income tax rates range from 0.7 percent to 7.7 percent and are based on six income brackets. In Oklahoma, individual income tax rates range from 0.5 percent to 6.75 percent and are based on eight income brackets.[54] There are no local income taxes in the jurisdictions along the Ports to Plains Corridor. Individual income tax rates can be seen on Exhibit 5.18-6.

In previous sections, increases in earnings that could be associated with improved transportation infrastructure were reported. Those estimated increases were treated as increases in income and were used to determine the income tax revenue benefit that would be associated with increased transportation investment in the project Corridor.

Estimating increased income tax revenue associated with transportation improvement in each state required that increases in income would need to be reduced by some factor to account for deductions and exemptions. That factor is calculated for each state in the project Corridor by dividing the estimated taxable income for a typical household by total household income. The taxable income for a typical household is estimated by subtracting each state's standard deduction and dependent exemptions from corresponding median household income. In calculating exemptions, the average number of persons per household is used as a proxy for the number of exemptions. Median household income and persons per household data were obtained from the 2000 Census. Calculations to determine taxable income as a percent of total income can be seen in Exhibit 5.18-6.

Exhibit 5.18-6: Taxable Income as a Percent of Total Income

	Median Household Income	Standard Deduction	Exemption per Dependent	Estimated Number of Exemptions	Exemption Deduction	Estimated Taxable Income	Taxable Income as a Percent of Total Income
Colorado	$52,133	$9,500	$3,050	2.592	$7,906	$34,727	66.6%
New Mexico	$37,698	$9,500	$3,050	2.683	$8,183	$20,015	53.1%
Oklahoma	$36,888	$2,000	$1,000	2.568	$2,568	$32,320	87.6%
Texas	na	na	na	na	na	na	na

Source: AECOM Consult, Inc., Census Bureau, and state departments of revenue or taxation.

To calculate individual income tax benefits associated with transportation improvement, the total increase in income attributable to that improvement is reduced by the appropriate factor presented in Exhibit 5.18-6 to account for differences between total income and taxable income. Then, the taxable income is divided by total employment to arrive at an estimated taxable income per employee. These figures are then multiplied by the appropriate state individual income tax rates to arrive at income tax revenue per employee. Finally, income tax revenue per employee is multiplied by total employment to determine the benefit that increased transportation investment would have on total individual income tax revenue.

Corporate income tax is also levied at the state level in each of the states along the Ports to Plains Corridor with the exception of Texas. In Colorado, the corporate income tax rate is also a flat 4.63

[54] In Oklahoma, the filer can choose between two methods of state tax calculations. In this analysis, it was assumed that the filer would use the methodology that did not deduct federal income tax.

percent. In New Mexico, corporate income tax rates range from 4.8 percent to 7.6 percent and are based on three income brackets. In Oklahoma, corporate income tax is a flat 6.0 percent.

The increased corporate income tax revenue that would be associated with improved transportation in the project Corridor is estimated by multiplying each state's historic average corporate income tax revenue per employee by the estimated increase in employment associated with transportation improvement in each state. Estimated increases in employment associated with improved transportation are reported elsewhere in this study. The historic average corporate income tax revenue per employee is calculated using data from 1993 to 2002 and is displayed in Exhibit 5.18.3-2. These data were obtained from the Census Bureau's Governments Division and are adjusted for inflation.

The average corporate income tax revenue per employee in Colorado was $94 over the 1993 to 2002 period. In New Mexico and Oklahoma, the comparable figures were $176 and $106, respectively. The average corporate income tax revenue per employee is multiplied by the estimated increase in employment associated with the transportation improvement to arrive at an estimated increase in total corporate income tax revenue associated with the transportation improvement for each state.

5.18.4 Hotel Occupancy Tax

Hotel occupancy taxes are levied at the state level in Colorado, Oklahoma, and Texas. These taxes are also levied in almost all jurisdictions along the project Corridor by county, city, town, or village governments or some combination therein.[55] Hotel occupancy tax rates for states and counties along the project Corridor can be seen in Exhibit 5.18-4. A range of city, town, and village hotel occupancy tax rates, where applicable, is also displayed in that exhibit.

The increase in hotel occupancy tax revenue associated with increased transportation investment is calculated by multiplying the increased hotel expenditures estimated elsewhere in this report by the appropriate hotel occupancy tax rate for each jurisdiction. In cases where a municipality levied a hotel occupancy tax, the share of the hotel expenditures that took place in that municipality is estimated based on that municipality's share of the county's total accommodation and food service employment. Therefore each municipality's tax rate was levied only on the share of county hotel expenditures estimated to have taken place in that municipality. Accommodation and food service employment data were obtained from the 2000 Census.

In most cases, state, county, and city occupancy tax rates are additive; however, there are several jurisdictions where county hotel occupancy taxes do not apply in cities levying a similar tax. In these cases, appropriate adjustments have been made when calculating total hotel occupancy tax revenues.

5.18.5 Unemployment Insurance Tax

In the project Corridor, unemployment insurance taxes are levied at the state level. Tax rates are determined for each firm based on location, industry, and previous experience with claimants. In this analysis, the rate for a new firm is used for estimating unemployment insurance tax revenues. These rates differ by state and range from 1.0 percent in Oklahoma to 2.7 percent in Texas. Unemployment insurance tax rates for new employers are displayed in Exhibit 5.18-6.

In states along the project Corridor, unemployment insurance tax is levied on wages for each employee up to a certain statute level. In Colorado, unemployment insurance is collected on the first $10,000 of annual wages for each employee. Comparable figures for New Mexico, Oklahoma, and Texas are $16,800, $14,300, and $9,000, respectively.

[55] New Mexico levies a lodger's tax at the local level. Oklahoma levies a 0.1 percent tourism tax on hotel expenditures at the state level. Each of those taxes will be referred to here as a hotel occupancy tax.

In estimating the total unemployment insurance tax revenue generated by transportation improvement in the project Corridor, it is assumed that each employee associated with that improvement would earn wages in excess of the statute limit, and that each employee would be taxed at the introductory rate. Then, the taxable portion of wages aggregated for all employees associated with improved transportation investment is multiplied by the corresponding state unemployment insurance tax rate.

In practice, a firm's unemployment insurance tax rate would be adjusted periodically based on the number of claims that are filed against that firm. Because it is difficult to predict the volume of claims or the benefit that these claims may have on unemployment insurance tax rates, unemployment insurance tax rates are held constant in this analysis.

5.18.6 Franchise Tax

With the exception of Colorado, all states along the project Corridor levy a franchise tax in exchange for the privilege of doing business in that state. In New Mexico, all firms must file a franchise tax return and pay a franchise tax of $50. In Oklahoma, a franchise tax is levied at a rate of 0.125 percent of net taxable capital. The minimum franchise tax liability for a firm in Oklahoma is $10 while maximum liability is $20,000. In Texas, a firm's franchise tax liability is the greater of 0.25 percent of net taxable capital or 4.5 percent of net taxable earned surplus. For the purposes of this analysis, it is assumed that the former measure would be used in calculating franchise tax in Texas. The franchise tax in Texas has no minimum or maximum liability constraints. Franchise tax rates for each state along the project Corridor are displayed in Exhibit 5.18-7.

Calculating franchise tax revenue associated with increased transportation investment required that the increase in establishments in New Mexico be estimated and that the increase in taxable capital be estimated in Oklahoma and Texas. The number of new establishments in New Mexico is estimated by dividing the increase in employment associated with the Corridor investment by the average number of employees per establishment. According to County Business Patterns, the average number of employees per establishment in New Mexico was 13.0 in 2001. Dividing the estimated increase in employment associated with increased transportation investment by 13.0 results in an estimated number of establishments associated with that investment. Multiplying this figure by the $50 annual franchise fee resulted in an estimate of the total franchise tax revenue benefit attributable to the increased transportation investment.

For Oklahoma and Texas, the increase in capital associated with improvement in transportation infrastructure is calculated by multiplying the increase in employment associated with that improvement by the historic average investment per employee for all announced employment in all industries in Texas. This figure, which was obtained for the period from 1993 to 2003 from the Texas Department of Economic Development, was $38,778 per employee, adjusted for inflation.[56] After calculating this figure, the investment per employee is multiplied by the estimated increase in employment associated with the transportation improvement. This calculation resulted in an estimate of total new investment associated with transportation improvement and is used as a proxy for the increase in total taxable capital associated with transportation improvement. Multiplying this figure by the appropriate franchise tax rate produced an estimated increase in franchise tax revenue due to increased transportation investment.

It is important to note that this analysis ignores the maximum franchise tax liability of $20,000 in Oklahoma. Using these calculations, that maximum would not be reached unless an employer had more than 412 workers.

[56] A comparable figure was not available for Oklahoma; therefore, the Texas figure was used for those estimates also.

Exhibit 5.18-7: Corporate Income Tax Revenue per Employee

Year	Colorado			New Mexico			Oklahoma		
	Corporate Income Tax Revenue ($000)	Total Employment	Corporate Income Tax per Employee	Corporate Income Tax Revenue ($000)	Total Employment	Corporate Income Tax per Employee	Corporate Income Tax Revenue ($000)	Total Employment	Corporate Income Tax per Employee
1993	$171,494	2,249,227	$76	$112,581	831,296	$135	$176,816	1,726,069	$102
1994	$177,280	2,361,761	$75	$148,737	863,380	$172	$196,912	1,758,720	$112
1995	$224,315	2,441,399	$92	$177,472	904,934	$196	$196,835	1,810,296	$109
1996	$235,854	2,536,880	$93	$187,355	915,284	$205	$187,736	1,860,532	$101
1997	$251,384	2,646,534	$95	$194,141	929,208	$209	$247,906	1,907,694	$130
1998	$299,255	2,750,607	$109	$198,686	945,474	$210	$245,703	1,956,798	$126
1999	$325,076	2,840,101	$114	$177,054	951,156	$186	$202,261	1,974,680	$102
2000	$349,959	2,949,831	$119	$166,463	972,954	$171	$202,826	2,015,085	$101
2001	$274,369	2,962,041	$93	$144,075	974,808	$148	$186,831	2,021,466	$92
2002	$205,217	2,947,476	$70	$124,327	992,611	$125	$173,701	2,011,376	$86
Average	$251,420	2,668,586	$94	$163,089	928,111	$176	$201,753	1,904,272	$106

Source: AECOM Consult, Inc., Bureau of Economic Analysis, and Census Bureau.
Note: 2001 corporate income tax revenue data were unavailable and were interpolated.

5.18.7 Fuel Tax

All states along the project Corridor levy fuel taxes, however rates differ by state. In Colorado, gasoline is taxed at a rate of $0.22 per gallon and diesel fuel tax is $0.205 per gallon. In New Mexico, gasoline is taxed at $0.18 per gallon and diesel is taxed at $0.19 per gallon. These rates include a one cent per gallon loading fee. In Oklahoma, the gasoline tax rate is $0.17 per gallon and the diesel tax rate is $0.14 per gallon. These rates include an underground storage tank fee of one cent per gallon. Finally, in Texas, the tax rate is $0.20 per gallon for gasoline and diesel fuel. Fuel tax rates can be seen in Exhibit 5.18-7.

Calculating the fuel tax revenue associated with increased transportation investment required that the total increase in fuel expenditures be estimated. These figures are reported in Section 5. Then, for each state, the total increase in fuel expenditures are divided by an estimated cost of fuel per gallon. These costs are estimated for both gasoline and diesel fuel by taking the most recent cost per gallon figures available, year 2004, and then increasing those figures by the ten year historic growth rate in prices, adjusted for inflation. For gasoline, this rate is 3.0 percent per year. For diesel fuel, this rate is 1.9 percent per year.[57] Dividing expenditures on gasoline and diesel fuel in each of the years between 2006 and 2030 by appropriate estimated fuel costs per gallon resulted in an estimate of the number of gallons of each fuel that would be purchased due to increased roadside expenditures and Winter Texan visitation associated transportation improvement. This figure is then multiplied by appropriate fuel tax rates to arrive at total fuel tax revenue for each of the states in the project Corridor.

5.19 Economic Diversity and Quality of Life Benefits Associated with Improved Transportation in the Ports to Plains Corridor

Employment diversity is a measure of the industrial distribution of employment in any particular county relative to the corresponding national average. This measure is used to determine the extent to which a county is dependent on a small number of industries for its employment. Typically, urban counties tend to have a greater diversity of employment while rural counties, which can be heavily dependent on one industry such as agricultural services or mining, are less diverse.

Empirical research has demonstrated that there exists a positive relationship between road capacity and employment diversity.[58] In other words, counties with higher levels of transportation investment typically have more diverse economies. Further, that research determined that the relationship between road capacity and employment diversity is applicable to both urban and rural counties.

Increased employment diversity is desirable for the counties of the Ports to Plains Corridor because these increases typically result in more stable employment growth and increasing the diversity of these counties may enable them to experience sustained increases in employment growth rates in the next decade. Stronger employment growth rates should be of particular interest to these counties as they have under performed corresponding state average employment growth during the last decade.[59]

Increased employment growth is also desirable for the counties of the Ports to Plains Corridor because this growth typically improves quality of life. Specifically, increased employment growth is associated with increased per capita income, a common measure of quality of life. For example, a review of the nations 3,073 counties demonstrates that increased levels of employment growth between 1970 and 2000 was correlated with increased levels of per capita income growth. The analysis that follows will

[57] Fuel tax rates and historic prices were obtained from the American Petroleum Institute.
[58] Horst, T. and A. Moore. Industrial Diversity, Economic Development, and Highway Investment in Louisiana. Transportation Research Record, No. 1839, 2003, pp. 136-141.
[59] Colorado's employment increased by 37.1 percent between 1992 and 2002 while employment in the counties along the Colorado portion of the Ports to Plains Corridor increased by 30.9 percent. During the same period, employment in Texas increased by 29.1 percent while the counties along the Texas portion of the Ports to Plains Corridor experienced 24.5 percent employment growth. Similarly, the Ports to Plains portion of New Mexico and Oklahoma experienced an employment growth rate of 21.1 percent and 16.1 percent respectively, while comparable state rates were 23.7 percent and 19.0 percent. Employment data were obtained from the Bureau of Economic Analysis.

demonstrate that counties with greater employment diversity along the Ports to Plains Corridor will likely experience higher levels of employment growth in the next decade.

This analysis will begin by measuring employment diversity in each county in the project Corridor. Then, projected annual employment growth rates, which have been calculated using national employment projections produced by the Bureau of Labor Statistics (BLS), will be reported for each county in the project Corridor. Finally, this section will compare employment diversity with projected employment growth rates to demonstrate that counties with higher levels of employment diversity are expected to outperform their less diverse counterparts in employment growth during the next decade.

5.19.1 Measuring Employment Diversity

A county's employment diversity can be measured using a diversity index that compares the distribution of employment in that county with the corresponding national distribution.[60] A county achieving a diversity index value near 100 percent is described as being very diverse. Counties with lower values are less diverse. Employment diversity has been measured in each of the counties in the Ports to Plains Corridor and is shown in Exhibit 5.19-1.

Exhibit 5.19-1: Employment Diversity in Counties, Second Quarter, 2003

County	Diversity Index	County	Diversity Index
Potter County, TX	91.0%	Lincoln County, CO	53.1%
Sherman County , TX	88.1%	Dallam County, TX	52.0%
Lubbock County, TX	86.6%	Kinney County, TX	51.5%
Denver County, CO	85.2%	Colfax County, NM	51.5%
Tom Green County, TX	82.7%	Webb County, TX	48.6%
Randall County, TX	80.2%	Elbert County, CO	43.0%
Baca County, CO	78.1%	Prowers County, CO	39.8%
Arapahoe County, CO	75.9%	Martin County, TX	26.4%
Swisher County, TX	73.4%	Schleicher County, TX	24.3%
Adams County, CO	71.6%	Dimmit County, TX	22.5%
Val Verde County, TX	71.1%	Dawson County, TX	16.2%
Union County, NM	65.6%	Midland County, TX	14.8%
Moore County, TX	63.7%	Coke County, TX	12.4%
Maverick County, TX	62.6%	Cheyenne County, CO	10.3%
Edwards County, TX	60.1%	Hartley County, TX	8.5%
Cimarron County, OK	59.6%	Lynn County, TX	8.3%
Howard County, TX	58.6%	Sutton County, TX	7.4%
Hale County, TX	57.5%	Sterling County, TX	7.0%
Kiowa County, CO	55.1%	Glasscock County, TX	4.3%

Source: AECOM Consult, Inc. and Bureau of Labor Statistics.

There was a broad range of employment diversity among the counties along the Ports to Plains Corridor in the second quarter of 2003. In that period, Potter County was most diverse among those counties achieving a score of 91.0 percent. Health services, manufacturing, accommodation, and retail sales each generated relatively high levels of employment in that county, thereby bolstering its diversity. Other counties with highly diverse economies were Lubbock, Denver, Tom Green, and Randall Counties. Finding these counties among the leaders in employment diversity in the project Corridor is not surprising given their more urban characteristics and locations within a metropolitan area. Conversely, Glasscock County, which employs in excess of 50 percent of its employment in agricultural services, had the least diversified employment among counties in the project Corridor. These employment diversity measures will be compared with projected employment growth rates for the counties of the Ports to Plains Corridor later in this section.

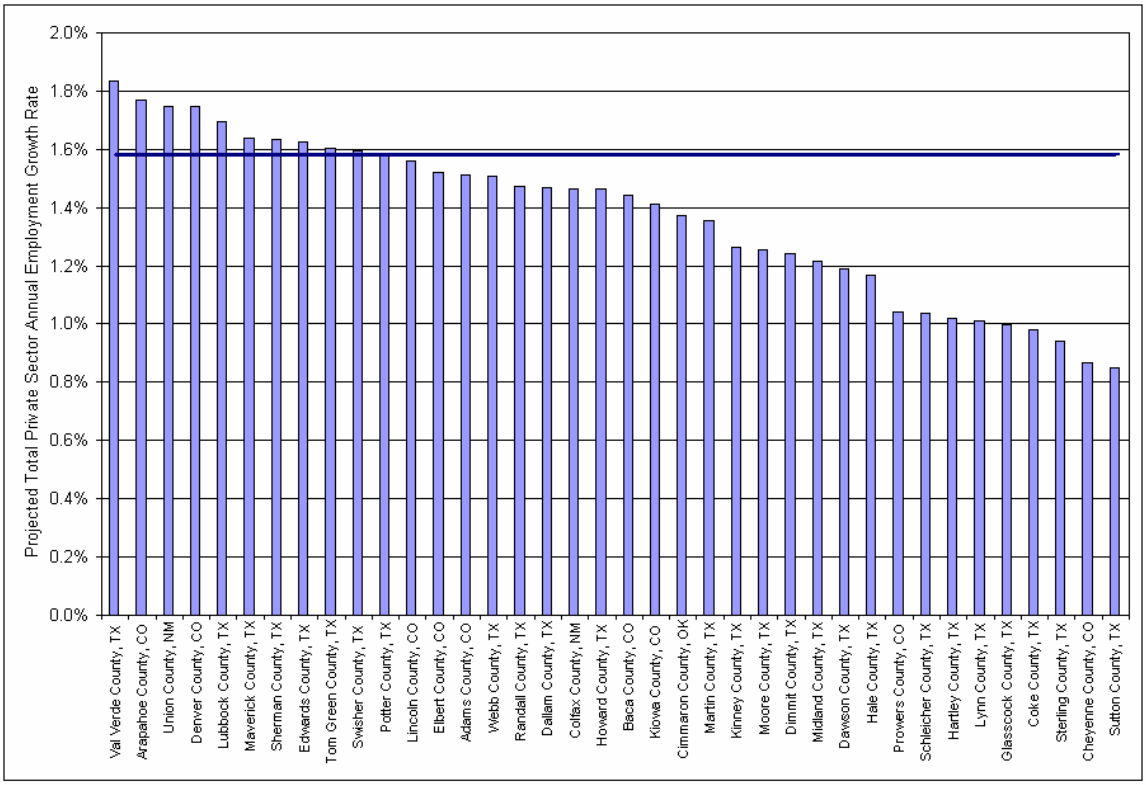
[60] Employment Diversity = [Σ((regional share of employmenti)2/U.S. share of employmenti)]-1 where i=a particular industry.

5.19.2 Employment Growth Rate Projections

Comparing employment diversity with projected employment growth rates required that an employment projection be generated for each county in the project Corridor. These projections are calculated by imposing national industry specific employment growth rate projections on each county's industrial structure. This methodology is described in more detail below.

National projections for annual employment growth rates from 2002 to 2012 for each industry were obtained from the Bureau of Labor Statistics (BLS). These industry specific growth rates are then multiplied by the 2003 industrial employment figures for each of the counties in the project Corridor.[61] This product generated projected employment by industry for each county for 2004. Industry specific employment projections could then be summed to determine projected total employment in each county in that year. This procedure is then repeated for each of the remaining years of the forecast through 2012. Average annual employment growth rates are calculated using 2003 and 2012 total employment figures for each county. Simply put, for each county, projected total employment is calculated by 'growing' each industry at the nationally projected rate, totaling employment in each county, and then comparing the new level of employment with historic data to determine an average annual growth rate. Projected annual employment growth rates for each county in the project Corridor are displayed in Exhibit 5.19-2.

Exhibit 5.19-2 Projected Annual Average Employment Growth Rates in the Counties, 2003-2012



Source: AECOM Consult, Inc. and Bureau of Labor Statistics.

Val Verde County is projected to experience an average annual employment growth rate of 2.0 percent during the next decade, a rate that exceeds all other counties in the project Corridor. Expectations for relatively strong growth in this county are driven by relatively high concentrations of employment in

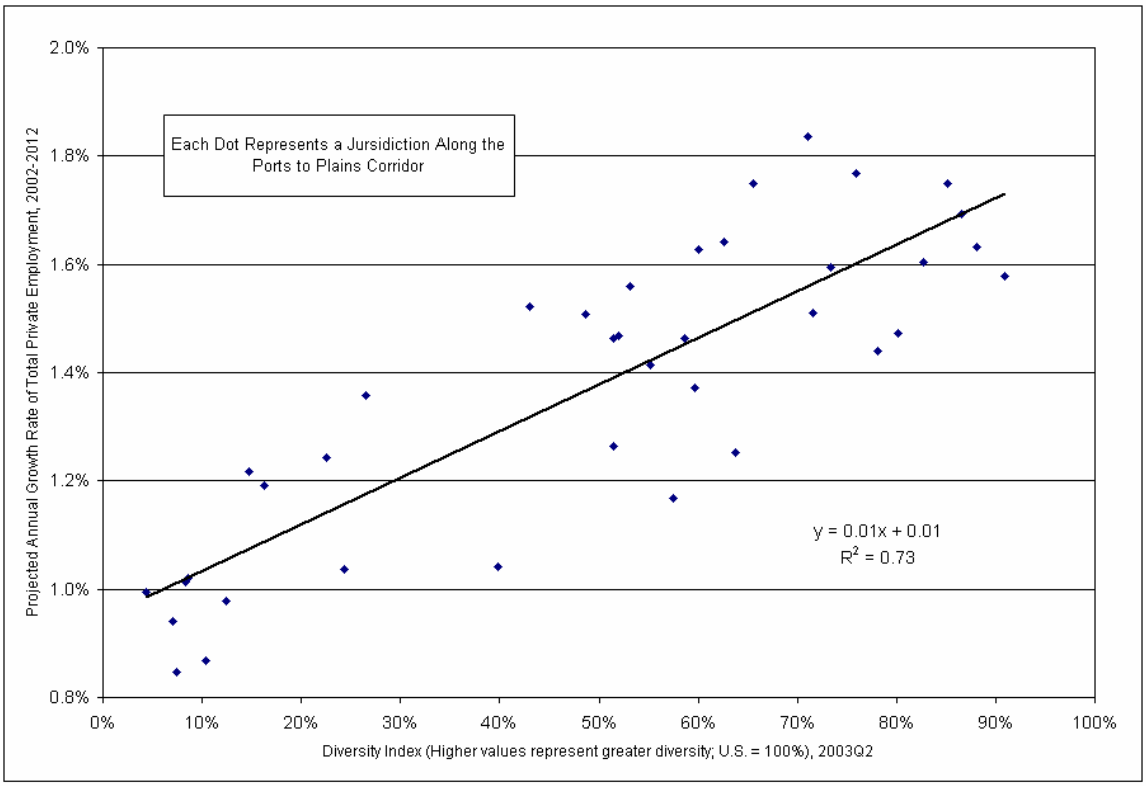
[61] County employment data by industry were obtained from the Bureau of Labor Statistics and represented the second quarter of 2003. In some cases, data were suppressed. Those elements were estimated by distributing total unallocated employment for each county into suppressed industries based on shares determined from the corresponding state industrial structure.

health services and transportation industries, each expected to perform well in the next decade. It is important to note that 28 of the 38 counties along the Ports to Plains Corridor, or 73.7 percent, are projected to experience annual employment growth rates below the U.S. average.

5.19.3 Comparing Employment Diversity and Employment Growth

Given a measure of employment diversity and projected employment growth rates for each county, it is possible to determine if there is a relationship between diversity and projected employment growth in the counties of the project Corridor. This relationship is displayed in Exhibit 5.19-3.

Exhibit 5.19-3: The Relationship between Economic Diversity and Projected Employment Growth



Source: ACOM Consult, Inc. and Bureau of Labor Statistics.

Among counties in the project Corridor, there is a strong and positive relationship between employment diversity and projected employment growth. In other words, counties with more fully diversified economies are projected to experience higher employment growth rates during the next decade than their less diversified counterparts. It is important to note that the relationship between diversity and projected employment growth rates is equally convincing when examined in each of the nations counties.

In summary, one potential benefit of investment in the Ports to Plains Corridor may be an increase in employment diversity in the counties along this Corridor. Further, this increase in employment diversity is likely to lead to sustained future increases in employment growth in the next decade. This outcome should be of particular interest given the finding that many of the counties in the Ports to Plains Corridor are projected to under perform national employment growth rates in the next decade.

5.19.4 Economic Benefit Interview Summary

As part of the Ports to Plains Economic Benefit Study, AECOM Consult, Inc. developed and conducted an interview program with economic development agencies, chambers of commerce, tourism groups,

and employers located along the Corridor. The interviews were designed to assess local officials and employers' perceptions of the Ports to Plains Corridor Project's potential benefits on existing development and in attracting new development. The interviews are a vital component to understanding the economic benefit and development potential of the Ports to Plains Corridor because the local officials and employers possess first-hand knowledge of the Corridor and its activities, which cannot be ascertain from data analysis alone.

The project team worked to develop a list of agencies, chambers, and employers to contact along the Corridor. The economic development agency and/or chamber of commerce for each city located on the Ports to Plains Corridor map was asked to participate in the interview program. Additionally, several tourist organizations and major employers in each of the Corridor states were included.

After the contact list was developed, a letter and Corridor map were sent to each agency, chamber, or employer during the first week in August 2004, that described the Ports to Plains Corridor Project, the economic benefit study, and the desire to speak with them regarding their thoughts on the potential benefits that the Ports to Plains Corridor would have on their area and/or business. A week after the letters were sent, a call was placed to each person or group to set up an appointment to conduct the phone interview. The interview program was completed during the last week in August 2004.

In addition to large employers located within the Corridor, an attempt was made to include auto suppliers in the interview program. The auto supplier interviews were designed to explore why auto suppliers choose the locations they do and whether the Ports to Plains Corridor has a reasonable chance of attracting auto suppliers for the new Toyota plant locating in San Antonio, Texas. Unfortunately, none of the auto suppliers contacted was willing to speak with the project team.

The following pages summarize the interview question guide by topic and the responses from each of the interview participants.[62] The overall feel of the interviews was very positive and supportive of the Ports to Plains Corridor Project. Over 85 percent of the respondents believe that the Ports to Plains Corridor is important to their community, while the remaining respondents offered no response. No respondents believe that the Corridor is not important to their communities. The respondents believe that the Corridor will increase their communities' access to roads, cities, and markets; jobs and income; distribution and warehousing, traffic, and tourism.

General Questions:

Total Interviews Requested	57
Total Interviews Conducted	34
Response Rate	59.6%

Number of Responses by State

Texas	13
Colorado	9
Oklahoma	11
New Mexico	1
Total	34

1. In your opinion how would you rate the role of transportation as a factor in

[62] Response frequency and distribution are provided for each question. In some cases frequency of response may not add to 100 percent because of rounding error or because respondents were allowed to select more than one option.

attracting new industries and the expansion of existing industries?

	No. of Responses	% of Total
Significant	30	88.2%
Minor		0.0%
No Factor		0.0%
No Response	4	11.8%
Total Responses	34	100%

2. How would your assess the following attributes of your current location?

a. Labor Force Availability

	No. of Responses	% of Total
Significant	14	41.2%
Minor/Limited	16	47.1%
No Factor		0.0%
No Response	4	11.8%
Total Responses	34	100%

b. Labor Force Preparedness

	No. of Responses	% of Total
Significant	7	20.6%
Minor/Limited	20	58.8%
No Factor	1	2.9%
No Response	6	17.6%
Total Responses	34	100%

c. Location of Supply Links

	No. of Responses	% of Total
Significant	20	58.8%
Minor/Limited	8	23.5%
No Factor	0	0.0%
No Response	6	17.6%
Total Responses	34	100%

d. Location of Customers

	No. of Responses	% of Total
Significant	14	41.2%
Minor/Limited	12	35.3%
No Factor	0	0.0%
No Response	8	23.5%
Total Responses	34	100%

e. Proximity to Interstate Highways

	No. of Responses	% of Total
Significant	16	47.1%
Minor/Limited	11	32.4%
No Factor	2	5.9%
No Response	5	14.7%
Total Responses	34	100%

f. Proximity to 4-lane Highways

	No. of Responses	% of Total
Significant	14	41.2%
Minor/Limited	13	38.2%
No Factor	1	2.9%
No Response	6	17.6%
Total Responses	34	100%

g. Proximity to Commercial Airports

	No. of Responses	% of Total
Significant	7	20.6%
Minor/Limited	17	50.0%
No Factor	4	11.8%
No Response	6	17.6%
Total Responses	34	100%

h. Availability of Utilities

	No. of Responses	% of Total
Significant	27	79.4%
Minor/Limited	2	5.9%
No Factor	0	0.0%
No Response	5	14.7%

Total Responses	34	100%

i. Availability of Industrial Recruitment Incentives

	No. of Responses	% of Total
Significant	10	29.4%
Minor/Limited	14	41.2%
No Factor	3	8.8%
No Response	7	20.6%
Total Responses	34	100%

j. Quality of Life (eg, educational opportunities, childcare, healthcare, cultural and natural amenities, crime rates, etc.)

	No. of Responses	% of Total
Significant	22	64.7%
Minor/Limited	8	23.5%
No Factor	0	0.0%
No Response	4	11.8%
Total Responses	34	100%

3. In your opinion, what is the likelihood of new or expanding companies locating in your area if the P2P highway Corridor is expanded to 4 lanes?

	No. of Responses	% of Total
Excellent	17	50.0%
Good	10	29.4%
Poor/Fair	1	2.9%
None	0	0.0%
Don't Know	1	2.9%
No Response	5	14.7%
Total Responses	34	100%

4. If the P2P Corridor is improved, what other constraints may slow development in your area? What infrastructure needs (other than transportation) become critical if transportation improves in your area? (Respondents may offer more than one factor.)

	No. of Responses	% of Total
Labor Force Available	8	13.6%
Housing	6	10.2%

Capital	5	8.5%
Labor Force Preparedness	4	6.8%
Water Supply	3	5.1%
Motels/Restaurants	3	5.1%
Lack of Incentives at Local Level	3	5.1%
Healthcare	2	3.4%
Utilities (other than water)	2	3.4%
Lack of Population Growth	2	3.4%
Distance from Major Cities	2	3.4%
Congestion/Traffic Control	2	3.4%
Commercial Buildings	1	1.7%
Gas Stations	1	1.7%
Entertainment Places	1	1.7%
Educational Opportunities	1	1.7%
Infrastructure Improvements	1	1.7%
Access to Airline Service	1	1.7%
Access to Rail	1	1.7%
Lack of Businesses	1	1.7%
Lack of Proximity to Interstate	1	1.7%
Land Availability	1	1.7%
None	1	1.7%
Don't Know	2	3.4%
No Response	4	6.8%
Total Responses	59	100%

5. Is the P2P Corridor important/not important to your community? Why? (Respondents can offer more than one factor.)

	No. of Responses	**% of Total**
Important	29	85.3%
Not Important	0	0.0%
No Response	5	14.7%
Total Responses	34	100.0%

	No. of Responses	**% of Total**
Location/Access to Roads/Cities/Markets	13	23.6%
Economic Growth - Jobs/Income	12	21.8%

NAFTA/Distribution/Warehouse	7	12.7%
Increase Traffic	5	9.1%
Tourism	4	7.3%
Provide Alternate Route to Congested Interstates/Highways	3	5.5%
Community Development	2	3.6%
Increase Population	1	1.8%
Manufacturing	1	1.8%
Safety	1	1.8%
Oil	1	1.8%
No Response	5	9.1%
Total Responses	55	100.0%

6. Would you like to see the P2P highway Corridor developed?

	No. of Responses	**% of Total**
Yes	27	79.4%
No	0	0.0%
Maybe	2	5.9%
No Response	5	14.7%
Total Responses	34	100.0%

7. If P2P were 4-lanes, should it bypass your city?

	No. of Responses	**% of Total**
Yes	9	26.5%
No	14	41.2%
Maybe	2	5.9%
Not an issue	5	14.7%
No Response	4	11.8%
Total Responses	34	100.0%

Comments:

We probably need the bypass because the Corridor route comes down main street around the courthouse.

It is a catch 22 - probably should bypass for traffic, but that is not as good for businesses.

A bypass may be needed because the Corridor route crosses main street.

The Corridor crosses railroad tracks.

We need to make sure that the bypass doesn't hurt access to businesses.

We need to make sure that the bypass/reliever route is close.

The bypass is needed for truck traffic.

Questions for Businesses:

Total Interviews Requested	8
Total Interviews Conducted	2
Response Rate	25.0%

Number of Responses by State

Texas	2
Colorado	0
Oklahoma	0
New Mexico	0
Total	2

1. What was the average number of employees for your company over the last 12 months?

	No. of Responses	% of Total
0-100	0	0.0%
101-250	0	0.0%
251-500	0	0.0%
501-1000	1	50.0%
More than 1000	0	0.0%
No Response	1	50.0%
Total Responses	2	100.0%

2. What were your average annual sales for the past 3 years?

	No. of Responses	% of Total
$0-$500,000	0	0.0%
$501,000-$1,000,000	0	0.0%
$1,000,001-$2,000,000	0	0.0%
More than $2,000,000	0	0.0%
Don't Know	1	50.0%
No Response	1	50.0%
Total Responses	2	100.0%

3. What percentage of your sales is shipped over or derived along the P2P

Corridor?

	No. of Responses	% of Total
None	0	0.0%
1-25%	1	50.0%
26-50%	0	0.0%
51-75%	1	50.0%
76-100%	0	0.0%
Don't Know	0	0.0%
No Response	0	0.0%
Total Responses	2	100.0%

4. If the P2P Corridor were 4-lanes, what percentage of sales increase would you expect?

	No. of Responses	% of Total
None	1	50.0%
1-25%	0	0.0%
26-50%	0	0.0%
51-75%	0	0.0%
76-100%	0	0.0%
Don't Know	1	50.0%
No Response	0	0.0%
Total Responses	2	100.0%

5. What percent of new customers would you expect from improving the P2P Corridor?

	No. of Responses	% of Total
None	1	50.0%
1-25%	0	0.0%
26-50%	0	0.0%
51-75%	0	0.0%
76-100%	0	0.0%
Don't Know	1	50.0%
No Response	0	0.0%
Total Responses	2	100.0%

6. If the P2P Corridor were improved, would you anticipate that new businesses

that use your goods or services would locate in your area

	No. of Responses	% of Total
Yes	1	50.0%
No	1	50.0%
Maybe	0	0.0%
No Response	0	0.0%
Total Responses	2	100.0%

7. Do you anticipate that your competition might locate in your area if the P2P Corridor is expanded?

	No. of Responses	% of Total
Yes	0	0.0%
No	1	50.0%
Maybe	0	0.0%
No Response	1	50.0%
Total Responses	2	100.0%

8. If the P2P Corridor were expanded, would you anticipate that any of your suppliers or their competitors not currently located in your vicinity would relocate or open additional facilities in your area?

	No. of Responses	% of Total
Yes	0	0.0%
No	1	50.0%
Maybe	0	0.0%
No Response	1	50.0%
Total Responses	2	100.0%

9. In your opinion what is the likelihood of your business expanding operations if the P2P highway is expanded?

	No. of Responses	% of Total
Excellent	0	0.0%
Good	1	50.0%
Little	0	0.0%
None	1	50.0%
No Response	0	0.0%

Total Responses	2	100.0%

Tourism Questions:

Total Interviews Requested	43
Total Interviews Conducted	29
Response Rate	67.4%

Number of Responses by State

Texas	11
Colorado	7
Oklahoma	10
New Mexico	1
Total	29

1. How many Winter Texans currently travel through/visit your area on their way to/from southern Texas?

	No. of Responses	**% of Total**
Many	17	58.6%
Some	5	17.2%
Little	1	3.4%
None	0	0.0%
Don't Know	3	10.3%
No Response	3	10.3%
Total Responses	29	100.0%

2. What is the peak month(s) for travel for Winter Texans in your area? (Respondents can offer more than one month.)

	No. of Responses	**% of Total**
January	2	4.3%
February	2	4.3%
March	0	0.0%
April	2	4.3%
May	0	0.0%
June	5	10.9%
July	8	17.4%
August	4	8.7%

September	1	2.2%
October	2	4.3%
November	5	10.9%
December	4	8.7%
Year Round	1	2.2%
Don't Know	5	10.9%
No Response	5	10.9%
Total Responses	46	100.0%

3. If the P2P Corridor was expanded to 4 lanes, would you anticipate new visits by Winter Texans in your area?

	No. of Responses	**% of Total**
Yes	24	82.8%
No	0	0.0%
Maybe	2	6.9%
Don't Know	0	0.0%
No Response	3	10.3%
Total Responses	29	100.0%

Do you have an estimate of how many?

	No. of Responses	**% of Total**
Many	4	13.8%
Some	5	17.2%
Little	1	3.4%
Don't Know	10	34.5%
No Response	9	31.0%
Total Responses	29	100.0%

4. What do you think can be done to attract Winter Texans to the P2P Corridor? (Respondents can offer more than one response.)

	No. of Responses	**% of Total**
Marketing	9	18.8%
Road Quality/Ease of Travel	7	14.6%
Attractions	3	6.3%
Literature	2	4.2%
Businesses	2	4.2%

Promote Regions as Destinations	2	4.2%
Lodging/Restaurants	2	4.2%
Billboards	2	4.2%
Nice RV Parks	2	4.2%
Expand/Improve Information Centers	1	2.1%
Rest Areas	1	2.1%
Safety	1	2.1%
Small town hospitality	1	2.1%
Newspapers/Radio Spots	1	2.1%
Internet	1	2.1%
Maps	1	2.1%
Towns Marketing Themselves	1	2.1%
No Response	9	18.8%
Total Responses	48	100.0%

5. Do you have RV facilities for Winter Texans to stay in as they make their way to Southern Texas?

	No. of Responses	**% of Total**
Yes	21	72.4%
Yes, but Limited	4	13.8%
No	1	3.4%
No Response	3	10.3%
Total Responses	29	100.0%

6. Do you anticipate that an improvement in the Ports to Plains Corridor would increase tourist stays (nights) or tourist spending in your area?

	No. of Responses	**% of Total**
Yes	24	82.8%
No	0	0.0%
Maybe	1	3.4%
Don't Know	0	0.0%
No Response	4	13.8%
Total Responses	29	100.0%

7. What tourist attractions are in your area?
(Respondents can offer more than one response.)

	No. of Responses	% of Total
Historic Site(s)	25	21.2%
Museum(s)	14	11.9%
State/National Parks	11	9.3%
Hunting/Fishing	10	8.5%
Lake	9	7.6%
Dinosaur Tracks	8	6.8%
Horses/Cattle/Ranching/ Rodeo	6	5.1%
Canyon/Cavern/Rock Formations	5	4.2%
Bird/Wildlife Watching	5	4.2%
Mexican Border	3	2.5%
Petroglyphs	3	2.5%
Hiking/Biking	3	2.5%
Wind Farm	2	1.7%
Star Gazing	2	1.7%
Golf	1	0.8%
Wineries	1	0.8%
University	1	0.8%
Scenic Byway	1	0.8%
Cultural Heritage	1	0.8%
Weather	1	0.8%
Fewer People/Crowds	1	0.8%
Casino	1	0.8%
Don't Know	0	0.0%
No Response	4	3.4%
Total Responses	118	100.0%

8. What undeveloped opportunities exist in your community for tourism? (Respondents can offer more than one response.)

	No. of Responses	% of Total
Fishing/Hunting	6	10.7%
Lake/Stream Development	5	8.9%
Lodging/Restaurants	4	7.1%
Antique Malls/Shopping	3	5.4%
Agricultural Tourism	3	5.4%
Tours	3	5.4%

Signs/Marketing	3	5.4%
Bird/Wildlife Watching	3	5.4%
Trails	2	3.6%
Camping	2	3.6%
Star Gazing	2	3.6%
Horses/Cattle/Ranching	1	1.8%
RV Parks	1	1.8%
Cultural Tourism	1	1.8%
Heritage Tourism	1	1.8%
Tourist Information Centers	1	1.8%
Eco-Tourism	1	1.8%
Cave Paintings	1	1.8%
State/National Parks	1	1.8%
Historic Site(s)	1	1.8%
Museum(s)	1	1.8%
Better Roads	1	1.8%
Don't Know	2	3.6%
No Response	7	12.5%
Total Responses	56	100.0%

9. What undeveloped/under developed natural resources does your community possess that could become tourist attractions? (Respondents can offer more than one response.)

	No. of Responses	**% of Total**
Lake/Water	5	11.4%
Bird/Wildlife Watching	5	11.4%
Fishing/Hunting	3	6.8%
Land	3	6.8%
Star Gazing	3	6.8%
Eco-Tourism	2	4.5%
State/National Park	2	4.5%
Abandoned Coal Mines	1	2.3%
Canyons	1	2.3%
Storm Chasing	1	2.3%
Horses/Cattle/Ranching	1	2.3%
Dinosaur	1	2.3%
Small Town Atmosphere	1	2.3%
Outdoor Recreation	1	2.3%
None	1	2.3%

Don't Know	2	4.5%
No Response	11	25.0%
Total Responses	44	100.0%

10. What undeveloped/under developed resources (other than natural) do you have in your area?
(Respondents can offer more than one response.)

	No. of Responses	**% of Total**
Historic Sites	2	5.7%
Value Added Agriculture	2	5.7%
Land Availability	2	5.7%
Casino	1	2.9%
People	1	2.9%
Museum	1	2.9%
Border Access	1	2.9%
Shopping	1	2.9%
Wind Energy	1	2.9%
Grape/Wine Producing	1	2.9%
Horses/Cattle/Ranching	1	2.9%
Rest Areas	1	2.9%
Tourist Information Centers	1	2.9%
Cultural Tourism	1	2.9%
Heritage Tourism	1	2.9%
Don't Know	5	14.3%
No Response	12	34.3%
Total Responses	35	100.0%

Economic Development Questions:

Total Interviews Requested	40
Total Interviews Conducted	28
Response Rate	70.0%

Number of Responses by State

Texas	9
Colorado	8
Oklahoma	10
New Mexico	1
Total	28

1. What undeveloped natural resources does your community possess that could attract industry?
(Respondents can offer more than one response.)

	No. of Responses	% of Total
Land/Property	12	33.3%
Water	6	16.7%
Value Added Agricultural	4	11.1%
None	4	11.1%
Wind	3	8.3%
Solar	1	2.8%
Cattle	1	2.8%
Clean Air	1	2.8%
All	1	2.8%
Don't Know	0	0.0%
No Response	3	8.3%
Total Responses	36	100.0%

2. What unmet transportation needs exist in your community that would impact favorably on planned growth and economic development?
(Respondents can offer more than one response.)

	No. of Responses	% of Total
Transit Service	6	15.8%
Access to 4-lane Highways	5	13.2%
Airport Service	4	10.5%
Better Road Condition	4	10.5%
Rail Improvements	3	7.9%
Taxi Service	2	5.3%
Major Truck Stop	1	2.6%
Additional Infrastructure - Bridges	1	2.6%
Access to Interstates	1	2.6%
Reliever Routes	1	2.6%
Car Rentals	1	2.6%
Money for Transportation	1	2.6%
Signs	1	2.6%
Agricultural Transportation Vehicles	1	2.6%
Don't Know	0	0.0%

No Response	6	15.8%
Total Responses	38	100.0%

Additional comments:
Need to watch taxes, comments from Truckers about and need to be competitive.

3. What industries are most likely to be favorably impacted by transportation improvements to the P2P Corridor?
(Respondents can offer more than one response.)

	No. of Responses	**% of Total**
Transportation	12	22.6%
Distribution/Warehousing	10	18.9%
Agriculture	7	13.2%
Manufacturing	5	9.4%
Tourism	5	9.4%
Gas Stations/Repairs/Truck Stops	3	5.7%
Services/Retail	2	3.8%
Oil and Gas	2	3.8%
Dairy/Cattle	2	3.8%
Lodging/Restaurants	2	3.8%
All	2	3.8%
Wind	1	1.9%
Don't Know	0	0.0%
No Response	0	0.0%
Total Responses	53	100.0%

4. Are there different Infrastructure needs that become necessary if tourism blossoms in your area?
(Respondents can offer more than one response.)

	No. of Responses	**% of Total**
Lodging/Restaurants	16	32.0%
Water	4	8.0%
Access to Commercial Businesses	2	4.0%
Drainage/Sewer	2	4.0%
Services/Retail	2	4.0%
Marketing of Towns/Cities/Region	2	4.0%
Signage	2	4.0%

Electricity	1	2.0%
Roads	1	2.0%
Airport Facilities	1	2.0%
Gas Stations/Repairs/Truck Stops	1	2.0%
Workforce Development	1	2.0%
Housing	1	2.0%
High Speed Communication	1	2.0%
Pull Offs	1	2.0%
Yes	4	8.0%
No	5	10.0%
Don't Know	0	0.0%
No Response	3	6.0%
Total Responses	50	100.0%

5. Which industries would be most likely to locate in your area if the P2P transportation improvements were made?
(Respondents can offer more than one response.)

	No. of Responses	**% of Total**
Distribution/Warehousing	13	25.0%
Manufacturing	7	13.5%
Transportation	6	11.5%
Gas Stations/Repairs/Truck Stops	4	7.7%
Lodging/Restaurants	3	5.8%
Tourism	2	3.8%
Retail/Services	2	3.8%
Retention of Existing	2	3.8%
Agriculture	2	3.8%
Any Industry Needing Space/Access	2	3.8%
Call Centers	1	1.9%
High Tech (hopefully)	1	1.9%
Healthcare	1	1.9%
Auto Supplier	1	1.9%
Food Processing	1	1.9%
Diary/Cattle	1	1.9%
Energy	1	1.9%
Don't Know	1	1.9%
No Response	1	1.9%
Total Responses	52	100.0%

6. What businesses ventures or industries have failed to locate in your area because of transportation limitations?
(Respondents can offer more than one response.)

	No. of Responses	% of Total
Manufacturing	3	9.7%
Distribution	2	6.5%
Heavy Equipment Manufacturing	2	6.5%
Airport Related	2	6.5%
Transportation	1	3.2%
Anything Requiring Better Roads/Access	1	3.2%
Auto Suppliers	1	3.2%
Doctors	1	3.2%
Dairies	1	3.2%
Rail Related	1	3.2%
Couple	1	3.2%
Many	1	3.2%
None to Knowledge	3	9.7%
Don't Know	8	25.8%
No Response	3	9.7%
Total Responses	31	100.0%

7. a. What are your ideas about the importance and effectiveness of Business Incubators?

	No. of Responses	% of Total
Very Effective/Important	9	32.1%
Effective/Important	4	14.3%
Minimal	3	10.7%
Not Effective	1	3.6%
Depends on Management	1	3.6%
Don't Know	3	10.7%
No Response	7	25.0%
Total Responses	28	100.0%

b. What are your ideas about the importance and effectiveness of Industrial Parks?

	No. of Responses	% of Total
Very Effective/Important	10	35.7%

Effective/Important	5	17.9%
Minimal	1	3.6%
Not Effective	1	3.6%
Depends on Management	1	3.6%
Don't Know	3	10.7%
No Response	7	25.0%
Total Responses	28	100.0%

8. a. Do you have a Business Incubator or Industrial Park in your area?

	No. of Responses	**% of Total**
Yes	11	39.3%
No	8	28.6%
Working on	4	14.3%
Don't Know	1	3.6%
No Response	4	14.3%
Total Responses	28	100.0%

b. If yes, what is the distance to the P2P Corridor?

	No. of Responses	**% of Total**
Adjacent to or Will be	5	45.5%
Under a Mile	1	9.1%
2-5 Miles	3	27.3%
5-10 Miles	2	18.2%
Total Responses	11	100.0%

9. What are some specific success stories you have had in attracting new jobs and retaining existing jobs?
(Respondents can offer more than one response.)

	No. of Responses	**% of Total**
Food/Ag Processing	4	11.1%
Manufacturing	3	8.3%
Distribution Center	2	5.6%
Retail	2	5.6%
Energy	2	5.6%
Auto Supplier	1	2.8%
Call Center	1	2.8%
Service Center	1	2.8%
Small Business	1	2.8%

Don't Know	2	5.6%
No Response	17	47.2%
Total Responses	36	100.0%

10. a. Have you given any thought to the potential auto suppliers market with the new Toyota plant locating in San Antonio?

	No. of Responses	% of Total
Yes	7	25.0%
No	0	0.0%
Don't Know	0	0.0%
No Response/Not Applicable	21	75.0%
Total Responses	28	100.0%

b. Will the P2P Corridor improve your chances for attracting a supplier?

	No. of Responses	% of Total
Yes	3	10.7%
No	1	3.6%
Maybe	2	7.1%
Don't Know	1	3.6%
No Response/Not Applicable	21	75.0%
Total Responses	28	100.0%

Additional Comments from Interviews

Economic Development:

Industrial Park development shouldn't have the philosophy of build it and they will come.

Community development is important to economic development.

Not having an interstate is really a detriment to a community.

The Ports to Plains Corridor provides us with an opportunity for jobs and for stabilization of the economy.

City and county governments and economic development agencies must all work together to get things done.

Ports to Plains would contribute significantly to our job base, increase income and help increase our population.

We are actively recruiting auto suppliers.

Ports to Plains would enhance our position to serve as a center of large trade and center for distribution activity.

The likelihood of new or expanding companies locating in our area increases by 30 to 40 percent with the Ports to Plains Corridor as opposed to without the Corridor.

Tourism:

Improvements to the Ports to Plains Corridor would increase tourist stays and/or spending up to 10 percent.

In order to capture additional tourist visits and Winter Texans, we need to focus on promoting the region as a destination not just individuals towns.

Having adequate signs along the Corridor marking attractions is a big issue.

Marketing efforts for the Corridor region must include Internet.

Ports to Plains needs to be renamed into one highway number for its entire length.

RVs have gotten so large and costly that the quality of the road means a lot to the people who drive them.

RV travelers are in a hurry to get to their reserved plot on the way to South Texas. As a result, it is unlikely that they will meander about exploring the sights on their way to South Texas.

Quality of the road matters a lot given the price of RVs.

RVers also desire parks with amenities.

There is a lot of competition for the Winter Texan market, and these travelers are cost conscious.

The Winter Texan market is expected to grow significantly as the Baby Boomers near retirement age.

Factors that favor the Corridor are the growing popularity of historic tourism,

interpretive history, and cultural tourism.

Many Winter Texans come to the same location year after year so there is a "lock-in" effect. Since there is this "lock-in" effect, marketing is key, especially as potential travelers are making their plans and before they have an established routine.

Suggest attending State Fairs in the Midwest and having booths and brochures on the Corridor's attractions. The fairs are at the end of the summer, a time when people are just starting to make plans for winter travel.

Traffic:

We believe that the Ports to Plains Corridor will help us and want it close to us.

I am concerned how truck traffic will be handled if the Corridor is expanded.

While by-passes may be necessary for traffic flow, we need to make sure that there is still access to businesses.

5.20 Description of RIMS II Multipliers

For this analysis, the Bureau of Economic Analysis' (BEA) RIMS II multipliers are used to estimate the total employment and earnings benefits that result from the construction of the transportation improvements, user benefits, and the growth in roadside service expenditures, distribution, manufacturing, and Winter Texan visits associated with the Ports to Plains Corridor project. The RIMS II multipliers are useful for policy and investment analysis for a variety of issues, including transportation investments and economic growth in other industries. The regional multipliers are based on the BEA's national input-output (I-O) table, which reflects the inputs purchased and outputs sold for each industry in the U.S. and BEA regional data. The multipliers can be defined for specific regions in the U.S. that are composed of one or more counties, in this analysis the following regions were used:

- Colorado Corridor Counties:
  - Adams
  - Arapahoe
  - Baca
  - Cheyenne
  - Elbert
  - Kiowa
  - Lincoln
  - Prowers
- New Mexico Corridor Counties:
  - Colfax
  - Union
- Oklahoma Corridor County:
  - Cimarron
- Texas Corridor Counties:
  - Coke
  - Dallam
  - Dawson
  - Dimmit
  - Edwards
  - Glasscock
  - Hale
  - Hartley
  - Howard

  - Kinney
  - Lubbock
  - Lynn
  - Martin
  - Maverick
  - Midland
  - Moore
  - Potter
  - Randall
  - Schleicher
  - Sherman
  - Sterling
  - Sutton
  - Swisher
  - Tom Green
  - Val Verde
  - Webb
- State of Colorado
- State of New Mexico
- State of Oklahoma
- State of Texas

The regionally adjusted I-O table used to calculate the RIMS II multipliers for the eight regions used in the Ports to Plains Corridor Economic Benefit Analysis reflects the relationship between the inputs purchased and outputs sold in each region. This relationship influences the way in which each region's economy would respond to new investments such as the construction of the Ports to Plains transportation improvements as well as the growth in roadside service expenditures, distribution, manufacturing, and Winter Texans.

The use of RIMS II multipliers is a reliable, cost effective way to estimate the economic benefit of a new investment for a defined region. The multipliers project the gains in employment and earnings that are directly generated by the investment as well as the multiplier effects that result as the direct effect wages are re-spent throughout the larger economy. The economic benefit estimates produced from a RIMS II analysis have been compared to the estimates generated by more expensive survey analyses, and the comparisons have shown that the RIMS II analysis produces results that are similar in magnitude to the more expensive analyses.[63]

RIMS II provides two types of multipliers to estimate the economic benefit of an investment: final demand and direct effect. The final demand multipliers are used when the only information known about the initial investment is the change in total cost or output. There are two final demand multipliers, one for employment and one for earnings. Each final demand multiplier is multiplied by the total cost to estimate the total employment and earnings benefits. Direct effect multipliers, on the other hand, are used when the investment's initial changes in employment and earnings are known. Like the final demand multipliers, there are two direct effect multipliers, one for employment and another for earnings. The use of direct effect multipliers for employment and earnings estimation is preferred to the use of final demand multipliers because the direct effect multipliers are based on the regional relationships between employment (or earnings) and output, while the final demand multipliers are based on the national relationship between employment (or earnings) and output.[64]

5.21 Description of 2030 VMT Allocation

The projected vehicle miles traveled (VMT) for the Ports to Plains Corridor is a 2030 estimate that assumes the entire Corridor between Laredo, Texas and Denver, Colorado is improved. However, the Corridor will be constructed in four phases, which means that various sections will be completed at different times between 2011 and 2026. Estimating economic benefits in the Corridor requires that increases in VMT along the Corridor be estimated as the project progresses. This section discusses how that increase in VMT is estimated.

To account for construction phasing, a series of rules were developed to build up each section's VMT to the projected 2030 level. In other words, a percentage of the 2030 VMT is allocated to each section as that section is improved and this percentage will continue to increase as nearby sections are improved. The series of rules also assumes that the 2030 VMT estimate for each Corridor section will be reached upon completion of the Ports to Plains Corridor after Phase IV of construction.

---

[63] U.S. Department of Commerce, *Regional Multipliers: A User Handbook for the Regional Input-Output Modeling System (RIMS II)*, March 1997, p.1. http://www.bea.gov/bea/ARTICLES/REGIONAL/PERSINC/Meth/rims2.pdf

[64] *Ibid.*, p.9.

The series of rules established to build up the VMT to the 2030 estimates by section are as follows:

- A section improved to four lane capacity but not connecting any cities is assumed to experience 10 percent of the projected increase in 2030 VMT upon completion of the section's construction.
    - For example, the first Corridor section shown in Exhibit 5.21-1, US 83 between I-35 and the Webb/Dimmit County Line in Texas, is assumed to experience 10 percent of the 2030 VMT in 2011 because the improved, four-lane section does not connect cities along the Corridor.
- A section improved to four lane capacity connecting two non-Metropolitan Statistical Area (MSA) cities or an MSA with a non-MSA city is assumed to experience 40 percent of the projected increase in 2030 VMT upon completion of the section's construction. If that section connects multiple cities, it is assumed that an additional 25 percent of the projected increase in 2030 VMT would be experienced for a total of 65 percent of the projected increase in 2030 VMT.
    - For example, in 2016, after the completion of Phase II, the US 83 section between I-35 and the Webb/Dimmit County Line is assumed to experience an additional 40 percent of the 2030 VMT because the section would have four-lane access between Laredo and Carrizo Springs. However, this improved, four-lane section is assumed to experience an additional 25 percent of the 2030 VMT in 2016 because it now has four-lane access to multiple cities including Laredo, Carrizo Springs, Eagle Pass, and Del Rio.
- A section improved to four lane capacity connecting two MSAs is assumed to experience 75 percent of the projected increase in 2030 VMT. It is important to note that the 75 percent represents a combined benefit and the additional percentages of 2030 VMT associated with the section connecting to multiple cities discussed in the previous bullets are not applicable to an improved, four-lane section that connects two MSAs.
    - For example, the TX 158 section between Sterling City and the Sterling/Glasscock County Line in Texas is assumed to have 75 percent of the 2030 VMT in 2011 because the section offers a four-lane connection between San Angelo and Midland/Odessa.

- For improved, four-lane sections that are already operational, but no additional improvement in connectivity results from the completion of an additional phase of the Corridor project, an additional five percent of the 2030 VMT is assumed to be experienced.
    - For example, for the US 83 section between I-35 and the Webb/Dimmit County Line, an additional five percent of the 2030 VMT is assumed to be added in 2021 because the section is already improved to four lanes, but the completion of Phase III does not improve its connectivity because the US 277 section between Del Rio and Sonora, Texas is not yet improved.

The set of logic or rules applies for all Corridors, except New Mexico. New Mexico's situation is unique because the 2030 VMT is expected to decline with the completion of the Ports to Plains Corridor. Therefore, it is assumed that there are no VMT losses along New Mexico's portion of the Corridor during the first two construction phases because there will not be an alternative four-lane route for travelers. After the completion of Phase III, a large portion of the Ports to Plains Corridor through Oklahoma and Colorado will be four-lanes and will begin to divert travelers from the New Mexico portion of the Corridor. For simplicity, it is assumed that 50 percent of the New Mexico 2030 VMT traffic loss will occur after Phase III and the remaining 50 percent after Phase IV.

Exhibits 5.21-1 and 5.21-2 details the allocation of VMT results by Corridor section and by state using the logic described above.

Exhibit 5.21-1: Allocation of 2030 VMT by Corridor Section

Corridor Section Description	Roadway	State	Category	From	To	% of VMT 2011	% of VMT 2016	% of VMT 2021	% of VMT 2026
Build 2 new lanes in Asphalt	US 83	Texas	Capacity	I-35	Webb/Dimmit County Line	10%	75%	80%	100%
Build 2 new lanes in Asphalt	US 83	Texas	Capacity	Webb/Dimmit County Line	FM 133, Catarina	0%	65%	70%	100%
Build 2 new lanes in Asphalt	US 83	Texas	Capacity	FM 133, Catarina	Carrizo Springs Relief Route	0%	65%	70%	100%
Build 2 new lanes in Asphalt	US 277	Texas	Capacity	Carrizo Springs Relief Route	Dimmit/Maverick County Line	0%	0%	65%	100%
Build 2 new lanes in Asphalt	US 277	Texas	Capacity	Dimmit/Maverick County Line	Eagle Pass Relief Route	0%	0%	65%	100%
Build 2 new lanes in Asphalt	US 277	Texas	Capacity	Eagle Pass Relief Route	Maverick/Kinney County line	40%	65%	70%	100%
Build 2 new lanes in Asphalt	US 277	Texas	Capacity	Maverick/Kinney County line	Kinney/Val Verde County Line	0%	65%	70%	100%
Build 2 new lanes in Asphalt	US 277	Texas	Capacity	Kinney/Val Verde County Line	Del Rio Relief Route	40%	65%	70%	100%
Build 2 new lanes in Asphalt	US 277	Texas	Capacity	Del Rio Relief Route	Val Verde/Edwards County Line	0%	0%	0%	100%
Build 2 new lanes in Asphalt	US 277	Texas	Capacity	Val Verde/Edwards County Line	Edwards/Sutton County Line	0%	0%	0%	100%
Build 2 new lanes in Asphalt	US 277	Texas	Capacity	Edwards/Sutton County Line	Sonora Relief Route	0%	0%	0%	100%
Build 2 new lanes in Asphalt	US 277	Texas	Capacity	Sonora Relief Route	Sutton/Schleicher County Line	0%	0%	0%	100%
Build 2 new lanes in Asphalt	US 277	Texas	Capacity	Sutton/Schleicher County Line	Schleicher/Tom Green County Line	0%	0%	40%	100%
Build 2 new lanes in Asphalt	US 277	Texas	Capacity	Schleicher/Tom Green County Line	San Angelo Relief Route	0%	0%	40%	100%
Build 2 new lanes in Asphalt	SH 158	Texas	Capacity	Sterling City	Sterling/Glasscock County Line	75%	80%	85%	100%
Build 2 new lanes in Asphalt	SH 158	Texas	Capacity	Sterling/Glasscock County Line	Glasscock/Midland County Line	75%	80%	85%	100%

Exhibit 5.21-1: Allocation of 2030 VMT by Corridor Section

Corridor Section Description	Roadway	State	Category	From	To	% of VMT 2011	% of VMT 2016	% of VMT 2021	% of VMT 2026
Build 2 new lanes in Asphalt	SH 349	Texas	Capacity	Midland	Midland/Martin County Line	0%	0%	0%	100%
Build 2 new lanes in Asphalt	SH 349	Texas	Capacity	Midland/Martin County Line	Martin/Dawson County Line	0%	0%	10%	100%
Build 2 new lanes in Asphalt	SH 349	Texas	Capacity	Martin/Dawson County Line	FM 2052	0%	0%	0%	100%
Build 2 new lanes in Asphalt	FM 2052	Texas	Capacity	SH 349	US 87	0%	0%	0%	100%
Build 2 new lanes in Asphalt	US 287	Texas	Capacity	Stratford	Sherman/Dallam County Line	0%	65%	70%	100%
Build 2 new lanes in Asphalt	US 287	Texas	Capacity	Sherman/Dallam County Line	OK/TX Border	10%	75%	80%	100%
Build 2 new lanes in Asphalt	US 287	Oklahoma	Capacity	OK/TX Border	Boise City Relief Route	0%	65%	70%	100%
Build 2 new lanes in Asphalt	US 287	Oklahoma	Capacity	Boise City Relief Route	OK/Co Border	10%	65%	70%	100%
Build 2 new lanes in Concrete	US 287	Colorado	Capacity	OK/Co Border	Springfield	0%	0%	0%	100%
Build 2 new lanes in Concrete	US 287	Colorado	Capacity	Springfield	Baca/Prowers County Line	0%	0%	0%	100%
Build 2 new lanes in Concrete	US 287	Colorado	Capacity	Baca/Prowers County Line	Lamar Relief Route	0%	10%	75%	100%
Build 2 new lanes in Concrete	US 287	Colorado	Capacity	Lamar Relief Route	Prowers/Kiowa County Line	10%	15%	80%	100%
Build 2 new lanes in Concrete	US 287	Colorado	Capacity	Prowers/Kiowa County Line	Eads	0%	0%	65%	100%
Build 2 new lanes in Concrete	US 287	Colorado	Capacity	Eads	Kiowa/Cheyenne County Line	0%	0%	65%	100%
Build 2 new lanes in Concrete	US 287	Colorado	Capacity	Kiowa/Cheyenne County Line	Kit Carson	0%	0%	65%	100%
Build 2 new lanes in Concrete	US 40	Colorado	Capacity	Kit Carson	Wild Horse	0%	65%	70%	100%

Exhibit 5.21-1: Allocation of 2030 VMT by Corridor Section

Corridor Section Description	Roadway	State	Category	From	To	% of VMT 2011	% of VMT 2016	% of VMT 2021	% of VMT 2026
Build 2 new lanes in Concrete	US 40	Colorado	Capacity	Wild Horse	Cheyenne/Lincoln County Line	0%	65%	70%	100%
Build 2 new lanes in Concrete	US 40	Colorado	Capacity	Cheyenne/Lincoln County Line	Hugo	10%	75%	80%	100%
Build 2 new lanes in Concrete	US 40	Colorado	Capacity	Hugo	Limon	0%	65%	70%	100%
Build 2 new lanes in Asphalt	US 87	Texas	Capacity	Dumas	Moore/Hartley County Line	0%	0%	50%	100%
Build 2 new lanes in Asphalt	US 87	Texas	Capacity	Moore/Hartley County Line	Hartley/Interchange with US 385	0%	0%	50%	100%
Build 2 new lanes in Asphalt	US 87	Texas	Capacity	Dalhart Relief Route	4-lane Project	0%	0%	50%	100%
Build 2 new lanes in Asphalt	US 64	New Mexico	Capacity	Clayton	Capulin	0%	0%	50%	100%
Build 2 new lanes in Asphalt	US 64	New Mexico	Capacity	Capulin	Union/Colfax County Line	0%	0%	50%	100%
Build 2 new lanes in Asphalt	US 64	New Mexico	Capacity	Union/Colfax County Line	Raton/I-25	0%	0%	50%	100%
Existing 4 lane	US 87	Texas	No Action	San Angelo	Sterling City	75%	80%	85%	100%
Existing 4 lane	US 87	Texas	No Action	Sterling City	Big Spring	25%	50%	75%	100%
Existing 4 lane	US 87	Texas	No Action	Big Spring	Lamesa	25%	50%	75%	100%
Existing 4 lane	US 87	Texas	No Action	Lamesa	Lubbock	25%	50%	75%	100%
Existing 4 lane	I-27	Texas	No Action	Lubbock	Amarillo	25%	50%	75%	100%
Existing 4 lane	US 87	Texas	No Action	Amarillo	Dumas	25%	50%	75%	100%
Existing 4 lane	US 287	Texas	No Action	Dumas	Stratford	25%	50%	75%	100%
Existing 4 lane	US 87	Texas	No Action	Hartley	Dalhart	0%	0%	50%	100%
Existing 4 lane	US 87	Texas	No Action	4-Lane Project	Texas/NM Border	0%	0%	50%	100%
Existing 4 lane	SH 158	Texas	No Action	County Line	Midland	25%	50%	75%	100%
Existing 4 lane	US 64/87	New Mexico	No Action	Texas/NM Border	Clayton	0%	0%	50%	100%
Existing 4 lane	I-70	Colorado	No Action	Limon	Denver	25%	50%	75%	100%

Source: AECOM Consult, Inc.

Exhibit 5.21-2: Allocation of 2030 VMT by State

	Colorado	New Mexico	Oklahoma	Texas	Total
Phase I Complete - 2011					
Additional VMT with Improvements (non-truck)	54,565	0	4,852	222,049	**281,466**
Additional Truck VMT with Improvements (truck)	15,370	0	1,144	26,747	**43,261**
Total	**69,935**	**0**	**5,996**	**248,796**	**324,727**
Phase II Complete - 2016					
Additional VMT with Improvements (non-truck)	193,491	0	66,987	389,031	**649,509**
Additional Truck VMT with Improvements (truck)	55,679	0	15,758	54,178	**125,615**
Total	**249,170**	**0**	**82,745**	**443,209**	**775,124**
Phase III Complete - 2021					
Additional VMT with Improvements (non-truck)	344,667	-51,281	72,140	473,029	**838,555**
Additional Truck VMT with Improvements (truck)	104,830	-11,730	16,970	66,285	**176,355**
Total	**449,497**	**-63,011**	**89,110**	**539,314**	**1,014,910**
Phase IV Complete - 2026					
Additional VMT with Improvements (non-truck)	518,811	-102,562	103,057	640,947	**1,160,253**
Additional Truck VMT with Improvements (truck)	173,178	-23,459	24,242	110,200	**284,161**
Total	**691,989**	**-126,021**	**127,299**	**751,147**	**1,444,414**

Source: AECOM Consult, Inc.

5.22 Supplemental Information for Manufacturing and Transportation/Warehousing Benefits

The first section contains a table displaying employment growth rates for manufacturing and transportation/warehousing for each locality in Texas that were used to determine employment growth rate differentials among counties on selected multilane Corridors and those that were not. In the second section, an example of employment growth that may result from improved transportation infrastructure is provided. That demonstration uses the auto manufacturing industry as an example of how improved transportation infrastructure in the project Corridor would lead to increased employment in auto supplier establishments.

5.22.1 Manufacturing and Transportation/Warehousing Employment in Texas Counties

The employment growth rates for manufacturing and transportation/ warehousing for each locality in Texas that were used to determine employment growth rate differentials are displayed in Exhibit 5.22-1.

Exhibit 5.22-1: Manufacturing and Transportation/Warehousing Employment in Texas Counties

	Manufacturing						Transportation/Warehousing					
	On Selected Corridor			Not On Selected Corridor			On Selected Corridor			Not On Selected Corridor		
County	1994	2004	Percent Change	1994	2004	Percent Change	1994	2004	Percent Change	1994	2004	Percent Change
Anderson, TX	-	-	-	1,443	690	-52.2%	-	-	-	197	243	23.7%
Andrews, TX	-	-	-	445	420	-5.6%	-	-		67	122	82.5%
Angelina, TX	8,111	7,336	-9.6%	-	-	-	709	972	37.2%	-	-	-
Aransas, TX	-	-	-	375	184	-50.9%	-	-	-	12	14	15.%
Archer, TX	-	-	-	22	34	54.5%	-	-	-	31	46	48.8%
Armstrong, TX	-	-	-	7	11	57.1%	-	-	-	10	29	194.1%
Atascosa, TX	416	637	53.1%	-	-	-	157	221	40.7%	-	-	-
Austin, TX	1,494	2,027	35.7%	-	-	-	173	273	58.2%	-	-	-
Bailey, TX	-	-	-	121	126	4.1%	-	-	-	32	56	76.6%
Bandera, TX	-	-	-	163	157	-3.7%	-	-	-	15	18	24.5%
Bastrop, TX	-	-	-	1,155	1,001	-13.3%	-	-	-	80	135	68.7%
Baylor, TX	-	-	-	57	43	-24.6%	-	-	-	26	34	28.9%
Bee, TX	-	-	-	284	380	33.8%	-	-	-	62	75	21.4%
Bell, TX	9,245	9,299	.6%	-	-	-	591	987	67.1%	-	-	-
Blanco, TX	-	-	-	105	154	46.7%	-	-	-	38	73	93.1%
Borden, TX	-	-	-	5	13	160.%	-	-	-	4	5	16.7%
Bosque, TX	-	-	-	658	690	4.9%	-	-	-	95	110	16.4%
Bowie, TX	-	-	-	3,149	3,549	12.7%	-	-	-	556	727	30.6%
Brazoria, TX	-	-	-	17,157	13,367	-22.1%	-	-	-	1,324	1,723	30.1%
Brazos, TX	-	-	-	4,158	6,935	66.8%	-	-	-	319	447	40.%
Brewster, TX	-	-	-	38	143	276.3%	-	-	-	74	121	62.8%
Briscoe, TX	-	-	-	31	34	9.7%	-	-	-	2	5	130.8%
Brooks, TX	111	27	-75.7%	-	-	-	5	4	-18.%	-	-	-
Brown, TX	-	-	-	3,161	3,427	8.4%	-	-	-	76	67	-11.7%
Burleson, TX	-	-	-	382	295	-22.8%	-	-	-	62	44	-29.3%
Burnet, TX	-	-	-	1,136	1,099	-3.3%	-	-	-	149	234	57.7%
Caldwell, TX	511	483	-5.5%	-	-	-	27	42	58.%	-	-	-
Calhoun, TX	-	-	-	3,941	3,965	.6%	-	-	-	19	17	-10.%
Callahan, TX	95	130	36.8%	-	-	-	118	118	-	-	-	-
Cameron, TX	14,140	13,078	-7.5%	-	-	-	1,551	2,410	55.4%	-	-	-
Camp, TX	-	-	-	545	684	25.5%	-	-	-	26	45	73.7%
Carson, TX	-	-	-	2,972	3,011	1.3%	-	-	-	28	23	-16.6%
Cass, TX	-	-	-	1,969	2,017	2.4%	-	-	-	299	292	-2.4%
Castro, TX	-	-	-	198	174	-12.1%	-	-	-	159	142	-11.1%
Chambers, TX	1,307	1,716	31.3%	-	-	-	125	134	7.5%	-	-	-
Cherokee, TX	-	-	-	3,531	3,771	6.8%	-	-	-	285	341	19.9%
Childress, TX	-	-	-	21	93	342.9%	-	-	-	3	3	-9.6%
Clay, TX	-	-	-	159	337	111.9%	-	-	-	72	68	-5.8%
Cochran, TX	-	-	-	32	23	-28.1%	-	-	-	35	46	32.6%
Coke, TX	-	-	-	30	49	63.3%	-	-	-	8	6	-18.6%
Coleman, TX	-	-	-	299	58	-80.6%	-	-	-	32	31	-4.3%
Collin, TX	16,982	26,969	58.8%	-	-	-	858	1,710	99.2%	-	-	-
Collingsworth, TX	-	-	-	13	15	15.4%	-	-	-	12	19	58.%
Colorado, TX	1,104	1,134	2.7%	-	-	-	150	199	32.6%	-	-	-
Comanche, TX	-	-	-	291	292	.3%	-	-	-	101	152	51.2%
Concho, TX	-	-	-	27	17	-37.%	-	-	-	14	40	193.8%
Cooke, TX	2,254	3,159	40.2%	-	-	-	528	521	-1.5%	-	-	-
Coryell, TX	-	-	-	740	590	-20.3%	-	-	-	113	215	89.8%
Cottle, TX	-	-	-	12	30	150.%	-	-	-	1	3	146.2%
Crane, TX	59	38	-35.6%	-	-	-	66	34	-48.6%	-	-	-
Crockett, TX	13	12	-7.7%	-	-	-	14	13	-6.9%	-	-	-
Crosby, TX	-	-	-	97	106	9.3%	-	-	-	25	24	-5.9%
Culberson, TX	68	73	7.4%	-	-	-	4	6	33.3%	-	-	-
Dallam, TX	-	-	-	63	175	177.8%	-	-	-	74	102	37.7%
Dawson, TX	-	-	-	389	180	-53.7%	-	-	-	161	374	132.5%
Deaf Smith, TX	-	-	-	1,068	871	-18.4%	-	-	-	277	327	17.9%
Delta, TX	-	-	-	241	425	76.3%	-	-	-	23	31	32.1%
Denton, TX	14,086	12,801	-9.1%	-	-	-	916	2,222	142.6%	-	-	-
De Witt, TX	-	-	-	1,169	1,265	8.2%	-	-	-	59	70	18.%
Dickens, TX	-	-	-	6	12	100.%	-	-	-	14	20	43.%
Dimmit, TX	-	-	-	134	81	-39.6%	-	-	-	90	176	96.2%
Donley, TX	-	-	-	38	48	26.3%	-	-	-	18	24	29.%
Duval, TX	-	-	-	16	17	6.3%	-	-	-	20	57	184.5%
Eastland, TX	919	1,484	61.5%	-	-	-	50	69	37.3%	-	-	-
Ector, TX	4,689	5,162	10.1%	-	-	-	795	843	6.%	-	-	-
Edwards, TX	-	-	-	9	11	22.2%	-	-	-	24	32	32.1%
Ellis, TX	9,097	11,597	27.5%	-	-	-	1,048	971	-7.4%	-	-	-
El Paso, TX	47,927	35,968	-25.%	-	-	-	4,048	6,121	51.2%	-	-	-
Erath, TX	1,939	2,064	6.4%	-	-	-	151	283	86.7%	-	-	-
Falls, TX	483	379	-21.5%	-	-	-	56	68	22.9%	-	-	-
Fannin, TX	-	-	-	1,447	1,502	3.8%	-	-	-	100	125	24.7%

Exhibit 5.22-1 (Continued)

County	Manufacturing						Transportation/Warehousing					
	On Selected Corridor			Not On Selected Corridor			On Selected Corridor			Not On Selected Corridor		
	1994	2004	Percent Change	1994	2004	Percent Change	1994	2004	Percent Change	1994	2004	Percent Change
Fayette, TX	1,034	1,065	3.%	-	-	-	174	180	3.8%	-	-	-
Fisher, TX	-	-	-	94	113	20.2%	-	-	-	29	32	11.8%
Floyd, TX	-	-	-	158	118	-25.3%	-	-	-	111	110	-.6%
Foard, TX	-	-	-	134	70	-47.8%	-	-	-	9	23	147.1%
Fort Bend, TX	9,460	12,919	36.6%	-	-	-	337	559	65.7%	-	-	-
Franklin, TX	-	-	-	183	200	9.3%	-	-	-	25	58	129.4%
Freestone, TX	-	-	-	225	245	8.9%	-	-	-	5	4	-18.2%
Frio, TX	166	118	-28.9%	-	-	-	53	42	-20.2%	-	-	-
Gaines, TX	-	-	-	100	174	74.%	-	-	-	88	109	23.6%
Galveston, TX	-	-	-	8,731	8,314	-4.8%	-	-	-	574	531	-7.4%
Garza, TX	-	-	-	65	39	-40.%	-	-	-	53	52	-2.6%
Gillespie, TX	938	641	-31.7%	-	-	-	96	130	35.2%	-	-	-
Glasscock, TX	-	-	-	5	9	80.%	-	-	-	3	18	460.%
Goliad, TX	-	-	-	11	19	72.7%	-	-	-	16	20	23.%
Gonzales, TX	928	715	-23.%	-	-	-	47	55	16.9%	-	-	-
Gray, TX	-	-	-	1,333	1,142	-14.3%	-	-	-	55	42	-22.3%
Grayson, TX	10,309	9,499	-7.9%	-	-	-	495	475	-4.%	-	-	-
Gregg, TX	9,602	9,495	-1.1%	-	-	-	750	926	23.5%	-	-	-
Grimes, TX	-	-	-	1,686	1,698	.7%	-	-	-	51	104	103.8%
Guadalupe, TX	5,375	6,211	15.6%	-	-	-	322	504	56.5%	-	-	-
Hale, TX	-	-	-	2,427	2,694	11.%	-	-	-	169	166	-2.%
Hall, TX	-	-	-	89	99	11.2%	-	-	-	15	23	53.9%
Hamilton, TX	-	-	-	253	211	-16.6%	-	-	-	47	46	-2.3%
Hansford, TX	-	-	-	54	55	1.9%	-	-	-	80	43	-45.9%
Hardeman, TX	-	-	-	305	310	1.6%	-	-	-	64	81	25.6%
Hardin, TX	-	-	-	1,179	1,420	20.4%	-	-	-	152	139	-8.8%
Harrison, TX	-	-	-	7,261	6,508	-10.4%	-	-	-	242	280	15.6%
Hartley, TX	-	-	-	6	6	-	-	-	-	15	18	23.5%
Haskell, TX	-	-	-	24	55	129.2%	-	-	-	38	35	-8.2%
Hays, TX	2,875	4,323	50.4%	-	-	-	242	273	13.1%	-	-	-
Hemphill, TX	-	-	-	22	31	40.9%	-	-	-	39	52	32.6%
Henderson, TX	-	-	-	1,453	2,224	53.1%	-	-	-	173	279	61.5%
Hidalgo, TX	13,539	11,949	-11.7%	-	-	-	2,287	4,484	96.1%	-	-	-
Hill, TX	1,103	1,414	28.2%	-	-	-	67	89	32.5%	-	-	-
Hockley, TX	-	-	-	210	226	7.6%	-	-	-	220	209	-5.3%
Hood, TX	-	-	-	305	590	93.4%	-	-	-	45	57	25.2%
Hopkins, TX	-	-	-	1,289	1,543	19.7%	-	-	-	409	642	57.%
Houston, TX	-	-	-	1,226	1,073	-12.5%	-	-	-	120	182	51.6%
Howard, TX	1,074	1,286	19.7%	-	-	-	124	98	-21.1%	-	-	-
Hudspeth, TX	4	14	250.%	-	-	-	3	4	26.4%	-	-	-
Hunt, TX	-	-	-	7,897	6,602	-16.4%	-	-	-	428	596	39.1%
Hutchinson, TX	-	-	-	2,114	1,669	-21.1%	-	-	-	91	86	-5.5%
Irion, TX	-	-	-	7	23	228.6%	-	-	-	71	51	-28.3%
Jack, TX	-	-	-	46	68	47.8%	-	-	-	89	96	8.8%
Jackson, TX	1,299	2,035	56.7%	-	-	-	49	56	13.5%	-	-	-
Jasper, TX	-	-	-	2,888	2,248	-22.2%	-	-	-	238	272	14.2%
Jeff Davis, TX	4	6	50.%	-	-	-	4	8	120.%	-	-	-
Jefferson, TX	16,972	14,735	-13.2%	-	-	-	1,326	1,137	-14.3%	-	-	-
Jim Hogg, TX	-	-	-	14	31	121.4%	-	-	-	27	53	97.2%
Jim Wells, TX	302	311	3.%	-	-	-	238	363	52.6%	-	-	-
Johnson, TX	5,435	7,910	45.5%	-	-	-	542	1,022	88.6%	-	-	-
Jones, TX	-	-	-	378	209	-44.7%	-	-	-	165	193	17.1%
Karnes, TX	-	-	-	318	238	-25.2%	-	-	-	31	28	-11.9%
Kaufman, TX	-	-	-	3,522	5,950	68.9%	-	-	-	216	318	47.5%
Kendall, TX	472	1,109	135.%	-	-	-	43	41	-6.%	-	-	-
Kenedy, TX	-	-	-	-	-	-	-	-	-	-	-	-
Kent, TX	-	-	-	5	10	100.%	-	-	-	10	8	-16.7%
Kerr, TX	1,117	1,287	15.2%	-	-	-	25	33	31.9%	-	-	-
Kimble, TX	233	340	45.9%	-	-	-	8	8	5.8%	-	-	-
King, TX	-	-	-	5	12	140.%	-	-	-	6	6	-
Kinney, TX	-	-	-	8	15	87.5%	-	-	-	6	4	-40.4%
Kleberg, TX	429	316	-26.3%	-	-	-	64	42	-35.1%	-	-	-
Knox, TX	-	-	-	68	47	-30.9%	-	-	-	24	41	67.3%
Lamar, TX	-	-	-	5,454	4,982	-8.7%	-	-	-	498	566	13.6%
Lamb, TX	-	-	-	646	722	11.8%	-	-	-	135	102	-24.3%
Lampasas, TX	-	-	-	482	559	16.%	-	-	-	90	115	28.3%
La Salle, TX	-	-	-	-	-	-	17	22	27.1%	-	-	-
Lavaca, TX	-	-	-	2,057	2,331	13.3%	-	-	-	82	94	13.9%
Lee, TX	-	-	-	531	493	-7.2%	-	-	-	110	110	-.5%
Leon, TX	-	-	-	544	683	25.6%	-	-	-	37	97	162.3%
Liberty, TX	2,295	2,213	-3.6%	-	-	-	296	376	27.3%	-	-	-

Exhibit 5.22-1 (Continued)

County	Manufacturing						Transportation/Warehousing					
	On Selected Corridor			Not On Selected Corridor			On Selected Corridor			Not On Selected Corridor		
	1994	2004	Percent Change	1994	2004	Percent Change	1994	2004	Percent Change	1994	2004	Percent Change
Limestone, TX	-	-	-	740	878	18.6%	-	-	-	73	59	-19.3%
Lipscomb, TX	-	-	-	88	110	25.%	-	-	-	72	98	37.%
Live Oak, TX	288	312	8.3%	-	-	-	73	93	27.6%	-	-	-
Llano, TX	-	-	-	160	224	40.%	-	-	-	32	37	17.1%
Loving, TX	-	-	-	-	-		-	-	-	5	3	-40.%
Lubbock, TX	-	-	-	8,652	7,593	-12.2%	-	-	-	1,629	2,673	64.1%
Lynn, TX	-	-	-	39	60	53.8%	-	-	-	24	22	-8.2%
McCulloch, TX	-	-	-	237	332	40.1%	-	-	-	151	150	-.9%
McLennan, TX	16,937	15,156	-10.5%	-	-	-	1,409	2,005	42.3%	-	-	-
McMullen, TX	-	-	-	6	12	100.%	-	-	-	5	6	18.2%
Madison, TX	-	-	-	47	58	23.4%	-	-	-	133	148	11.4%
Marion, TX	-	-	-	600	380	-36.7%	-	-	-	62	90	45.7%
Martin, TX	20	32	60.%	-	-	-	48	46	-4.7%	-	-	-
Mason, TX	-	-	-	47	44	-6.4%	-	-	-	12	14	18.2%
Matagorda, TX	-	-	-	898	596	-33.6%	-	-	-	74	60	-19.7%
Maverick, TX	-	-	-	1,298	793	-38.9%	-	-	-	440	1,275	189.6%
Medina, TX	649	680	4.8%	-	-	-	22	45	108.6%	-	-	-
Menard, TX	-	-	-	12	11	-8.3%	-	-	-	16	9	-41.%
Midland, TX	2,445	2,339	-4.3%	-	-	-	540	574	6.3%	-	-	-
Milam, TX	-	-	-	1,879	1,937	3.1%	-	-	-	66	68	3.%
Mills, TX	-	-	-	142	129	-9.2%	-	-	-	19	25	32.2%
Mitchell, TX	224	47	-79.%	-	-	-	17	17	-1.1%	-	-	-
Montague, TX	-	-	-	841	524	-37.7%	-	-	-	156	134	-14.4%
Montgomery, TX	6,691	8,779	31.2%	-	-	-	430	770	79.1%	-	-	-
Moore, TX	-	-	-	2,836	3,239	14.2%	-	-	-	305	291	-4.4%
Morris, TX	-	-	-	2,030	2,084	2.7%	-	-	-	246	337	36.9%
Motley, TX	-	-	-	63	63	-	-	-	-	2	1	-44.4%
Nacogdoches, TX	4,515	4,661	3.2%	-	-	-	163	189	16.5%	-	-	-
Navarro, TX	-	-	-	2,767	2,757	-.4%	-	-	-	261	286	9.8%
Newton, TX	-	-	-	914	716	-21.7%	-	-	-	38	43	11.4%
Nolan, TX	922	781	-15.3%	-	-	-	164	143	-12.3%	-	-	-
Nueces, TX	12,002	10,098	-15.9%	-	-	-	1,248	1,620	29.8%	-	-	-
Ochiltree, TX	-	-	-	113	103	-8.8%	-	-	-	75	91	20.7%
Oldham, TX	-	-	-	6	10	66.7%	-	-	-	7	15	136.4%
Orange, TX	6,836	5,280	-22.8%	-	-	-	449	447	-.5%	-	-	-
Palo Pinto, TX	1,408	1,543	9.6%	-	-	-	122	87	-28.5%	-	-	-
Panola, TX	-	-	-	1,105	1,191	7.8%	-	-	-	294	457	55.4%
Parker, TX	2,824	2,241	-20.6%	-	-	-	401	711	77.1%	-	-	-
Parmer, TX	-	-	-	1,826	1,932	5.8%	-	-	-	137	182	33.1%
Pecos, TX	146	103	-29.5%	-	-	-	29	23	-23.%	-	-	-
Polk, TX	1,998	1,952	-2.3%	-	-	-	240	372	55.2%	-	-	-
Potter, TX	-	-	-	7,923	7,085	-10.6%	-	-	-	1,266	1,127	-11.%
Presidio, TX	-	-	-	29	34	17.2%	-	-	-	21	20	-6.3%
Rains, TX	-	-	-	225	170	-24.4%	-	-	-	7	11	42.6%
Randall, TX	-	-	-	1,733	1,958	13.%	-	-	-	254	255	.3%
Reagan, TX	-	-	-	24	32	33.3%	-	-	-	66	64	-2.5%
Real, TX	-	-	-	34	32	-5.9%	-	-	-	2	4	90.9%
Red River, TX	-	-	-	1,188	1,044	-12.1%	-	-	-	20	20	-.7%
Reeves, TX	259	1,116	330.9%	-	-	-	129	103	-20.8%	-	-	-
Refugio, TX	42	35	-16.7%	-	-	-	44	34	-23.8%	-	-	-
Roberts, TX	-	-	-	5	8	60.%	-	-	-	-	-	-
Robertson, TX	-	-	-	624	538	-13.8%	-	-	-	47	40	-16.6%
Rockwall, TX	-	-	-	1,299	1,845	42.%	-	-	-	552	968	75.2%
Runnels, TX	-	-	-	1,435	1,203	-16.2%	-	-	-	70	71	.7%
Rusk, TX	1,864	2,284	22.5%	-	-	-	310	285	-8.2%	-	-	-
Sabine, TX	-	-	-	667	843	26.4%	-	-	-	72	84	16.6%
San Augustine, TX	-	-	-	253	278	9.9%	-	-	-	80	103	29.1%
San Jacinto, TX	293	302	3.1%	-	-	-	118	203	71.6%	-	-	-
San Patricio, TX	2,175	2,792	28.4%	-	-	-	101	85	-15.9%	-	-	-
San Saba, TX	-	-	-	126	60	-52.4%	-	-	-	24	26	6.3%
Schleicher, TX	-	-	-	16	22	37.5%	-	-	-	15	15	-4.2%
Scurry, TX	-	-	-	366	442	20.8%	-	-	-	100	95	-4.8%
Shackelford, TX	-	-	-	61	32	-47.5%	-	-	-	7	8	5.7%
Shelby, TX	-	-	-	2,719	2,630	-3.3%	-	-	-	425	360	-15.3%
Sherman, TX	-	-	-	20	64	220.%	-	-	-	13	13	3.%
Smith, TX	-	-	-	12,827	11,182	-12.8%	-	-	-	709	944	33.1%
Somervell, TX	-	-	-	142	251	76.8%	-	-	-	94	89	-5.3%
Starr, TX	-	-	-	111	140	26.1%	-	-	-	186	280	50.5%
Stephens, TX	-	-	-	475	646	36.%	-	-	-	89	76	-14.1%
Sterling, TX	-	-	-	5	9	80.%	-	-	-	10	5	-52.2%
Stonewall, TX	-	-	-	22	12	-45.5%	-	-	-	21	19	-8.%

Exhibit 5.22-1 (Continued)

County	Manufacturing						Transportation/Warehousing					
	On Selected Corridor			Not On Selected Corridor			On Selected Corridor			Not On Selected Corridor		
	1994	2004	Percent Change	1994	2004	Percent Change	1994	2004	Percent Change	1994	2004	Percent Change
Sutton, TX	14	30	114.3%	-	-	-	51	31	-38.2%	-	-	-
Swisher, TX	-	-	-	216	156	-27.8%	-	-	-	78	67	-14.2%
Taylor, TX	3,966	3,659	-7.7%	-	-	-	523	587	12.2%	-	-	-
Terrell, TX	-	-	-	11	12	9.1%	-	-	-	7	3	-60.%
Terry, TX	-	-	-	76	88	15.8%	-	-	-	52	55	6.1%
Throckmorton, TX	-	-	-	21	20	-4.8%	-	-	-	22	18	-16.1%
Titus, TX	-	-	-	4,410	7,454	69.%	-	-	-	61	62	.3%
Tom Green, TX	-	-	-	5,687	4,806	-15.5%	-	-	-	279	309	11.%
Trinity, TX	-	-	-	431	335	-22.3%	-	-	-	49	72	47.2%
Tyler, TX	-	-	-	941	504	-46.4%	-	-	-	128	134	4.9%
Upshur, TX	-	-	-	820	1,180	43.9%	-	-	-	99	134	35.5%
Upton, TX	-	-	-	34	27	-20.6%	-	-	-	34	29	-14.9%
Uvalde, TX	-	-	-	786	675	-14.1%	-	-	-	101	119	17.6%
Val Verde, TX	-	-	-	401	624	55.6%	-	-	-	271	501	85.1%
Van Zandt, TX	-	-	-	471	407	-13.6%	-	-	-	409	457	11.9%
Victoria, TX	3,282	3,371	2.7%	-	-	-	423	586	38.4%	-	-	-
Walker, TX	-	-	-	1,692	1,552	-8.3%	-	-	-	85	106	24.9%
Waller, TX	1,665	2,235	34.2%	-	-	-	69	101	46.7%	-	-	-
Ward, TX	126	90	-28.6%	-	-	-	80	55	-31.%	-	-	-
Washington, TX	-	-	-	2,644	3,013	14.%	-	-	-	44	86	93.6%
Webb, TX	1,752	2,065	17.9%	-	-	-	3,578	5,848	63.4%	-	-	-
Wharton, TX	1,851	2,260	22.1%	-	-	-	238	230	-3.1%	-	-	-
Wheeler, TX	-	-	-	43	54	25.6%	-	-	-	45	21	-52.1%
Wichita, TX	-	-	-	7,933	9,127	15.1%	-	-	-	760	598	-21.3%
Wilbarger, TX	-	-	-	680	1,031	51.6%	-	-	-	33	33	-1.5%
Willacy, TX	138	98	-29.%	-	-	-	155	176	13.%	-	-	-
Williamson, TX	7,356	10,669	45.%	-	-	-	320	652	104.%	-	-	-
Wilson, TX	-	-	-	255	423	65.9%	-	-	-	100	193	92.%
Winkler, TX	-	-	-	35	26	-25.7%	-	-	-	32	25	-21.%
Wise, TX	-	-	-	1,324	2,121	60.2%	-	-	-	743	1,275	71.5%
Wood, TX	-	-	-	1,181	872	-26.2%	-	-	-	118	116	-2.%
Yoakum, TX	-	-	-	81	63	-22.2%	-	-	-	188	141	-24.7%
Young, TX	-	-	-	1,122	1,080	-3.7%	-	-	-	120	138	14.9%
Zapata, TX	-	-	-	14	34	142.9%	-	-	-	24	21	-13.1%
Zavala, TX	-	-	-	374	333	-11.%	-	-	-	63	82	30.1%
Total	302,703	310,494	16.7%	200,679	201,002	na	31,245	45,266	26.3%	22,954	29,385	na
Total Number of Counties	76	na	na	172	na	na	76	na	na	172	na	na
Weighted Annual Average Percent Change	na	na	1.01%	na	na	0.73%	na	na	5.49%	na	na	4.13%

Source: AECOM Consult, Inc., BEA, and Woods & Poole

5.22.2 Example of Employment Growth Resulting From Improved Transportation Infrastructure

One potential benefit of increased transportation investment along the Ports to Plains Corridor is increased manufacturing employment. An example of that may be employment growth associated with auto supplier establishments supporting the newly announced Toyota auto assembly plant in San Antonio. Because the Ports to Plains Corridor is within close proximity to the San Antonio plant, it can be expected that a number of auto parts suppliers may consider the existing Corridor as a location for an establishment to serve Toyota or other suppliers. Improved transportation infrastructure will enhance the Corridor's attractiveness.

This section will outline a methodology to estimate the number of auto supplier establishments that may locate in the Ports to Plains Corridor to provide services to the new Toyota auto assembly plant in San Antonio. Further, this section will also estimate the number of additional suppliers that may locate in the project Corridor with the proposed improvements in transportation infrastructure.

This section will begin by describing the new Toyota auto assembly plant in San Antonio. Then, characteristics of counties in selected southeastern states currently containing auto suppliers will be described. More specifically, this section will use regression analysis to understand some of the factors that are associated with the location of auto suppliers. That analysis will be conducted on all counties in the states of Alabama, Georgia, and Mississippi. These states were selected because, as relatively new entrants to the auto industry, the pattern of auto suppliers in these areas might better approximate that which could be expected in Texas. The results of this analysis will be employed to estimate the number of establishments that might locate along the Ports to Plains Corridor if transportation

infrastructure were to be improved in the Corridor. Finally, the estimate of new establishments attributable to improved transportation infrastructure will be translated into employment based on historic establishment sizes.

It is important to note that current estimates for the completion of transportation improvements along the Ports to Plains Corridor are beyond the time frame in which suppliers would likely locate in Texas to support the new San Antonio auto assembly plant. Therefore, it is unlikely that increases in an initial wave of auto suppliers could be attributable to improved transportation infrastructure. However, it is believed that the results shown below are indicative of that, which might occur as future increases in output in the San Antonio plant require additional auto suppliers to locate in the area. For example, as current production levels at the San Antonio plant are increased, additional suppliers may expand or relocate to the area. Those suppliers would likely view the Ports to Plains Corridor as a more attractive location if it were to have improved transportation infrastructure.

5.22.3 Description of the Toyota Auto Assembly Plant at San Antonio

In February 2003, Toyota announced that it would locate its sixth North American auto assembly plant in San Antonio, Texas. The total investment in that plant has been reported as being $800 million and plant payroll has been estimated to be between $80 and $100 million annually. At full capacity, Toyota is expected to employ 2,000 workers and the building of the plant is expected to generate 2,100 construction jobs.[65] The new auto assembly plant is expected to produce 150,000 Toyota Tundras annually beginning in the fall of 2006 to meet increasing demand for light trucks in the North American market. Relative to other Toyota auto assembly plants in North America, production at the San Antonio plant is relatively small. At Toyota's largest auto assembly plant in Georgetown, Kentucky, 438,426 units were produced in 2003. An additional 320,860 units were produced in Fremont, California in that year. In Evansville, Indiana and Ontario, Canada, 291,530 and 227,543 units were produced in 2003, respectively.

Although 19 other locations in Alabama, Arkansas, Mississippi, and Tennessee were considered, the location for the new facility was ultimately decided between Marion, Arkansas and San Antonio, Texas. Reasons reported for the final selection of a San Antonio location were availability of land with existing water, sewer, gas, and electric service nearby, the addition of a rail spur funded by state government, proximity to interstate and state highways, state and local economic development incentives, a large labor pool, proximity to large auto parts suppliers in Mexico, and an opportunity to train workers at local community colleges.

The San Antonio auto assembly plant is located 15 miles south of downtown San Antonio. Included in the plant's 2000 acres is space for larger suppliers to locate. In fact, it has been announced that at least ten suppliers investing $100 million in building and equipment and employing 1,000 workers will locate on the plant property. The location of this number of auto supplier establishments on plant property has not previously occurred at any other North American auto assembly facility.

Estimates for the total employment benefit generated by the San Antonio auto assembly plant have varied. Officials from the University of Texas at San Antonio estimated that employment benefits associated with the new facility would be 7,300 jobs, including the 2,000 jobs at the facility. More recently, officials from the Federal Reserve Bank of Dallas have estimated that the employment benefit would total approximately 4,000 jobs including jobs at the facility. The significantly lower estimate reported by Federal Reserve officials was attributed to a fewer number of suppliers relocating to the area. Federal Reserve officials suggest that fewer suppliers will locate in the area because they may find locations in nearby states more profitable and that the San Antonio plant may receive supplies from existing Mexican manufacturers.

[65] Investment, wages, and employment associated with the Toyota auto assembly plant in San Antonio were obtained from Ward's Auto World and San Antonio Express News.

There are several characteristics that may limit the extent to which suppliers to the San Antonio auto assembly plant will locate in the Ports to Plains Corridor. First, it has been demonstrated that suppliers frequently locate along transportation networks between auto assembly plants thereby maximizing their market and production opportunities. Locations of other auto assembly plants in Arlington, Texas; Shreveport, Louisiana; Oklahoma City, Oklahoma; and in other southeastern states likely make locations north and east of San Antonio more favorable for supplier locations. Second, unique to the San Antonio auto assembly plant is that many suppliers will locate on plant property. That distinction will result in fewer suppliers locating elsewhere in the state. Third, with production levels at the San Antonio auto assembly plant being smaller than Toyota's other plants, suppliers may delay relocation or expansion to that area until increases in production occur. Finally, proximity to the Mexican border will enable the San Antonio plant to receive supplies from auto suppliers in Northern Mexico. The location of those existing suppliers within a few hours of San Antonio will likely diminish the total number of new suppliers locating in Texas.

Toyota has indicated that it will not require suppliers to locate in San Antonio. Among counties actively pursuing suppliers are Corpus Christi, Georgetown, New Braunfels, San Marcos, Seguin, Schertz, and Victoria. Suppliers may begin announcing their location decisions in September 2005. The remainder of this section will discuss the possibility that auto suppliers may locate in the Ports to Plains Corridor and estimates the number of those establishments that could be attributable to improved transportation infrastructure.

5.22.4 Location Characteristics of Auto Suppliers in the Southeast

Previous research suggests that among the characteristics sought by auto suppliers when locating a new facility is a location with good transportation access to the auto assembly plant and to other suppliers.[66] Other research suggests that labor force characteristics such as skilled labor availability and wage levels also play a significant role in auto supplier site decisions.[67] To determine if these characteristics appeared to have influenced the location of auto suppliers in the selected southeastern states, a comparison was conducted on counties in that area with auto supplier establishments and those without.

The comparison was conducted on each county in the states of Alabama, Georgia, and Mississippi. It is important to note that because of differences in their economies associated port activities, coastal counties in those southeastern states were omitted from this analysis.

Comparing the characteristics of auto supplier locations described above was accomplished by first collecting the number of auto suppliers in each county for each of the selected southeastern states. The total number of establishments located in each county was obtained by adding all establishments in North American Industrial Classification System (NAICS) codes 3361, 3362, and 3363, which represent motor vehicle manufacturing, motor vehicle body & trailer manufacturing, and motor vehicle parts manufacturing. Having collected the number of establishments in each county, measures were selected to determine if access to transportation infrastructure, access to skilled labor, and access to relatively inexpensive labor costs appeared to be important determinants in location decisions for auto suppliers in those states. As a measure for transportation access, four-lane road mileage was collected for each county in the selected southeastern states. As a measure of the availability of a skilled labor force, the percent of adults with a high school degree or higher was obtained. As a measure of labor costs, total manufacturing wages per dollar of manufacturing value added was collected for each county.

Having collected data for each of those variables, the counties in Alabama, Georgia, and Mississippi were separated into two groups: those that contained at least one auto supplier and those that did not

[66] Dr. Thomas Klier of the Federal Reserve Bank of Chicago in a 2000 study entitled *Does 'Just- In-Time' Mean 'Right Next Door'? Evidence from the Auto Industry on the Spatial Concentration of Supplier Networks*, concluded that access to excellent transportation infrastructure outweighed the need for proximity to the assembly plant.

[67] A 1999 study produced by the University of Tennessee's Center for Business research *entitled The Location Decision of Automotive Suppliers in Tennessee and the Southeast* stated that labor force characteristics, along with access to markets, were the most significant factors in site selection.

contain any. Then, averages for each of the variables described above were compared for those variables. The results of that comparison are displayed in Exhibit 5.22-2.

Exhibit 5.22-2: Comparison of Counties in Southeastern States with and without Auto Suppliers

	Counties with One or More Auto Supplier Establishment	Counties without Any Auto Supplier Establishment
Average Four-Lane Road Mileage	31.6	12.9
Average High School Graduates as a Percent of All Adults	71.0%	67.6%
Average Wages Per Dollar of Value Added in Manufacturing	$0.258	$0.280

Source: Bureau of Economic Analysis, Census Bureau, County Business Patterns 2001, and Map Quest, Inc.[68]

In 2001, there were 497 auto supplier establishments in the 297 counties of Alabama, Georgia, and Mississippi.[69] A review of the locations of those establishments supported the idea that auto suppliers sought locations with good transportation access and access to a skilled and relatively inexpensive labor force. In fact, in counties with at least one auto supplier, the average four-lane road mileage was 31.6 miles versus an average of 12.9 miles in counties without any auto supplier establishments. Similarly, the percent of adults with a high school degree or higher in counties with at least one auto supplier was 71.0 percent while the comparable figure for counties without an auto supplier was 67.6 percent. Finally, labor costs, as measured by the cost of wages per dollar of value added, was lower in counties with at least one auto supplier.

These finding do not suggest that good access to transportation, and skilled, relatively inexpensive labor markets necessarily cause increases in auto supplier establishments. They do however suggest that there is a relationship between those variables and the number of auto suppliers that are located in each county.

Using data from the counties of the selected southeastern states, this section will identify some of the determinants of auto supplier locations. Understanding how those factors influence location decisions will enable an estimate of the number of auto suppliers that may locate in the Ports to Plains Corridor in response to the opening of the Toyota auto assembly plant. More importantly, this analysis will provide an estimate of the increase in the number of auto suppliers that would be associated with improved transportation infrastructure in the project Corridor.

The determinants of auto supplier locations in the selected southeastern states were identified by regressing the number of auto supplier establishments in each county on the variables described above with two alterations. First, the variable measuring labor costs (wages as a percent of value added in manufacturing) was omitted because of a large number of missing elements. The second modification involved the inclusion of a binary or "dummy" variable to control for proximity to an auto assembly plant. Current literature suggests that, because of just-in-time manufacturing methods, suppliers typically desire to be in some close proximity to their respective auto assembly plant customers. For example, it has been reported that more than half of suppliers for Toyota's Georgetown, Kentucky plant are within 150 to 200 miles of that plant.[70] A review of the location of auto suppliers in the selected southeastern states demonstrated that a large majority of those suppliers are within 150 miles of an auto assembly plant. In fact, 88.7 percent of all auto suppliers in Alabama, Georgia, and Mississippi are within 150 miles of an auto assembly plant. Because of these findings, a dummy variable taking

[68] Average four-lane mileage was calculated based on data from Map Quest for 2004. Educational attainment data were from the 2000 Census. The actual measure used was percent of all persons 25 years and over having attained a high school degree. Data for average wages per dollar of value added in manufacturing were from the 1997 Economic Census. For approximately 23 percent of the counties in the sample, those data were not available due to disclosure.

[69] There are actually 309 counties in that area, however, the exclusion of coastal counties reduced the total number of counties to 297.

[70] Based on data from the Japanese Automotive Supplier Investment Directory as reported in *The Location Decision of Automotive Suppliers in Tennessee* and the Southeast.

the value of one for a county within 150 miles of an auto assembly plant and zero for all other counties was included in the regression analysis. The results of this analysis are displayed in Exhibit 5.22-3. Despite the omission of a variable measuring labor costs, the model has relatively high explanatory power (adjusted R^2 = .409).

Exhibit 5.22-3: Regression Results

	Coefficient	t-Statistic
Total Four-Lane Mileage	0.0598	11.22
High School Graduates as a Percent of All Adults	4.9668	2.79
Proximity Within 150 miles of an Auto Plant	0.6112	2.34

Source: AECOM Consult, Inc.
Note: The dependent variable was number of auto supplier establishments. Adjusted R2 = .409. n = 297.

The coefficient for each variable appears appropriate in both sign and magnitude. As would be expected, increases in total four-lane mileage in a county are associated with increases in the number of auto suppliers that have located in that county. In fact, the coefficient for total four-lane highway mileage of 0.0598 can be interpreted as saying that for each 1 mile increase in four-lane highway mileage, an increase of 0.0598 supplier establishments was observed. In other words, for each increase of 16.8 miles in four-lane highway mileage, an increase of one supplier establishment was observed. Similarly, relationships were observed for educational attainment and proximity to an auto plant. Counties that had higher high school graduation rates were associated with higher numbers of auto suppliers. Also, counties within 150 miles of an auto supplier were associated with higher numbers of auto suppliers. The coefficient for total four-lane mileage will be used to estimate the number of additional auto suppliers that might be expected to locate in the Texas portion of the Ports to Plains Corridor in response to improved transportation infrastructure.

5.22.5 Estimating the Number of Auto Suppliers Locating in the Ports to Plains Corridor

Previously, it was suggested that increased transportation access would be perceived as more desirable by auto suppliers considering relocation to the Ports to Plains Corridor to serve the Toyota auto assembly plant. Given the regression analysis results discussed above, it is possible to estimate the increase in the number of auto suppliers in the project Corridor that might occur as a result of transportation infrastructure improvement. That estimation is conducted and is described below.

Before proceeding it is important to note that the estimates generated using the regression coefficients described above were adjusted for several characteristics of the San Antonio auto assembly plant. Specifically, there are several reasons to believe that the number of suppliers locating in West Texas as a result of the San Antonio plant might be fewer than the regression coefficients suggest. For example, the San Antonio plant is smaller than other North American Toyota auto assembly plants. With initial output being 150,000 units per year, the San Antonio plant would produce approximately 47 percent of the number of units produced by other North American auto assembly plants.[71] That small size will likely reduce the number of suppliers required to provide inputs into assembly and may encourage larger suppliers to provide services from existing locations until that plant increases its capacity.[72] Also, empirical evidence demonstrates that some share of suppliers locate in excess of 400 miles form their customers. For example, 24 percent of suppliers serving the Toyota plant in Kentucky are located more than 400 miles from that facility.[73] A supplier locating more than 400 miles form the San Antonio plant would likely not be located in Texas.

[71] Based on 2003 figures reported by Toyota, Inc. Calculations of output in San Antonio as a percent of all North American Toyota plants excluded data from Toyota's plant in California because of its status as a joint venture.
[72] Among other North American Toyota plants, a direct relationship was observed between total output in units and number of suppliers in 2003.
[73] As reported in Dr. Thomas Klier's 2000 Federal Reserve Bank of Chicago study entitled Does 'Just- In-Time' Mean 'Right Next Door'? Evidence from the Auto Industry on the Spatial Concentration of Supplier Networks.

These factors required that the estimated number of auto suppliers locating in the Ports to Plains Corridor be adjusted downward. That adjustment was conducted using several factors. First, since output at the San Antonio plant is expected to be 47 percent of the average of all of Toyota's North American auto assembly plants, the total number of suppliers was reduced by a factor of 0.47.[74] Also, location patterns of suppliers for Toyota's Kentucky plant suggest that 24 percent of all suppliers would locate more than 400 miles from the auto assembly plant. Given the fact that a 400 mile radius around San Antonio would exclude virtually all Texas counties along the Ports to Plains Corridor, the total number of supplier establishments were further adjusted by a factor of 0.76 (1-0.24, representing a downward adjustment). Combining these factors resulted in an adjustment factor of 0.3572 (0.47 * 0.76). After this adjustment, the total number of auto suppliers that may locate in the project Corridor given existing and improved transportation infrastructure was estimated. Those results are displayed in Exhibit 5.22-4.

Exhibit 5.22-4: Estimated Number of Auto Suppliers that May Locate

County	Four-Lane Mileage			Percent of Adults with High School Degree	Within 150 Miles of Toyota Plant	Adjustment Factor	Estimated Number of Plants	
	Existing	Proposed	New Total				With Existing Roadway	With Proposed Roadway
Coke	4	0	4	74.2%	0	0.3572	0.0	0.0
Dallam	3	47.1	50.1	65.0%	0	0.3572	0.0	1.0
Dawson	38	20.8	58.8	65.2%	0	0.3572	1.0	1.0
Dimmit	0	54.6	54.6	54.3%	1	0.3572	0.0	1.0
Edwards	0	10	10	67.1%	1	0.3572	0.0	0.0
Glasscock	10	30	40	69.9%	0	0.3572	0.0	1.0
Hale	38	0	38	65.9%	0	0.3572	1.0	1.0
Hartley	20	13.5	33.5	77.3%	0	0.3572	0.0	1.0
Howard	36	13	49	70.6%	0	0.3572	1.0	1.0
Kinney	0	14	14	66.9%	1	0.3572	0.0	0.0
Lubbock	33	0	33	78.4%	0	0.3572	1.0	1.0
Lynn	32	0	32	61.9%	0	0.3572	0.0	0.0
Martin	1	34	35	65.8%	0	0.3572	0.0	1.0
Maverick	0	59.7	59.7	42.1%	1	0.3572	0.0	1.0
Midland	0	28	28	79.2%	0	0.3572	0.0	1.0
Moore	32	14	46	62.1%	0	0.3572	0.0	1.0
Potter	34	0	34	71.1%	0	0.3572	1.0	1.0
Randall	34	0	34	89.5%	0	0.3572	1.0	1.0
Schleicher	0	30	30	60.4%	1	0.3572	0.0	1.0
Sherman	14	14.2	28.2	73.1%	0	0.3572	0.0	1.0
Sterling	32	14	46	70.4%	0	0.3572	1.0	1.0
Sutton	0	32.8	32.8	64.4%	1	0.3572	0.0	1.0
Swisher	34	0	34	69.7%	0	0.3572	1.0	1.0
Tom Green	20	43.3	63.3	76.2%	1	0.3572	1.0	2.0
Val Verde	0	75	75	58.7%	1	0.3572	0.0	1.0
Webb	11	34	45	53.0%	1	0.3572	0.0	1.0
Total	**426**	**582**	**1008**	**70.7%**	**na**	**0.3572**	**9.0**	**23.0**

Source: AECOM Consult, Inc., Census Bureau, Map Quest, Inc.

Based on existing four-lane mileage, educational attainment, proximity to the Toyota auto assembly plant in San Antonio, and historic location trends of auto suppliers in other southeastern states, it is estimated that 9 auto suppliers could locate in the project Corridor as the Toyota auto assembly plant became operational. However, applying the coefficient calculated above to the increased four-lane mileage resulting from improvements in the Ports to Plains Corridor would result in a higher estimate of auto suppliers. In fact, improved transportation infrastructure would have instead resulted in 23 auto suppliers locating in the project Corridor as that plant became operational for a net increase of 14 establishments. Given an estimated increase in establishments attributed to improved transportation

[74] This relationship is likely not linear, however, with three data points, a more exact factor that could be used as a control for characteristics specific to the San Antonio auto assembly plant could not be determined.

infrastructure, it is possible to convert this estimate to employment to determine total auto supplier employment associated with the improved Ports to Plains Corridor.

5.22.6 Estimating Auto Supplier Employment in the Ports to Plains Corridor

Using the estimated increase in auto supplier establishments, it is possible to estimate the increase in employment that would be associated with improved transportation infrastructure. This estimate is conducted by first reviewing the distribution of establishment sizes in other selected southeastern states and applying those trends to the increase in establishments along the project Corridor. Those calculations are conducted and are presented below.

A review of the distribution of suppliers by employment size was conducted in the states of Alabama, Georgia, and Mississippi. Again, it is believed that as relatively new entrants to the auto industry, establishment size distributions in those states would more closely approximate that, which might occur in Texas. Data on establishment sizes reviewed in this analysis were published in ranges with the smallest establishment size being one to four employees and the largest employment size being more than 1,000 employees. Because many larger suppliers are locating on Toyota's plant property, it was decided to limit this analysis to smaller auto suppliers. Specifically, it was assumed that counties on the project Corridor would only be eligible for tier two suppliers and smaller.[75] Therefore, this analysis was limited to establishments with a maximum size of 100 to 249 employees.

The distribution of establishment sizes observed in the selected southeastern states was imposed on the estimated increase in the number of establishments locating in the project Corridor as a result of infrastructure improvement. The distribution of establishments by employment size in selected southeastern states is presented in Exhibit 5.22-5. As can be seen in this exhibit, establishments employing one to four persons were the most numerous constituting 32.2 percent of all establishments examined.

Exhibit 5.22-5: Estimating Auto Supplier Employment in the Ports to Plains Corridor

Establishment Size	Distribution of Tier Two and Tier Three Auto Supplier Establishments					Assumed Distribution in Project Corridor	Estimated Employment per Establishment	Estimated Employment in Project Corridor
	AL	GA	MS	Total	Percent			
1-4	40	54	12	106	32.2%	5	2.5	13
5-9	10	18	8	36	10.9%	2	7.0	14
10-19	15	20	8	43	13.1%	2	14.5	29
20-49	22	26	11	59	17.9%	3	34.5	104
50-99	12	16	6	34	10.3%	1	74.5	75
100-249	12	21	18	51	15.5%	2	174.5	349
Total	**111**	**155**	**63**	**329**	**100.0%**	14	na	583

Source: AECOM Consult, Inc. and County Business Patterns 2001.

The observed distribution of establishment sizes in southeastern states was applied to the estimated increase in establishments resulting from improved transportation infrastructure in the project Corridor. That application suggested that the increase in auto supplier establishments in the project Corridor associated with improved transportation infrastructure would take the following distribution: five establishments with one to four employees, two establishment with five to nine employees, two establishments with 10 to 19 employees, three establishments with 20 to 49 employees, one establishment with 50 to 99 employees, and two establishments with 100 to 249 employees. Using a midpoint from each employment range, it was possible to aggregate the total number of employees across establishment sizes to determine a total employment estimate. It is estimated that the increase

[75] Tier one suppliers typically have 200 or more employees and provide inputs directly to the auto assembly plant. Tier two suppliers typically have between 50 and 200 employees and provide inputs to tier one suppliers. Tier three suppliers typically have less than 50 employees and provide inputs to tier one and two suppliers.

in auto supplier employment resulting from improved transportation infrastructure would be approximately 583 employees.

As described earlier, it is unlikely that current scheduling regarding completion of the Ports to Plains Corridor would be in time to encourage additional auto suppliers to locate in the Corridor. However, this analysis serves as an example of potential economic development benefits that may result from improved transportation infrastructure. Further, it is believed that future increases in output by the Toyota assembly plant may result in increases in auto supplier establishments in Texas. An improved Ports to Plains Corridor would enable the counties in the Corridor to more capably compete for those new suppliers and would likely result in an increased number of those establishments selecting a Ports to Plains location than would have otherwise occurred. Although these increases in output are uncertain, continued population and income growth and rapid increases in output in most other southern auto assembly plants in the last decade suggest that such increases are likely.

5.23 Money Generation Model 2 (MGM2) Overview

MGM2 is an update of the National Park Service's Money Generation Model (MGM), originally developed in 1995 and currently maintained by the Department of Park, Recreation, and Tourism Resources at Michigan State University. The Money Generation Model was designed by the National Park Service as a way for national park employees to estimate the overall economic effects of their park on the local area or to evaluate a change in policy.

Since its inception, the MGM2 model has been used extensively in a variety of settings. The model has been used to estimate the economic benefits of numerous parks throughout the U.S. such as Gettysburg, Mt. Rainier, Olympic, Badlands and Great Smoky Mountains National Parks. The model has also been used to estimate the benefit of historic sites and a single exhibition at a museum. Thus, the model has been tested in a variety of applications and regions. The National Park Service is currently using the model to generate economic benefits for all National Parks in the U.S.

MGM2 economic benefit analysis measures the actual flows of money within the local economy. Non-market transactions that do not explicitly entail purchases of goods or services are not covered. Thus, important benefits such as benefits on surrounding property values, and preservation benefits are not included in the benefit analysis developed in this study.

MGM2 is an input-output based model that is designed primarily to measure the economic benefits of park visitor spending on a local region, but it can also be used to estimate benefits on states or the national economy. Although national parks can benefit the economy of a region in several ways other than visitor spending, including park operations and construction activity, MGM2 does not measure these other effects.

The model estimates the direct, indirect, and induced economic benefits of visitor spending in terms of sales, income, employment, and value added. Direct benefits are the changes in sales, income and jobs in those businesses or agencies that initially receive the visitor spending. Indirect benefits are the changes in economic activity in the firms that supply those businesses which sell directly to the visitor. Induced benefits result from household spending of income earned through a direct or indirect benefit of visitor spending.

MGM2 Inputs

The three required inputs to estimate the economic benefits of park visitor spending are the number and type of visitors, the average spending of visitors, and the economic multipliers for the study region.

Number and types (sections) of visitors

MGM2 divides visitors into distinct sections with different spending patterns. These sections include local visitors, non-local day visitors, visitors spending the night in a motel, and visitors spending the night camping.

MGM2 converts the visitation data into party nights – the number of days each party stays in the area – based on defaults for the average length of stay and the average party size. These defaults are based on surveys of national park visitors; the user can change these defaults if he has more detailed information for his specific park. In this application, the defaults were overridden to use information collected on Winter Texan behavior in other portions of the state.

Average spending for each visitor section

MGM2 covers all visitor spending in the local area. A different spending profile per party night is assumed for each section of visitors. The model provides default profiles for spending based on the type of park (natural resource based or historical) and the spending level of the visitor (high, medium, or low). The analysis for the Ports to Plains Corridor was carried out using the spending profiles for natural resource based parks that was most comparable to spending reported for Winter Texans in other portions of the state. Thus, the model was tailored to the application.

Economic ratios and multipliers for the study region

Multipliers are used to convert spending into corresponding jobs and income in the area, as well as to estimate the indirect and induced effects of visitor spending. MGM2 provides generic multipliers for variously sized regions: rural, small metro area, large metro area, and state-level and larger regions. The generic multipliers were estimated using IMPLAN Pro 2.0.[76] Models were estimated for 114 regions throughout the U.S., and the average multipliers of the group of regions in each size category were used as the generic multipliers. Given the primarily non-metropolitan character of the Ports to Plains Corridor, the small metro and rural area multipliers were used in this analysis.

[76] IMPLAN Pro is an economic impact assessment software system that allows the user to develop local level input-output models that can estimate the economic impact of new firms moving into an area, professional sports teams, recreation and tourism, and many more activities.

Finance Plan
Supporting Technical Analysis

APPENDIX B

Table of Contents

6.1 Detailed Finance Scenarios

This discussion presents detailed descriptions of the three finance plan scenarios developed for the Ports to Plains Corridor, and for each of the sponsor states along the Corridor. This includes the assumptions for each scenario and detailed estimates of the sources and uses of funds for the overall Corridor and for those portions in each state. The detailed estimates of funding by state are based solely on the funding assumptions and do not account for the relative benefits associated with each program beneficiary by state or their ability and willingness to provide a certain level of funding. This can only be determined through discussions and negotiations with the major stakeholders along the Corridor as the program is further developed.

6.1.1 Finance Plan Assumptions

Financial planning for the Corridor Development and Management Plan (CDMP) is based on the following assumptions:

- This is a program-driven financial analysis wherein the full costs of the program are assumed to be funded by whatever sources and methods are defined by the scenario.

- All capital expenditures are assumed to occur during the first 20 years of the corridor development plan. The only exception is for Intelligent Transportation Systems (ITS) facilities and equipment, whose costs are incurred throughout the full 25-year development timeframe.

- Only eligible funding sources and financing methods that are appropriate for the kinds of projects comprising the Ports to Plains CDMP are considered in developing alternative finance plans for each state along the corridor.

- The outcome of the finance scenarios in each state finance plan is the level of program funding which the state is responsible for, given the levels of federal, local, and private funding assumed for each plan by scenario.

- Capital expenditures for the CDMP are staged so that the level of investment by each state is approximately the same in each of the construction phases, except for those sections in which the sponsoring state has already committed the funding through special funding programs.

- The costs for project development (design, environmental clearance, right-of-way acquisition, and construction) occur in the first 20 years of the program, whereas the costs of preservation, maintenance, and operations occur throughout the entire 25-year program timeframe.

- The maintenance and operations (M&O) costs of the program represent the change in costs between what would have been spent without the corridor improvement and what will be required with the improvements made (i.e., with more lane-miles to maintain and operate, the M&O costs increase with completion of more project sections). In some instances, capital improvements defer the costs of M&O and preservation by several years, resulting in a cost savings in those years.

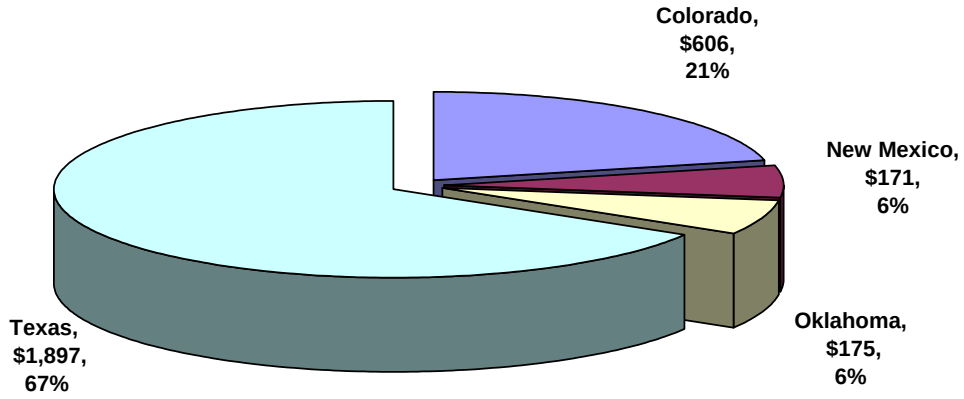
- Since this is a program-driven finance plan in which all capital improvement projects are scheduled to be completed over the period 2006-2025, there is no need or advantage in using debt to finance any portion of the program costs in order to expedite their availability. Instead, the use of pay-as-you-go financing avoids debt service costs.

6.1.2 Alternative Finance Scenarios

The total life-cycle cost of the CDMP is projected to be $2.87 billion (in 2004 dollars). Exhibit 6.1-1 shows the breakdown of Corridor life-cycle costs (in 2004 dollars) between the participating states, assuming full build out of the program. It is uncertain the extent to which the sponsoring states will be able to attract sufficient funding commitments from the federal government, local governments, and private stakeholders to complete the improvements in the CDMP. To account for this uncertainty, three

finance scenarios were developed to provide a range of possible funding commitments from primary Corridor stakeholders.

Exhibit 6.1-1 Total Program Costs by State
Base Year (2004 Dollars in Millions)



Source: AECOM Consult, Inc.

The three finance scenarios postulated for the study include the following:

- **Scenario 1** – this scenario consists of traditional funding sources and financing methods with reliance entirely on federal and state highway program resources.

- **Scenario 2** – this scenario consists of a combination of traditional and alternative funding sources to extend federal and state highway program resources, including federal earmarks and discretionary grant funds and modest funding participation by local and private stakeholders.

- **Scenario 3** – this scenario consists of an increasing level of alternative funding sources to further leverage available federal and state highway program resources, based in part on a higher level of federal earmarks and discretionary grant funds and increased funding participation by local and private stakeholders.

The level of funding by potential source associated with each of these scenarios is based on the following assumptions:

- **Federal-Aid Highway Program Funding -** would come primarily from the National Highway System (NHS) Program. NHS funding for capital and preservation purposes is capped at 80 percent of eligible project costs, with the remaining 20 percent match coming from state and local sources. For the purposes of this study, federal participation for Ports to Plains Corridor improvement projects is capped at 60 percent for all funding scenarios, plus whatever earmarks and discretionary grants are assumed. This reflects the need to keep the percentage of federal moneys at or below 80 percent for the combined amount, including Congressional earmarks and discretionary grants. It also recognizes that the CDMP will be competing with many other similar projects with varying level of priority, based on their current levels of congestion, safety, economic development potential, and other considerations. A lower federal percentage is viewed favorably by budget analysts responsible for programming projects at both the federal and state levels, especially if the lower percentage can be offset by local and private sector financial involvement.

- **Congressional Earmarks and Discretionary Grants** - provide direct funding for projects of special interest to members of Congress. As noted earlier, there are several federal discretionary

grant programs with applicability to the Ports to Plains Corridor, including the Coordinated Border Infrastructure Program and the National Corridor Planning & Development Program (CORBOR). These two programs are aimed at enhancing the development of high priority corridors throughout the US and border regions near Canada and Mexico. Ports to Plains is one of the eligible corridors to receive federal discretionary funding support under CORBOR. Program discretionary grants add federal-aid funds to a state's highway program, while Congressional earmarks take part of a state's allocated federal-aid highway trust funds and designate them for specific projects, thereby reducing the amount of federal-aid funds available for other programs or projects.

For the purposes of this study, the estimated level of federal earmark and discretionary funds is zero for Scenario 1, 10 percent for Scenario 2, and 20 percent for Scenario 3. This is based on the level of Ports to Plains-related project earmarks contained in the current U.S. House version of reauthorization legislation for the Highway Trust Fund (HTF) known as TEA-LU (Transportation Equity Act: A Legacy for Users) . This amounts to $53.8 million for the Ports to Plains Corridor projects listed in Exhibit 6.1-2 over a six-year period, which are on the Corridor. If one assumes that this level of earmarked funding can be sustained over the 25-year program timeframe and an extra twenty-five percent is added to account for other discretionary grants programs like CORBOR for which the Ports to Plains Corridor program is eligible, this represents about ten percent of the total improvement cost of $2.87 billion in 2004 dollars. The higher level of earmarks and discretionary grants included in Scenario 3 reflects the possibility for more funding to be designated for the program under future reauthorization legislation. Scenario 1 reflects the case of no earmarks or discretionary grant funds being designated by Congress to the Ports to Plains Corridor projects.

- **Committed Federal and State Funding** of specific Ports to Plains project sections represents the level of funding already committed by states for these projects in the timeframe in which they are currently planned. No further project funding commitments are assumed beyond this level. In Texas and Oklahoma, 80 percent of committed funding is from federal sources with the remaining 20 percent from the Texas Trunk System and Oklahoma Construction Work Plan, respectively. In New Mexico, 100 percent of committed funds are from Governor Richardson's Investment Partnership (GRIP). In Colorado, no funds have been committed to the program by CDOT, partially due to the lack of adequate sales tax revenues to produce funds for a special highway project funding program called the 7th Pot. This is consistent with Exhibit 6.1-3.

Exhibit 6.1-2 Federal Earmarks for Ports to Plains Corridor Sections Proposed in TEA-LU

Ports to Plains Corridor Section	State	Earmark
US 287 form Oklahoma state line to Limon, reconstruct highway with concrete and create two-lane super highway	Colorado	$3 million
Improvements to US 87 from Raton to Clayton	New Mexico	$2 million
Improvements to National Highway Priority Corridor #38 from the Oklahoma border south through Amarillo	Texas	$14 million
Lamesa Relief Route, US 87 north to near US 180	Texas	$6.5 million
SH 349 construction south of Lamesa from intersection of SH 137	Texas	$4 million
US 87 Big Spring Relief Route	Texas	$16 million
SH 158 form US 87 north of Sterling City to 9.5 miles west	Texas	$1.5 million
Reconstruction of US 277 and curb and gutter from the San Felipe Bridge to the approach on Sycamore Creek Bridge in Del Rio	Texas	$6.8 million
	Total	**$53.8 million**

Exhibit 6.1-3 State Funding Programs for Committed and All Other Projects

	General Highway Program	Special Highway Program
Committed Project Funding	Texas Trunk System Oklahoma Construction Work Plan	New Mexico GRIP
All Other Project Funding	State Highway Programs	Colorado 7th Pot Texas Mobility Fund

- **Maintenance and Operations Funding** is assumed to come exclusively from the state transportation agencies responsible for Ports to Plains Corridor highways.

- **Toll Credits** enable states to increase the proportion of project costs that are eligible for federal funding by substituting for the traditional state/local match. While not a direct source of funding, toll credits free up state and local funds for projects that do not require federal funding or have federal requirements attached to them. This can generate potential project savings for those states which can use toll credits. Among the Ports to Plains states, Texas, Oklahoma, and Colorado are eligible toll credits they have accrued. Oklahoma uses its toll credits to establish 100% federal match for all of its federally-funded projects. Among these three states, only Colorado has yet to request the use of toll credits from the Federal Highway Administration. This is a potential but very modest funding (cost reduction) source for the Ports to Plains Corridor improvement plan and amounts to from zero to 2 percent of the program capital costs, depending on the funding scenario.

- **Local Funding** occurs when a community elects to participate in the financing of a highway project that is perceived to benefit the community, through reduced congestion, improved safety, increased economic development, and/or higher property values. Local funding can take the form of general funds, shadow tolls, or some kind of tax assessment or fee that applies to those businesses or property owners who directly benefit from the accessibility or safety improvements provided by the project. For the purposes of this study, the level of local government funding ranges from zero to up to 2 percent of the program capital costs, depending on the funding scenario.

- **Right-of-Way Donations** from local governments or private sector groups interested in the Ports to Plains Corridor Plan are based on the cost of land required for relief roads, which are located closest to more urbanized communities whose development community may have the greatest interest and benefits from the projects. The level of donation ranges from zero to 100 percent of the costs of ROW needed for the relief route projects, depending on the funding scenario.

- **Bridge Toll Revenue Sharing** is based on the cost of a project section built specifically to serve a tolled facility not on the Ports to Plains Corridor, whose toll revenues would likely be increased by the added traffic generated by the improved accessibility. An example of this along the Ports to Plains Corridor is the relief route to the Eagle Pass International Bridge, which is a toll bridge border crossing. If this improvement will enhance the attractiveness of the Eagle Pass toll bridge to automobiles and trucks traveling across the Mexican border, it could be argued that a modest level of shared funding could be provided out of the toll proceeds from the bridge. In this study, a shared funding level ranges from zero to 10 percent of the capital cost of this one section, depending on the funding scenario.

- **Railroad Cost Sharing of Grade Separations** is based on the premise that both highway and railroad users benefit from the construction of grade separation facilities due to lower operating costs and increased safety for both groups. Therefore, it is assumed that there might be sharing of these costs between the state transportation agencies and the operating railroads where the Ports to Plains Corridor highway and railroad main lines cross each other. For the purposes of this study, the level of railroad cost sharing is assumed to be from zero to 50 percent of the capital cost of these facilities, depending on the funding scenario.

- **Utility easement funds** represent revenues generated from providing access along corridor rights-of-way to private telecommunications, pipeline, and power companies. While this practice has declined since the late 1990s with the retrenchment of the telecommunications industry, there still may be potential for this along the Ports to Plains Corridor that should be explored. For the purposes of this study, the revenue potential of this funding source ranges from zero to up to 2 percent of the program capital costs, depending on the funding scenario.

The assumptions associated with the three finance plan scenarios are summarized in Exhibit 6.1-4.

Exhibit 6.1-4 Summary of Funding Assumptions for Finance Scenarios

FUNDING SOURCE	Scenario 1	Scenario 2	Scenario 3
FEDERAL GOVERNMENT			
Federal Aid Highway Program -- Capital Projects	60%	60%	60%
Federal Earmarks & Discretionary Programs	0%	10%	20%
Federal Aid Highway Funds -- Preservation Projects	60%	60%	60%
STATE GOVERNMENTS			
State Transportation Funds	Derived	Derived	Derived
State Committed Transportation Funds	As Funded	As Funded	As Funded
Toll Credits (Except New Mexico, 0%)	0%	1%	2%
LOCAL GOVERNMENTS			
Local Funds	0%	1%	2%
PRIVATIZED OTHER FUNDS			
ROW Donation (Applies to relief routes)	0%	50%	100%
Bridge Toll Revenue Sharing (Applies to Eagle Pass south relief route)	0%	5%	10%
Railroad Funds (Applies to RR Grade Separation Projects)	0%	25%	50%
Utility Easement Funds	0%	1%	2%

Source: AECOM Consult, Inc.,

6.2 Cash Flow Results by Finance Scenario

A cash flow model, using the assumptions noted above, produced preliminary estimates of the level of state funding resources needed to potentially pay the 25-year costs of the CDMP. Based on the cash flow analysis, Exhibit 6.2-1 shows estimates of program costs attributed to each major stakeholder group in each state for the three scenarios (in Base Year 2004 dollars). This table shows how the

amount of program costs that remain the states' responsibility decreases as additional stakeholders (including federal, local, and private entities) take on more of the program costs. Detailed cash flow exhibits for all three scenarios are provided, arrayed by state.

Exhibit 6.2-1 Program Sources of Funds by Scenario
Base Year (2004 Dollars in Millions)

Funding Source	Scenario 1		Scenario 2		Scenario 3	
	Funds	% of Total	Funds	% of Total	Funds	% of Total
Federal	$1,629	57%	$1,880	65	$2,075	72%
State	$1,240	43%	$923	32%	$661	23%
Local	$0	0%	$67	2%	$133	5%
Total	$2,870	100%	$2,870	100%	$2,870	100%

Source: AECOM Consult, Inc.

According to Exhibit 6.2-1, the total level of state contribution required by the improvement program over its 25-year timeframe (including committed, uncommitted, and toll credit amounts) declines from $1,240 million for Scenario 1 to $923 million for Scenario 2 and $661 million for Scenario 3. This represents a decline in state funding responsibility, relative to Scenario 1, of 26 percent for Scenario 2 and 47 percent for Scenario 3. These changes reflect the effects of alternative funding sources on the program's finance plan and the need for state highway program funds.

Among the most significant alternative funding sources are federal earmarks and discretionary grant programs. The level of funding designated to the Ports to Plains Corridor from these sources is problematic since it depends on the influence and interest of Congressional sponsors. However, both sources can offer significant assistance to unique programs such as the CDMP. The success of each state in securing funding commitments through these two sources depends on the merits of the program and the ability of each state's congressional delegation to petition for and secure these funds through legislative action.

Given the uncertainty in the level of funding that might be forthcoming to the CDMP from these two sources through the next four HTF reauthorizations (24 years), a wide range of funding is considered among the scenarios. The range is from no funding in Scenario 1 to $465 million in Scenario 3 (in Base Year 2004 dollars). This represents up to 16 percent of the total program costs over its 25-year timeframe for Scenario 3 and a large component of the difference in state and federal funding between the three scenarios.

Other alternative funding sources, including various local (public and private) stakeholders, represent far less funding opportunities for the improvement program, due to the nature of the program and the lack of a dedicated revenue source (such as tolling, for which this program is not appropriate). Collectively, these local funding sources are estimated to provide up to 5 percent of the total improvement costs over its 25-year timeframe.

The proportion of uncommitted state funding reduces from 38% for Scenario 1 to 27% for Scenario 2 and 18% for Scenario 3. Scenario 3 provides the greatest potential for leveraging state highway funds over the 25-year program timeframe among the three scenarios considered since it contains the highest level of alternative funding.

Scenarios 1 and 3 provide a range of funding involvement from non-traditional sources that bound the level of state and federal contributions to the program. This range reflects the high and low estimates of non-traditional funding for the improvement program, with Scenario 2 representing the more likely level of involvement by these alternative funding sources. In this section, Scenario 2 serves as the basis for assessing each state's participation in the Ports to Plains finance plan.

Sources of Program Funding - Exhibit 6.2-2 shows relative distribution of the major sources of program funding for the 4-state total and each state's portion, for Scenario 2 in Base Year 2004 dollars. According to this Exhibit, the proportion of state highway program funding ranges from 29 percent for Colorado to 65 percent for New Mexico.

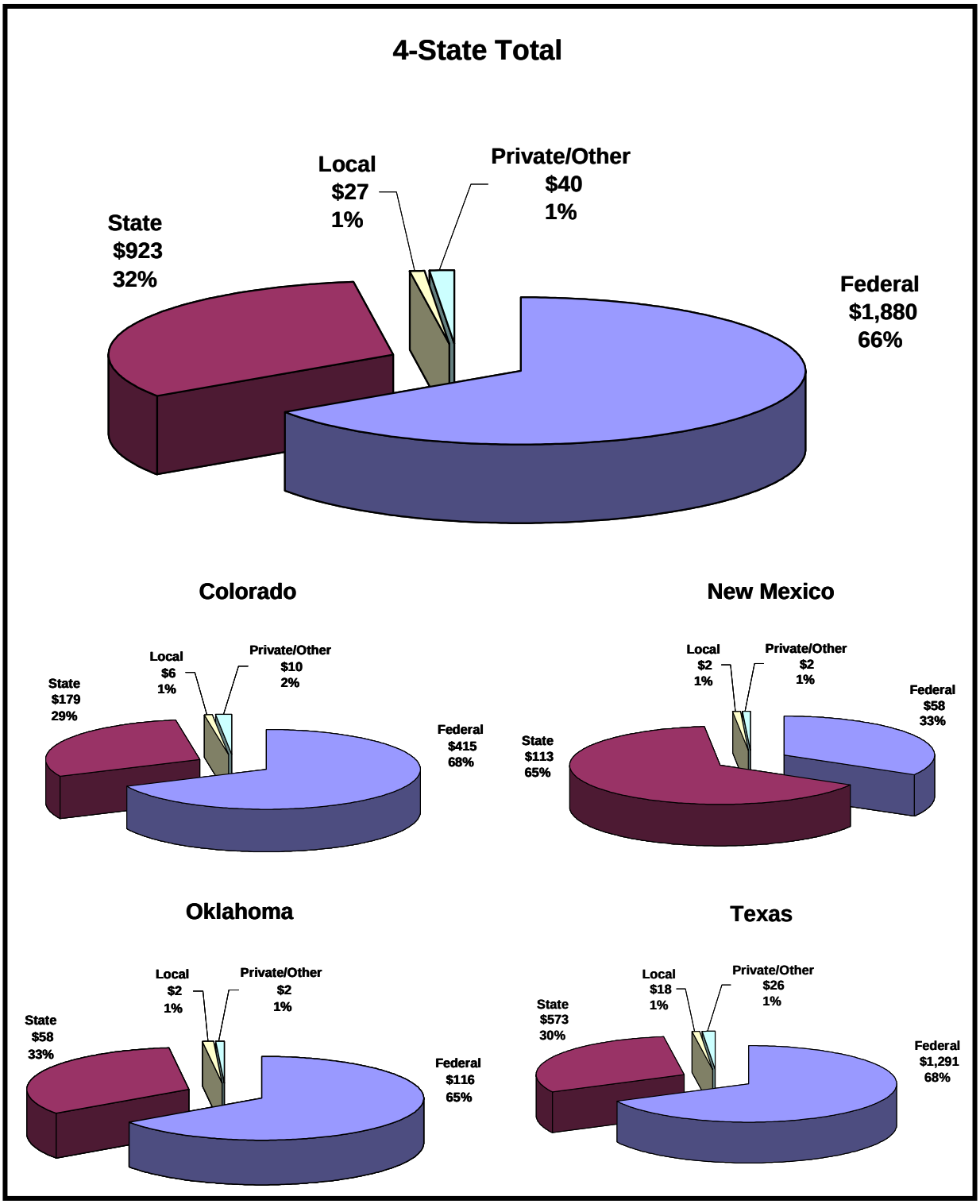
The high percentage for New Mexico results from committed funding for the program provided by Governor Richardson's Investment Partnership (GRIP), the State's special highway funding program. The finance plans for the remaining states are quite similar, reflecting a two-thirds federal and one-third state participation, with 2-3 percent coming from local sources.

Uses of Program Funding - Exhibit 6.2-3 shows the relative distribution of improvement costs (uses of funds) by major category for the 4-state total and each state's portion, for Scenario 2 in Base Year 2004 dollars. The charts in this Exhibit reveal a more consistent distribution of program costs by major category across the states, with capital costs comprising the vast majority of the 25-year program costs in each state (from 86 percent to 97 percent). Of particular note is the high proportion of program costs that are capital-related costs in Texas. This results in part from the ability of the State to defer preservation and some M&O efforts on the many roadways improved by the program. This lowers the costs of these activities in the years immediately following completion of the improvements relative to what would have otherwise been spent. The net result is that these cost reductions offset the preservation costs associated with new sections for Texas.

Annual Cash Flows by Source and Use of Funds - Exhibits 6.2-4 and 6.2-5 illustrate the annual cash flows of the major sources of funding and the primary cost items to which these funds would be applied over the 25-year program timeframe, based on Scenario 2 in Base Year 2004 dollars. Both charts reveal the effects of committed project funding in the first two phases of the program, as committed and non-committed projects are programmed for development. The higher level of project activity in the fourth phase of the improvement program results from the large number of projects scheduled during this phase to complete the Texas portion of the corridor improvement program. The lower level of program activity in the final phase reflects the end of capital project activity and the continuance of M&O, ITS, and preservation efforts.

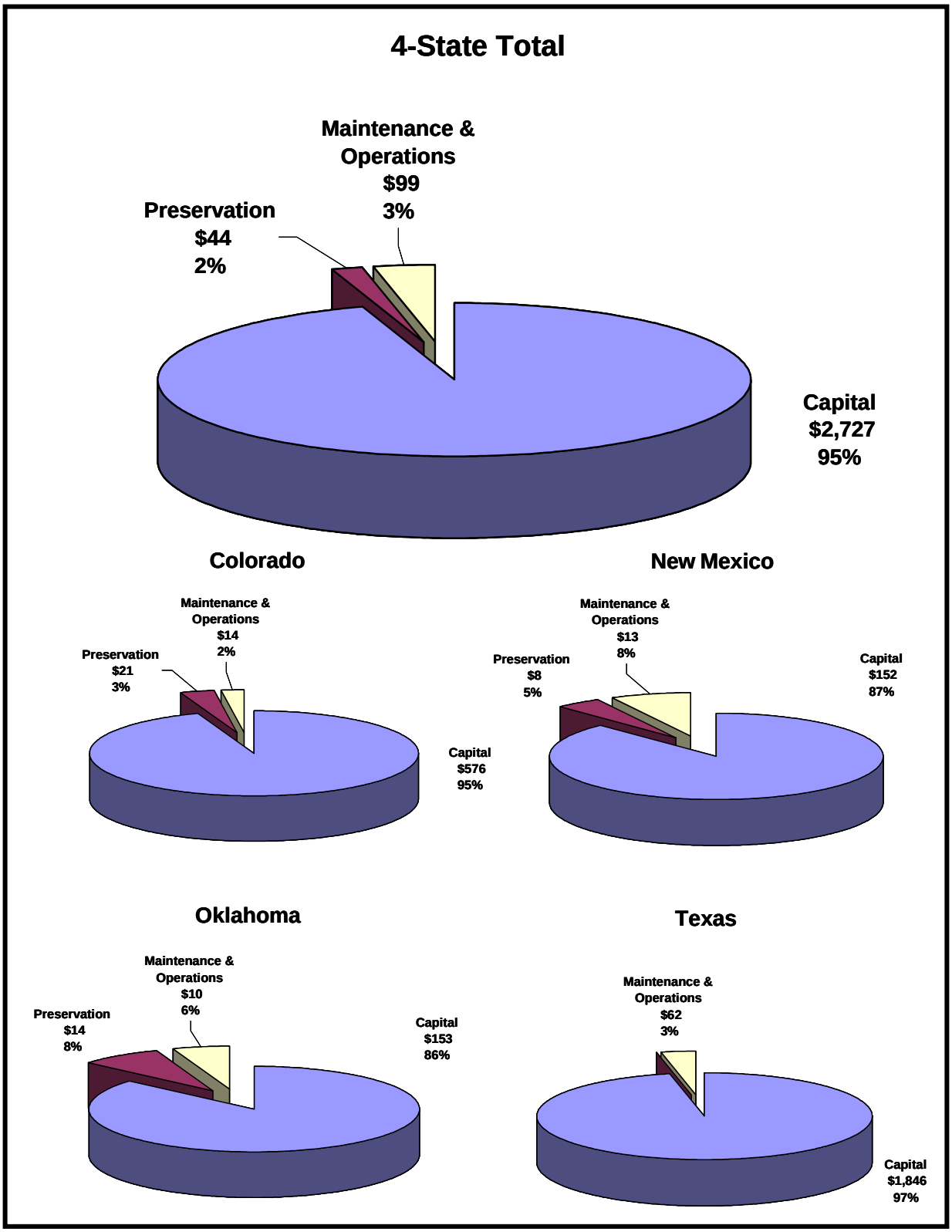
Exhibit 6.2-4 displays the predominant role that the federal government is expected to play in funding the improvement program, given the significant federal interest in the Ports to Plains Corridor. The federal share represents about two-thirds of the annual costs over the first 20 years of the program, when most of the capital projects are expected to be developed. State highway program funds make up most of the remaining third of the annual program costs, with local/private/other contributors providing a nominal amount over the program timeframe. During the final program phase the role of the states in funding projects becomes more dominant since most of the costs in this final phase are from on-going preservation, ITS, and M&O costs, the latter being the responsibility of the states.

Exhibit 6.2-2 Total Potential Sources of Funds for Scenario 2
Base Year (2004 Dollars in Millions)



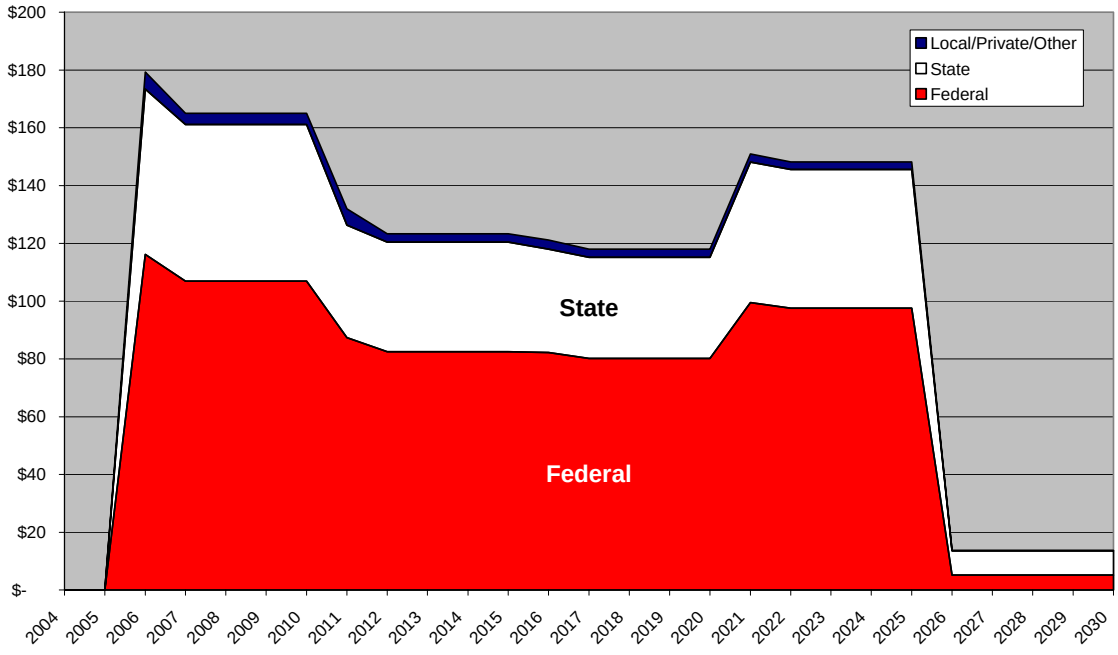
Source: AECOM Consult, Inc.

Exhibit 6.2-3 Total Uses of Funds for Scenario 2
Base Year (2004 Dollars in Millions)



Source: AECOM Consult, Inc.

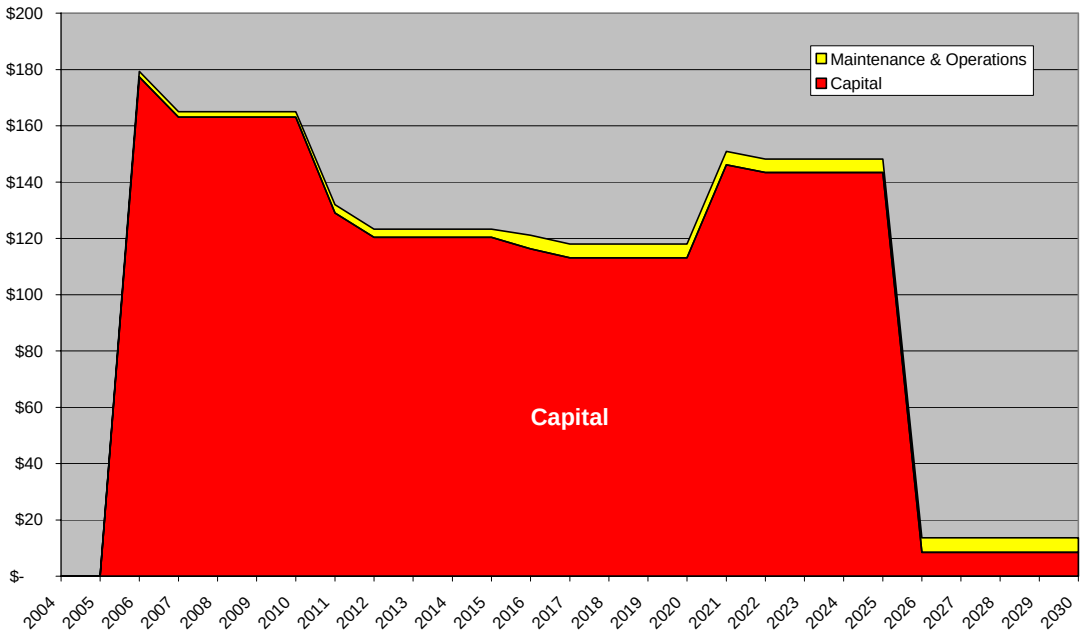
Exhibit 6.2-4 Annual Sources of Funds for Scenario 2
Base Year (2004 Dollars in Millions)



Source: AECOM Consult, Inc.

Exhibit 6.2-5 illustrates the relative split between capital (including preservation) costs and M&O costs over the term of the program. As shown, capital costs represent the vast majority of program costs during the first four phases of the program. Total costs in the first three phases of the program are moderated by estimated savings in preservation and M&O costs.

Exhibit 6.2-5 Annual Uses of Funds for Scenario 2
Base Year (2004 Dollars in Millions)



Source: AECOM Consult, Inc.

As noted earlier, these result from the deferral of M&O and preservation activities in the years immediately following completion of expansion and relief route projects relative to what would have been spent had the projects not been undertaken. The last phase of the program reflects the ending of capital improvement projects and the continuation of preservation (capital), ITS, and M&O efforts along the completed Corridor.

6.3 Detailed Cash Flow Results by Scenario and State

Exhibits 6.3-1 to 6.3-6 provide a detailed analysis of the cash flow required for Ports to Plains CDMP recommendations, broken down into the three financial scenarios analyzed.

6.4 Menus of Highway Project Funding Sources

Exhibit 6.4-1 provides a menu of the potential highway project funding sources that could be used in implementing the CDMP.

6.5 Conclusions

The results of the preliminary cash flow analysis confirms that the level of state funding obligation can significantly change as more federal and local (private and public) stakeholders commit funding to the project. Using the assumptions noted for each scenario, the combined state share of the CDMP costs drops by over fifty percent as alternative funding sources are added and increased for Scenarios 2 and 3. As noted earlier, these estimates do not account for the relative benefits associated with each program beneficiary or their ability and willingness to provide funding. These factors can significantly influence the level of funding provided by various stakeholder groups. The more funding supplied by federal, local, and private stakeholders the less funding will be required from each participating state's highway funds. Ultimately the funding decisions by major stakeholders in the Corridor will be determined through discussion and negotiation as the program evolves.

Exhibit 6.3-1
Total Sources and Uses of Funds by Scenario
Base Year (2004 Dollars in Millions)

Sources of Funds	Scenario 1	Scenario 2	Scenario 3
Capital			
Federal Aid Highway Program	$ 1,414.1	$ 1,426.5	$ 1,395.2
Federal Earmarks & Discretionary Programs	$ -	$ 237.8	$ 465.1
Federal Committed Funding	$ 189.1	$ 189.1	$ 189.1
State Highway Programs	$ 981.7	$ 639.0	$ 351.0
State Committed Funding	$ 142.2	$ 142.2	$ 142.2
State Debt Service Payments	$ -	$ -	$ -
Toll Credits	$ -	$ 25.7	$ 51.3
Local Match	$ -	$ 27.3	$ 54.4
ROW Donation	$ -	$ 4.6	$ 9.2
Bridge Toll Revenue Sharing	$ -	$ 2.1	$ 4.2
Railroad Funds	$ -	$ 6.3	$ 12.7
Utility Easements	$ -	$ 26.5	$ 52.9
Preservation			
Federal Aid Highway Program	$ 26.1	$ 26.1	$ 26.1
State Highway Programs	$ 17.4	$ 17.4	$ 17.4
Maintenance & Operations			
Federal Aid Highway Program	$ -	$ -	$ -
State Highway Program	$ 98.8	$ 98.8	$ 98.8
Financing			
GARVEE Bonds	$ -	$ -	$ -
Total Sources of Funds	**$ 2,869.5**	**$ 2,869.5**	**$ 2,869.5**
Uses of Funds			
Capital			
Capacity Expansion Projects	$ 1,870.7	$ 1,870.7	$ 1,870.7
Relief Route Projects	$ 799.1	$ 799.1	$ 799.1
RR Grade Separation Projects	$ 25.3	$ 25.3	$ 25.3
ITS Projects	$ 31.7	$ 31.7	$ 31.7
Corridor Signage	$ 0.3	$ 0.3	$ 0.3
Preservation	$ 43.6	$ 43.6	$ 43.6
Maintenance & Operations			
Roadway M&O	$ 41.9	$ 41.9	$ 41.9
ITS M&O	$ 56.9	$ 56.9	$ 56.9
Financing			
Principal	$ -	$ -	$ -
Interest	$ -	$ -	$ -
Surety	$ -	$ -	$ -
Debt Issuance	$ -	$ -	$ -
Total Uses of Funds	**$ 2,869.5**	**$ 2,869.5**	**$ 2,869.5**
Net Cash Flow	**$ -**	**$ -**	**$ -**

Exhibit 6.3-2
Colorado Sources and Uses of Funds by Scenario
Base Year (2004 Dollars in Millions)

Sources of Funds	Scenario 1	Scenario 2	Scenario 3
Capital			
Federal Aid Highway Program	$ 345.5	$ 345.2	$ 340.5
Federal Earmarks & Discretionary Programs	$ -	$ 57.5	$ 113.5
Federal Committed Funding	$ -	$ -	$ -
State Highway Programs	$ 230.3	$ 151.3	$ 78.3
State Committed Funding	$ -	$ -	$ -
State Debt Service Payments	$ -	$ -	$ -
Toll Credits	$ -	$ 5.8	$ 11.5
Local Match	$ -	$ 5.8	$ 11.5
ROW Donation	$ -	$ 0.7	$ 1.3
Bridge Toll Revenue Sharing	$ -	$ -	$ -
Railroad Funds	$ -	$ 3.8	$ 7.7
Utility Easements	$ -	$ 5.8	$ 11.5
Preservation			
Federal Aid Highway Program	$ 12.5	$ 12.5	$ 12.5
State Highway Programs	$ 8.3	$ 8.3	$ 8.3
Maintenance & Operations			
Federal Aid Highway Program	$ -	$ -	$ -
State Highway Program	$ 13.6	$ 13.6	$ 13.6
Financing			
GARVEE Bonds	$ -	$ -	$ -
Total Sources of Funds	**$ 610.2**	**$ 610.2**	**$ 610.2**
Uses of Funds			
Capital			
Capacity Expansion Projects	$ 459.4	$ 459.4	$ 459.4
Relief Route Projects	$ 96.0	$ 96.0	$ 96.0
RR Grade Separation Projects	$ 15.3	$ 15.3	$ 15.3
ITS Projects	$ 5.1	$ 5.1	$ 5.1
Corridor Signage	$ 0.1	$ 0.1	$ 0.1
Preservation	$ 20.9	$ 20.9	$ 20.9
Maintenance & Operations			
Roadway M&O	$ 2.4	$ 2.4	$ 2.4
ITS M&O	$ 11.2	$ 11.2	$ 11.2
Financing			
Principal	$ -	$ -	$ -
Interest	$ -	$ -	$ -
Surety	$ -	$ -	$ -
Debt Issuance	$ -	$ -	$ -
Total Uses of Funds	**$ 610.2**	**$ 610.2**	**$ 610.2**
Net Cash Flow	**$ -**	**$ -**	**$ -**

Exhibit 6.3-3
Oklahoma Sources and Uses of Funds by Scenario
Base Year (2004 Dollars in Millions)

Sources of Cash	Scenario 1	Scenario 2	Scenario 3
Capital			
Federal Aid Highway Program	$ 77.0	$ 79.0	$ 80.5
Federal Earmarks & Discretionary Programs	$ -	$ 13.2	$ 26.8
Federal Committed Funding	$ 14.9	$ 14.9	$ 14.9
State Highway Programs	$ 57.5	$ 37.5	$ 17.7
State Committed Funding	$ 3.7	$ 3.7	$ 3.7
State Debt Service Payments	$ -	$ -	$ -
Toll Credits	$ -	$ 1.5	$ 3.1
Local Match	$ -	$ 1.5	$ 3.1
ROW Donation	$ -	$ 0.2	$ 0.4
Bridge Toll Revenue Sharing	$ -	$ -	$ -
Railroad Funds	$ -	$ -	$ -
Utility Easements	$ -	$ 1.5	$ 3.1
Preservation			
Federal Aid Highway Program	$ 8.5	$ 8.5	$ 8.5
State Highway Programs	$ 5.6	$ 5.6	$ 5.6
Maintenance & Operations			
Federal Aid Highway Program	$ -	$ -	$ -
State Highway Program	$ 9.8	$ 9.8	$ 9.8
Financing			
GARVEE Bonds	$ -	$ -	$ -
Total Sources of Funds	**$ 177.0**	**$ 177.0**	**$ 177.0**
Uses of Funds			
Capital			
Capacity Expansion Projects	$ 141.6	$ 141.6	$ 141.6
Relief Route Projects	$ 10.4	$ 10.4	$ 10.4
RR Grade Separation Projects	$ -	$ -	$ -
ITS Projects	$ 1.2	$ 1.2	$ 1.2
Corridor Signage	$ 0.0	$ 0.0	$ 0.0
Preservation	$ 14.1	$ 14.1	$ 14.1
Maintenance & Operations			
Roadway M&O	$ 1.3	$ 1.3	$ 1.3
ITS M&O	$ 8.5	$ 8.5	$ 8.5
Financing			
Principal	$ -	$ -	$ -
Interest	$ -	$ -	$ -
Surety	$ -	$ -	$ -
Debt Issuance	$ -	$ -	$ -
Total Uses of Funds	**$ 177.0**	**$ 177.0**	**$ 177.0**
Net Cash Flow	**$ -**	**$ -**	**$ -**

Exhibit 6.3-4
New Mexico Sources and Uses of Funds by Scenario
Base Year (2004 Dollars in Millions)

Sources of Funds	Scenario 1	Scenario 2	Scenario 3
Capital			
Federal Aid Highway Program	$ 53.4	$ 45.4	$ 39.4
Federal Earmarks & Discretionary Programs	$ -	$ 7.6	$ 13.1
Federal Committed Funding	$ -	$ -	$ -
State Highway Programs	$ 8.8	$ 6.1	$ 3.5
State Committed Funding	$ 90.0	$ 90.0	$ 90.0
State Debt Service Payments	$ -	$ -	$ -
Toll Credits	$ -	$ -	$ -
Local Match	$ -	$ 1.5	$ 3.0
ROW Donation	$ -	$ 0.0	$ 0.1
Bridge Toll Revenue Sharing	$ -	$ -	$ -
Railroad Funds	$ -	$ -	$ -
Utility Easements	$ -	$ 1.5	$ 3.0
Preservation			
Federal Aid Highway Program	$ 4.9	$ 4.9	$ 4.9
State Highway Programs	$ 3.2	$ 3.2	$ 3.2
Maintenance & Operations			
Federal Aid Highway Program	$ -	$ -	$ -
State Highway Program	$ 13.4	$ 13.4	$ 13.4
Financing			
GARVEE Bonds	$ -	$ -	$ -
Total Sources of Funds	**$ 173.7**	**$ 173.7**	**$ 173.7**
Uses of Funds			
Capital			
Capacity Expansion Projects	$ 130.3	$ 130.3	$ 130.3
Relief Route Projects	$ 19.6	$ 19.6	$ 19.6
RR Grade Separation Projects	$ -	$ -	$ -
ITS Projects	$ 2.3	$ 2.3	$ 2.3
Corridor Signage	$ 0.0	$ 0.0	$ 0.0
Preservation	$ 8.1	$ 8.1	$ 8.1
Maintenance & Operations			
Roadway M&O	$ 4.1	$ 4.1	$ 4.1
ITS M&O	$ 9.3	$ 9.3	$ 9.3
Financing			
Principal	$ -	$ -	$ -
Interest	$ -	$ -	$ -
Surety	$ -	$ -	$ -
Debt Issuance	$ -	$ -	$ -
Total Uses of Funds	**$ 173.7**	**$ 173.7**	**$ 173.7**
Net Cash Flow	**$ -**	**$ -**	**$ -**

Exhibit 6.3-5
Texas Sources and Uses of Funds by Scenario
Base Year (2004 Dollars in Millions)

Sources of Cash	Scenario 1	Scenario 2	Scenario 3
Capital			
Federal Aid Highway Program	$ 938.2	$ 956.8	$ 934.7
Federal Earmarks & Discretionary Programs	$ -	$ 159.5	$ 311.6
Federal Committed Funding	$ 174.2	$ 174.2	$ 174.2
State Highway Programs	$ 685.1	$ 444.1	$ 251.5
State Committed Funding	$ 48.5	$ 48.5	$ 48.5
State Debt Service Payments	$ -	$ -	$ -
Toll Credits	$ -	$ 18.5	$ 36.8
Local Match	$ -	$ 18.5	$ 36.8
ROW Donation	$ -	$ 3.7	$ 7.4
Bridge Toll Revenue Sharing	$ -	$ 2.1	$ 4.2
Railroad Funds	$ -	$ 2.5	$ 5.0
Utility Easements	$ -	$ 17.7	$ 35.3
Preservation			
Federal Aid Highway Program	$ 0.3	$ 0.3	$ 0.3
State Highway Programs	$ 0.2	$ 0.2	$ 0.2
Maintenance & Operations			
Federal Aid Highway Program	$ -	$ -	$ -
State Highway Program	$ 62.1	$ 62.1	$ 62.1
Financing			
GARVEE Bonds	$ -	$ -	$ -
Total Sources of Funds	**$ 1,908.7**	**$ 1,908.7**	**$ 1,908.7**
Uses of Funds			
Capital			
Capacity Expansion Projects	$ 1,139.5	$ 1,139.5	$ 1,139.5
Relief Route Projects	$ 673.1	$ 673.1	$ 673.1
RR Grade Separation Projects	$ 10.0	$ 10.0	$ 10.0
ITS Projects	$ 23.2	$ 23.2	$ 23.2
Corridor Signage	$ 0.2	$ 0.2	$ 0.2
Preservation	$ 0.5	$ 0.5	$ 0.5
Maintenance & Operations			
Roadway M&O	$ 34.2	$ 34.2	$ 34.2
ITS M&O	$ 27.9	$ 27.9	$ 27.9
Financing			
Principal	$ -	$ -	$ -
Interest	$ -	$ -	$ -
Surety	$ -	$ -	$ -
Debt Issuance	$ -	$ -	$ -
Total Uses of Funds	**$ 1,908.7**	**$ 1,908.7**	**$ 1,908.7**
Net Cash Flow	**$ -**	**$ -**	**$ -**

Exhibit 6.3-6
Total Sources and Uses of Funds by State for Scenario 2
Base Year (2004 Dollars in Millions)

Sources of Funds	COLORADO	NEW MEXICO	OKLAHOMA	TEXAS	TOTAL
Capital					
Federal Aid Highway Program	$ 345.2	$ 45.4	$ 79.0	$ 956.8	$ 1,426.5
Federal Earmarks & Discretionary Programs	$ 57.5	$ 7.6	$ 13.2	$ 159.5	$ 237.8
Federal Committed Funding	$ -	$ -	$ 14.9	$ 174.2	$ 189.1
State Highway Programs	$ 151.3	$ 6.1	$ 37.5	$ 444.1	$ 639.0
State Committed Funding	$ -	$ 90.0	$ 3.7	$ 48.5	$ 142.2
State Debt Service Payments	$ -	$ -	$ -	$ -	$ -
Toll Credits	$ 5.8	$ -	$ 1.5	$ 18.5	$ 25.7
Local Match	$ 5.8	$ 1.5	$ 1.5	$ 18.5	$ 27.3
ROW Donation	$ 0.7	$ 0.0	$ 0.2	$ 3.7	$ 4.6
Bridge Toll Revenue Sharing	$ -	$ -	$ -	$ 2.1	$ 2.1
Railroad Funds	$ 3.8	$ -	$ -	$ 2.5	$ 6.3
Utility Easements	$ 5.8	$ 1.5	$ 1.5	$ 17.7	$ 26.5
Preservation					
Federal Aid Highway Program	$ 12.5	$ 4.9	$ 8.5	$ 0.3	$ 26.1
State Highway Programs	$ 8.3	$ 3.2	$ 5.6	$ 0.2	$ 17.4
Maintenance & Operations					
Federal Aid Highway Program	$ -	$ -	$ -	$ -	$ -
State Highway Program	$ 13.6	$ 13.4	$ 9.8	$ 62.1	$ 98.8
Financing					
GARVEE Bonds	$ -	$ -	$ -	$ -	$ -
Total Sources of Funds	**$ 610.2**	**$ 173.7**	**$ 177.0**	**$ 1,908.7**	**$ 2,869.5**
Uses of Funds					
Capital					
Capacity Expansion Projects	$ 459.4	$ 130.3	$ 141.6	$ 1,139.5	$ 1,870.7
Relief Route Projects	$ 96.0	$ 19.6	$ 10.4	$ 673.1	$ 799.1
RR Grade Separation Projects	$ 15.3	$ -	$ -	$ 10.0	$ 25.3
ITS Projects	$ 5.1	$ 2.3	$ 1.2	$ 23.2	$ 31.7
Corridor Signage	$ 0.1	$ 0.0	$ 0.0	$ 0.2	$ 0.3
Preservation	$ 20.9	$ 8.1	$ 14.1	$ 0.5	$ 43.6
Maintenance & Operations					
Roadway M&O	$ 2.4	$ 4.1	$ 1.3	$ 34.2	$ 41.9
ITS M&O	$ 11.2	$ 9.3	$ 8.5	$ 27.9	$ 56.9
Financing					
Principal	$ -	$ -	$ -	$ -	$ -
Interest	$ -	$ -	$ -	$ -	$ -
Surety	$ -	$ -	$ -	$ -	$ -
Debt Issuance	$ -	$ -	$ -	$ -	$ -
Total Uses of Funds	**$ 610.2**	**$ 173.7**	**$ 177.0**	**$ 1,908.7**	**$ 2,869.5**
Net Cash Flow	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Exhibit 6.4-1 Menu of Highway Project Funding Sources

Funding Source Options	Potential Sources	Advantages	Disadvantages
Federal Highway Trust Funds • Capital program • Renewal program • Grants • Pilot projects • Earmarks • Congestion/emission reduction (CMAQ) program • State Infrastructure Bank (SIB) program	• Federal motor fuel and other user taxes. • Federal Government - Federal Highway Administration. • State SIBs: - CDOT - TXDOT	• Large highway-focused program with some discretion for intermodal projects and projects that reduce congestion and emissions in non-attainment areas. • Congressional support of earmarks for P2P Corridor projects.	• Major competition for available funds with needs far exceeding available funding. • SIBs have not received additional federal funding since 1997. • Uncertainty regarding level of Congressional earmarks.
State Transportation Program Funds • Program funds • Project funds • Special transportation program funds	• State DOTs - Colorado Senate Bill 1 – 7th Pot - New Mexico GRIP - Oklahoma GARVEE Program - Texas Mobility Program	• Potentially large pool of transportation-related funds. • Special funds dedicated to specific improvements on highway facilities. • Augments traditional highway program funds.	• High competition for available funds. • State highway funds may be limited to use on state highway system by policy and legislation. • Economic conditions may reduce special program funding.
Local Transportation Funds • Allocated state transportation funds • Local general funds • Regional transportation funds	• Local Governments - Cities - Counties - Regional authorities	• Local pool of transportation-related funds to augment state funds.	• High competition for available funds. • May be limited to use on state or local highways and roads.
State Taxes • Sales tax • Income tax (general fund revenues)	• State legislature • State transportation agency	• Significant revenue potential when state's economic conditions are favorable. • Large pool of state general funds that applies to both residents and visitors. • High discretion for using incremental state revenues for transportation purposes, when available.	• High competition for state sales tax receipts. • General funds usually committed to other purposes. • Revenues subject to state economic conditions which can significantly vary from year to year.

Exhibit 6.4 -1 Menu of Highway Project Funding Sources (continued)

Funding Source Options	Potential Sources	Advantages	Disadvantages
Local Taxes • Sales tax • Property tax increment • Special assessment district	• Local Government	• Wide variety of funding instruments possible (e.g., E-470 funding program in Colorado). • Enables local community to participate in project as a direct stakeholder/sponsor.	• Limited state and local budgets create high competition for limited funds. • Current political environment nationwide makes tax increases difficult to pass.
Private Company Contributions • Money • Right-of-way • In-kind services	• Development Community • Major shippers	• Willingness to contribute right-of-way to expedite project that improves access to other property. • Access to capital markets and internal funds for projects that offer high competitive returns. • Private sector players need to realize benefits commensurate with their contributions.	• High competition for available funds. • Project must produce a higher rate of return than typical for the public sector.
Joint Development • Public-private partnerships	• Development Community, Railroads • State Government • Local Government	• Combine public and private resources and interests to leverage available resources. Major emphasis by leadership of US DOT and FHWA.	• Requires balance of project risks, returns, and responsibilities among project partners. • Potential loss of control over public assets by the public sector.
User Fees • Tolls • Shadow tolls • Access fees	• Development Community • State Government	• Provides direct linkage between the users of the facility and its funding. • Provides a long-term cash flow stream to support bond financing methods.	• Uncertainty over user willingness to pay user fees and the level of utilization of the facility when they are applied or adjusted over time.
Other Sources • Utility easements • Right-of-way sale • Land development • Branding rights	• Utility Companies - Power - Pipeline - Cable/Phone • Developers • Major corporations	• Additional sources of funding to augment primary funding sources. • Ability to relate other revenues to specific highway facilities.	• Revenue levels may be limited by scope of project. • Right-of-way likely to be owned by private railroads, who would likely determine its concurrent use.

Exhibit 6.4-1 Menu of Highway Project Financing Methods

Financing Options	Sources	Advantages	Disadvantages
Direct Project Grants or Contributions • Funds • Rights-of-way • In-kind services	• Public Sector - USDOT/FHWA - State DOTs - State SIB - Local agencies • Private Sector - Developers - Shippers	• Avoids costs of debt and need to pursue voter approval where required. • Provides funds up front when project capital costs are highest.	• None - except for scarcity of these kinds of funds, particularly in times of economic distress. • SIBs have not received additional federal funding since 1997.
Revenue Bonds	• Public Infrastructure Finance Markets	• Allows funds to be made available up front to pay for capital costs of project and then paid off over time.	• Needs defined user-fee (tolls) or other direct revenue source, which is unlikely for this Project. • Costs of debt service over term of bonds.
State Bonds	• State Government - State DOTs - State Infrastructure Bank (SIB)	• High credit rating of state due to lower risk of default.	• Reluctance of public agencies to issue bonds. • May require voter approval to allow state to incur debt.
Municipal Bonds	• Local Government - Cities - Counties	• Ability to issue tax-exempt bonds at relatively low rates.	• Reluctance or inability of local jurisdictions to incur debt for highway projects or other purposes.
Private Bonds	• Companies	• Uses credit-worthiness of corporate entity to gain access to private bond markets for financing up-front project costs.	• Typically taxable debt, which significantly raises the cost of borrowing for the project.
Private Activity Bonds (PABs)	• Financial Markets - Developers - Other private companies	• Tax exempt bonds for private investment in public use transportation infrastructure with favorable rates to sponsoring entity.	• Federal permission for transportation-related PABs contingent on highway program funding legislation from Congress.
Grant Anticipation Bonds or Notes	• FHWA - GARVEES - State Infrastructure Bank (SIB)	• Expedites the availability of federal and state funds for needed projects.	• Commits state to pledge future federal highway program funds until GARVEE is paid off, including debt service. • SIBs have not received additional federal funding since 1997.
Loan and Credit Support	• FHWA - TIFIA Program - State Infrastructure Bank (SIB)	• Leverages available Federal resources by lowering the cost of borrowing up to a third of the cost of large projects (over $100 million).	• No down side, except where the sponsors cannot incur debt. • Not a direct source of funding. • SIBs have not received additional federal funding since 1997.

Risk Assessment
Supporting Technical Analysis

Table of Contents

7.0 Questionnaire Summary

The following information summarizes the questionnaire that was distributed at public meetings and workshops, and was available to fill-out from the project web-site.

Sample Questionnaire

Please indicate your zip code: ____

Please indicate with an "x" the category that best describes you in relation to your interest in the corridor. Your responses to these questions are anonymous and will be reported in group form only.

Local Decision Maker (Mayor,Council,etc.)	
Business Owner	
Local Resident	
State Representative or Senator	
DOT Employee	
Trucker	
Land Owner on corridor	
Media	
Special Interest Group	
Other;_____	

PORTS TO PLAINS CORRIDOR

Do you rent or own your residence?

Rent	
Own	
Refused	

What is your gender?

Male	
Female	

What is your age category?

18 - 24	
25 - 34	
35 - 44	
45 - 54	
55 - 64	
65 or older	
Refuesed	

How many members are in your household?

One	
Two	
Three or more	
Refused	

What is your annual income category?

less than $15,000	
$15,000 to less than $25,000	
$25,000 to less than $35,000	
$35,000 to less than $50,000	
$50,000 to less than $75,000	
$75,000 or more	
Refused	

	Please indicate with an "x" how strongly you agree or disagree with the following statements.	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't Know/ Not Applicable	Additional Comments
1	The Ports-to-Plains project is very important to increased economic growth in my region.							
2	Improvements to the roadways on the Ports-to-Plains corridor will improve my way of life.							
3	Improvements to the roadways on the Ports-to-Plains corridor will improve my business or place of employment.							
4	I will promote the Ports-to-Plains project.							
5	If funding was potentially available for a Ports-to-Plains project, I would support an effort to get such funding.							
6	I believe the Ports-to-Plains project will provide transportation options for those who make, move, or distribute merchandise/goods.							
7	Increased truck traffic through or around my community will negatively impact my community.							
8	In my opinion, the Ports-to-Plains project is a waste of time and money.							
9	In my opinion, the Ports-to-Plains project is a priority in my region/state.							
10	I would choose driving the Ports-to-Plains corridor if the same travel times were possible as compared to traveling on other routes.							
11	I support the Ports-to-Plains project as an improvement in the movement of merchandise/goods.							
12	If funding was readily available, I think the Ports-to-Plains project would be a good investment.							
13	I would choose driving the Ports-to-Plains corridor if travel time was greater as compared to traveling on other routes.							
14	I prefer driving open road, rather than driving through major metropolitan areas, such as Denver, Austin, or Dallas.							
15	If some funding were available at higher levels, I would support trying to match those funds with local funds.							

	Please indicate with an "x" how strongly you agree or disagree with the following statements.	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't Know/ Not Applicable	Additional Comments
16	The Ports-to-Plains project will provide a positive increase to the economy.							
17	My business or place of employment relies heavily on nationally connected transportation systems.							
18	I will actively seek funding opportunities for the Ports-to-Plains projects.							
19	If given the chance, I would spend funds on the Ports-to-Plains corridor before other corridors in the State.							
20	If given the chance, I would spend funds on the Ports-to-Plains corridor before other public projects in the local area.							
21	I would support tolling to help fund new relief routes around my community.							
22	I would support bond or other financing solutions to influence project construction.							
23	Ports to Plains will bring the negative impacts of more traffic and congestion to my area.							
24	Having well connected alternatives to Interstates is vital to the security of our national infrastructure and economy.							

General Data
There are 77 total respondents for use in the analysis. 39 on-line, and 38 hard-copy.

State

State	# of respondents	% of respondents
Texas	44	57.14%
Colorado	22	28.57%
New Mexico	4	5.19%
Oklahoma	2	2.60%
No Response	5	6.49%

County

County	State	# of respondents	% of respondents
Collin	TX	1	1.30%
Dallas	TX	1	1.30%
Dawson	TX	3	3.90%
Ector	TX	2	2.60%
Gray	TX	1	1.30%
Harris	TX	2	2.60%
Howard	TX	9	11.69%
Lubbock	TX	1	1.30%
Midland	TX	3	3.90%
Moore	TX	1	1.30%
Potter	TX	1	1.30%
Randall	TX	4	5.19%
Sherman	TX	4	5.19%
Sutton	TX	2	2.60%
Swisher	TX	2	2.60%
Tarrant	TX	2	2.60%
Tom Green	TX	2	2.60%
Williamson	TX	2	2.60%
Val Verde	TX	1	1.30%
Arapahoe	CO	1	1.30%
Baca	CO	1	1.30%
Cheyenne	CO	1	1.30%
Denver	CO	3	3.90%
El Paso	CO	1	1.30%
Fremont	CO	1	1.30%
Jefferson	CO	1	1.30%
Kiowa	CO	1	1.30%
Lincoln	CO	7	9.09%
Morgan	CO	1	1.30%
Prowers	CO	2	2.60%
Pueblo	CO	1	1.30%
Washington	CO	1	1.30%
Colfax	NM	1	1.30%
Union	NM	3	3.90%
Cimarron	OK	1	1.30%
Jackson	OK	1	1.30%
No Response		5	6.49%

City

City	State	# of respondents	% of respondents
Amarillo	TX	3	3.90%
Arlington	TX	1	1.30%
Big Spring	TX	9	11.69%
Canyon	TX	2	2.60%
Cedar Park	TX	1	1.30%
Dallas	TX	1	1.30%
Del Rio	TX	1	1.30%
Dumas	TX	1	1.30%
Fort Worth	TX	1	1.30%
Happy	TX	1	1.30%
Houston	TX	2	2.60%
Hugo	TX	1	1.30%
Lamesa	TX	3	3.90%
Lubbock	TX	1	1.30%
McKinney	TX	1	1.30%
Midland	TX	3	3.90%
Odessa	TX	1	1.30%
Pampa	TX	1	1.30%
Round Rock	TX	1	1.30%
San Angelo	TX	2	2.60%
Sonora	TX	2	2.60%
Stratford	TX	4	5.19%
Tulia	TX	1	1.30%
Canon City	CO	1	1.30%
Cheyenne Falls	CO	1	1.30%
Colorado Springs	CO	1	1.30%
Denver	CO	3	3.90%
Eads	CO	1	1.30%
Genoa	CO	2	2.60%
Golden	CO	1	1.30%
Hugo	CO		0.00%
Lamar	CO	2	2.60%
Limon	CO	4	5.19%
Littleton	CO	1	1.30%
Pueblo	CO	1	1.30%
Springfield	CO	1	1.30%
Wiggins	CO	1	1.30%
Woodrow	CO		0.00%
Clayton	NM	3	3.90%
Raton	NM	1	1.30%
Altus	OK	1	1.30%
Boise City	OK	1	1.30%
No Response		7	9.09%

Category

Category	# of respondents	% of respondents
Local Decision Makers (Mayor,Council,ect.)	18	23.38%
Business Owners	11	14.29%
Local Residents	20	25.97%
State Representatives/Senators	0	0.00%
DOT Employees	7	9.09%
Truckers	0	0.00%
Land Owners	7	9.09%
Media	0	0.00%
Special Interest Group	5	6.49%
Other	13	16.88%

Of the 13 who placed themselves in the Other category,
1 identified himself as a frequent Midwest traveler
1 identified himself as a Major Defense Contractor
1 identified himself as a frequent user of projected Corridor
1 identified himself as a transportation manager
1 identified himself as a County Auditor
1 identified himself as involved in research
1 identified himself as a transportation consultant

30 respondents, or 38.96%, took version 1 of the test, without demographic data
47 respondents, or 61.04%, took version 2 of the test, with demographic data

Of the 47 respondents that took version 2 with demographic data:

Gender

Sex	# of respondents	% of respondents
Male	36	46.75%
Female	11	14.29%
No Resp	30	38.96%

Age

Category	# of respondents	% of respondents
18-24	2	2.60%
25-34	5	6.49%
34-44	14	18.18%
45-54	16	20.78%
55-64	7	9.09%
65 or older	1	1.30%
No Response	32	41.6%

Household

# of members	# of respondents	% of respondents
One	8	10.39%
Two	14	18.18%
Three or more	22	28.57
No Response	33	42.86%

Ownership

Rent/Own	# of respondents	% of respondents
Rent	5	6.49%
Own	39	50.65%
No Response	33	42.86%

Income

Category	# of respondents	% of respondents
Less than $15,000	0	0.00%
$15,000 to less than $25,000	2	2.60%
$25,000 to less than $35,000	0	0.00%
$35,000 to less than $50,000	6	7.79%
$50,000 to less than $75,000	9	11.69%
$75,000 or more	20	25.97%
No Response	32	41.56%

Survey Data

1. The Ports to Plains project is very important to increased economic growth in my region.

	Strongly Agree	**Agree**	**Neither Agree or Disagree**	**Disagree**	**Strongly Disagree**	**Don't know/ N/A**	**No Response**
# of respondents	41	27	0	2	3	3	1
% of respondents	53.25%	35.06%	0.00%	2.60%	3.90	3.90%	1.30%

2. Improvements to the roadways on the Ports to Plains Corridor will improve my way of life.

	Strongly Agree	**Agree**	**Neither Agree or Disagree**	**Disagree**	**Strongly Disagree**	**Don't know/ N/A**	**No Response**
# of respondents	27	29	10	3	3	1	4
% of respondents	35.06%	37.66%	12.99%	3.90%	3.90%	1.30%	5.19%

3. Improvements to the roadways on the Ports to Plains Corridor will improve my business.

	Strongly Agree	**Agree**	**Neither Agree or Disagree**	**Disagree**	**Strongly Disagree**	**Don't know/ N/A**	**No Response**
# of respondents	21	29	8	2	3	5	9
% of respondents	27.27%	37.66%	10.39%	2.60%	3.90%	6.49%	11.69%

4. I would promote the Ports to Plains project through my methods of influence.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	39	23	7	1	3	0	4
% of respondents	50.65%	29.87%	9.09%	1.30%	3.90%	0.00%	5.19%

5. If funding was potentially available for a Ports to Plains project, I would support an effort to acquire such funding.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	43	24	4	0	3	1	2
% of respondents	55.84%	31.17%	5.19%	0.00%	3.90%	1.30%	2.60%

6. I believe the Ports to Plains project will provide viable transportation options for those who make, move, or distribute goods.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	47	25	2	0	1	0	2
% of respondents	61.04%	32.47%	2.60%	0.00%	1.30%	0.00%	2.60%

7. Increased truck traffic through or around my community will adversely impact my community.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	6	9	18	22	17	1	4
% of respondents	7.79%	11.69%	23.38%	28.57%	22.08%	1.30%	5.19%

8. In my viewpoint, the Ports to Plains project is a waste of time and money.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	3	0	4	18	50	0	2
% of respondents	3.90%	0.00%	5.19%	23.38%	64.94%	0.00%	2.60%

9. I view the Ports to Plains project as a priority in my region/state.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	31	29	7	1	3	1	5
% of respondents	40.26%	37.66%	9.09%	1.30%	3.90%	1.30%	6.49%

10. I would choose driving the Ports to Plains Corridor if the same travel times were possible as compared to traveling through San Antonio, Austin, Houston, or Dallas.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	33	24	10	0	2	4	4
% of respondents	42.86%	31.17%	12.99%	0.00%	2.60%	5.19%	5.19%

11. I would support the Ports to Plains project as an improvement in the movement of goods.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	40	30	2	0	2	0	3
% of respondents	51.95%	38.96%	2.60%	0.00%	2.60%	0.00%	3.90%

12. If funding was readily available, I think the Ports to Plains project would be a good investment.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	43	25	1	0	3	0	5
% of respondents	55.84%	32.47%	1.30%	0.00%	3.90%	0.00%	6.49%

13. I would choose driving the Ports to Plains Corridor if travel time was greater as compared to traveling through San Antonio, Austin, Houston, or Dallas.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	11	13	29	14	3	3	4
% of respondents	14.29%	16.88%	37.66%	18.18%	3.90%	3.90%	5.19%

14. I prefer driving open road, rather than driving through major metropolitan areas.

	Strongly Agree	Agree	Neither Agree or	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	33	27	12	2	0	0	3
% of respondents	42.86%	35.06%	15.58%	2.60%	0.00%	0.00%	3.90%

15. If some funding were available at higher levels, I would support trying to match those funds with local funds.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	16	31	16	4	5	1	4
% of respondents	20.78%	40.26%	20.78%	5.19%	6.49%	1.30%	5.19%

16. The Ports to Plains project will provide a boost to the economy.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	29	36	6	1	2	0	3
% of respondents	37.66%	46.75%	7.79%	1.30%	2.60%	0.00%	3.90%

17. My business interests rely heavily on nationally connected transportation systems.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	12	18	20	11	3	6	7
% of respondents	15.58%	23.38%	25.97	14.29%	3.90%	7.79%	9.09%

18. I will actively seek funding opportunities for Ports to Plains projects.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	17	15	26	5	3	5	6
% of respondents	22.08%	19.48%	33.77%	6.49%	3.90%	6.49%	7.79%

19. If given the chance, I would spend funds on the Ports to Plains Corridor before other Corridors in the State.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	23	19	20	7	4	0	4
% of respondents	29.87%	24.68%	25.97%	9.09%	5.19	0.00%	5.19%

20. If given the chance, I would spend funds on the Ports to Plains Corridor before other public projects in the local area.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	13	21	22	9	5	2	5
% of respondents	16.88%	27.27%	28.57%	11.69%	6.49%	2.60%	6.50%

21. I would support tolling to help fund new relief routes around my community.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	13	26	16	9	7	2	4
% of respondents	16.88%	33.77%	20.78%	11.69%	9.09%	2.60%	5.19%

22. I would support bond or other financing solutions to influence project construction.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	15	39	10	4	4	2	3
% of respondents	19.48%	50.65%	12.99%	5.19%	5.19%	2.60%	3.90%

23. Ports to Plains will only bring more traffic and congestion to my area.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	3	4	12	35	16	4	3
% of respondents	3.90%	5.19%	15.58%	45.45%	20.78%	5.19%	3.90%

24. Having well connected alternatives to interstates is vital to the security of our national infrastructure and economy.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	41	30	1	2	1	0	2
% of respondents	53.25%	38.96%	1.30%	2.60%	1.30%	0.00%	2.60%

Organized by Issue Alignment

Social – Economy

1. The Ports to Plains project is very important to increased economic growth in my region.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	41	27	0	2	3	3	1
% of respondents	53.25%	35.06%	0.00%	2.60%	3.90%	3.90%	1.30%

3. Improvements to the roadways on the Ports to Plains Corridor will improve my business.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	21	29	8	2	3	5	9
% of respondents	27.27%	37.66%	10.39%	2.60%	3.90%	6.49%	11.69%

16. The Ports to Plains project will provide a boost to the economy.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	29	36	6	1	2	0	3
% of respondents	37.66%	46.75%	7.79%	1.30%	2.60%	0.00%	3.90%

21. I would support tolling to help fund new relief routes around my community.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	13	26	16	9	7	2	4
% of respondents	16.88%	33.77%	20.78%	11.69%	9.09%	2.60%	5.19%

22. I would support bond or other financing solutions to influence project construction.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	15	39	10	4	4	2	3
% of respondents	19.48%	50.65%	12.99%	5.19%	5.19%	2.60%	3.90%

24. Having well connected alternatives to interstates is vital to the security of our national infrastructure and economy.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	41	30	1	2	1	0	2
% of respondents	53.25%	38.96%	1.30%	2.60%	1.30%	0.00%	2.60%

Social – Economy Summary

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
Avg. # of respondents	26.67	31.17	6.86	3.33	3.33	1.67	3.97
Avg. % of respondents	35.16%	41.10%	9.01%	4.40%	4.40%	2.20%	3.74%

Social – Diversity

6. I believe the Ports to Plains project will provide viable transportation options for those who make, move, or distribute goods.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	47	25	2	0	1	0	2
% of respondents	61.04%	32.47%	2.60%	0.00%	1.30%	0.00%	2.60%

10. I would choose driving the Ports to Plains Corridor if the same travel times were possible as compared to traveling through San Antonio, Austin, Houston, or Dallas.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	33	24	10	0	2	4	4
% of respondents	42.86%	31.17%	12.99%	0.00%	2.60%	5.19%	5.19%

13. I would choose driving the Ports to Plains Corridor if travel time was greater as compared to traveling through San Antonio, Austin, Houston, or Dallas.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	11	13	29	14	3	3	4
% of respondents	14.29%	16.88%	37.66%	18.18%	3.90%	4.84%	5.19%

14. I prefer driving open road, rather than driving through major metropolitan areas.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	33	27	12	2	0	0	3
% of respondents	42.86%	35.06%	15.58%	2.60%	0.00%	0.00%	3.90%

Social – Diversity Summary

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
Avg. # of respondents	31	22.25	13.25	1.75	4	1.5	3.25
Avg. % of respondents	40.92%	29.37%	17.49%	2.31%	5.28%	1.98%	2.64%

Social – Way of Life

2. Improvements to the roadways on the Ports to Plains Corridor will improve my way of life.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	27	29	11	3	3	1	0
% of respondents	35.06%	37.66%	12.99%	3.90%	3.90%	1.30%	0.00%

7. Increased truck traffic through or around my community will adversely impact my community.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	6	9	18	22	17	1	4
% of respondents	7.79%	11.69%	23.38%	28.57%	22.08%	1.30%	5.19%

17. My business interests rely heavily on nationally connected transportation systems.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	12	18	20	11	3	6	7
% of respondents	15.58%	23.38%	25.97%	14.29%	3.90%	7.79%	5.19%

23. Ports to Plains will only bring more traffic and congestion to my area.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	3	4	12	35	16	4	3
% of respondents	3.90%	5.19%	15.58%	45.45%	20.78%	5.19%	3.90%

Social – Way of Life Summary

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
Avg. # of respondents	18	26	15	6.75	3.75	3.00	4.00
Avg. % of respondents	23.68%	34.21%	19.74%	8.88%	4.93%	3.95%	4.61%

**Questions 7 & 23 are negative response questions, and are weighted as such in summary.

Political Consensus

8. In my viewpoint, the Ports to Plains project is a waste of time and money.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	3	0	4	18	50	0	2
% of respondents	3.90%	0.00%	5.19%	23.38%	64.94%	0.00%	2.60%

11. I would support the Ports to Plains project as an improvement in the movement of goods.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	40	30	2	0	2	0	3
% of respondents	51.95%	38.96%	2.60%	0.00%	2.60%	0.00%	3.90%

19. If given the chance, I would spend funds on the Ports to Plains Corridor before other corridors in the State.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	23	19	20	7	4	0	4
% of respondents	29.87%	24.68%	25.97%	9.09%	5.19%	0.00%	5.19*%

20. If given the chance, I would spend funds on the Ports to Plains Corridor before other public projects in the local area.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	13	21	22	9	5	2	5
% of respondents	16.88%	27.27%	28.57%	11.69%	6.49%	2.60%	6.50%

Political – Consensus Summary

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
Avg. # of respondents	31.50	22	12	4	3.50	0.75	3.25
Avg. % of respondents	41.45%	28.95%	15.79%	5.26%	4.61%	.99%	2.96%

**Question 8 is a negative response question, and is weighted as such in summary.

Political – Support

4. I would promote the Ports to Plains project through my methods of influence.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	39	23	7	1	3	0	4
% of respondents	50.65%	29.87%	9.09%	1.30%	3.90%	0.00%	5.19%

5. If funding was potentially available for a Ports to Plains project, I would support an effort to acquire such funding.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	43	24	4	0	3	1	2
% of respondents	55.84%	31.17%	5.19%	0.00%	3.90%	1.30%	2.60%

9. I view the Ports to Plains project as a priority in my region/state.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	31	29	8	1	3	1	5
% of respondents	40.26%	37.66%	9.09%	1.30%	3.90%	1.30%	6.49%

12. If funding was readily available, I think the Ports to Plains project would be a good investment.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	43	25	1	0	3	0	5
% of respondents	55.84%	32.47%	1.30%	0.00%	3.90%	0.00%	6.49%

15. If some funding were available at higher levels, I would support trying to match those funds with local funds.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	16	31	16	4	5	1	4
% of respondents	20.78%	40.26%	20.78%	5.19%	6.49%	1.30%	5.19%

18. I will actively seek funding opportunities for Ports to Plains projects.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
# of respondents	17	15	26	5	3	5	6
% of respondents	22.08%	19.48%	33.77%	6.49%	3.90%	6.49%	7.19%

Political – Support Summary

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't know/ N/A	No Response
Avg. # of respondents	31.50	24.50	10	1.83	3.33	1.33	2.83
Avg. % of respondents	41.81%	32.52%	13.27%	2.43%	4.42%	1.77%	3.76%

Stakeholder Involvement

Table of Contents

8 STAKEHOLDER INVOLVEMENT

A 1,400-mile roadway linking two countries, four states, 38 counties and dozens of communities – and connecting a nation's economic present to a more prosperous future – is bound to generate significant interest among a wide array of stakeholders. Recognizing this, the CDMP project made a concerted effort to share information with and gather input from state and local officials, the general public, and others. The following summarizes the outreach activity completed during the preparation of the Corridor Development and Management Plan (CDMP).

8.1 Open Houses

Three rounds of public open houses were conducted. Each round consisted of a meeting in Colorado and in Texas in key Corridor communities. The meetings were advertised in local newspapers and publicized through the distribution of news releases and post cards as well as on the project website. General comment forms, Intelligent Transportation System (ITS) surveys, and general surveys were available at the open house meetings. All sign-in sheets, news stories, general comment forms, and general surveys from the open house meetings can be found in Appendix A.

8.1.1 First Round (March 11 and March 25, 2004)

The first round included an open house in Lamar, Colorado on March 11, 2004, and open house in San Angelo, Texas on March 25, 2004. The purpose of the first round meetings was to provide an overview of and clarify desired outcomes of the CDMP process.

Lamar, CO Summary

The Lamar event, held in the town's Community Center on March 11, 2004, attracted approximately 30 people, in addition to the Colorado Department of Transportation (CDOT) staff and project team members in attendance. Among the attendees were several public officials and a reporter from the Pueblo Chieftain newspaper, which serves much of southeastern Colorado.

Public officials who attended include:

- Elwood Gillis, Mayor of Lamar;
- Jeff Anderson, Lamar City Administrator;
- Wiley Work, Lamar City Engineer;
- Verlin Hopkins, Town of Springfield/Baca County Economic Development Corporation;
- Bill Wright, Baca County Commissioner;
- Ray Miller, Baca County Commissioner;
- Troy Crane, Baca County Commissioner;
- Joe Kiely, Limon City Manager (also Vice President of Ports to Plains Corridor Coalition);
- Dave Stone, Public Works Director, City of Limon;
- Doug Semmens, Trustee, Town of Wiley;
- Russell Hanson, Randall County, Texas; and
- George Tempel, Transportation Commission of Colorado.

Other attendees included small business owners, particularly from the hospitality industry; port of entry employees; and representatives from the Ports to Plains Corridor Coalition. Overall, the event was well received by the attendees, who seemed pleased with the opportunity to express their concerns and suggestions with the CDOT staff and consultants.

Among the issues raised by attendees and discussed were the following:

- Lamar residents and business owners expressed concerns about the planned local relief route, the timing of its construction, and its possible impacts.
- Officials from the town of Limon were very interested in seeing how the Ports to Plains Corridor would work with the proposed Heartland Express Corridor, which would extend to the Denver area, where it would meet the Ports to Plains Corridor.
- Residents asked questions about the expected increase in truck traffic that a fully developed Ports to Plains Corridor would bring and its impact on safety, noise, and pollution.
- At least one attendee expressed a desire to see the length of the Colorado portion of the Corridor become a four-lane highway, particularly if four lanes are achieved in the other three states along the route.
- Several attendees asked that all pertinent information be made available on the project website.

San Angelo, TX Summary

The San Angelo open house was held on March 25, 2004, at the Texas Department of Transportation (TxDOT) San Angelo District Office. Approximately 30 people attended the event, including several public officials, representatives of trucking and freight companies, area business representatives, the San Angelo Standard Times newspaper, and KSAN TV in San Angelo. The 30 attendees do not include the TxDOT staff and project team members who attended. Press releases were distributed to the media prior to the meetings. One attendee reported that there were radio announcements of the meeting prior to the meeting, although the project team was unable to confirm the coverage.

Public officials who attended include:

- Scott Campbell, Texas State Representative;
- Frances St. Clair, Office of State Senator Robert Duncan;
- Richard Easingwood, Jr., Tom Green County Commissioner;
- Karl Bookter, Tom Green County Commissioner;
- Devin Bates, San Angelo City Councilman;
- Lee Bargerhuff, U.S. Border Patrol (Laredo office);
- Mark Potter, U.S. Border Patrol (San Angelo office);
- Ray Leftwich, San Angelo Independent School District Transportation; and
- E'Lisa Smetana, San Angelo Metropolitan Planning Organization.

Other attendees included Michael Reeves, President of the Ports to Plains Corridor Coalition; Michael Dalby, San Angelo Chamber of Commerce; and TxDOT staff from various offices.

Among the issues raised by attendees and discussed are as follows:

- Mr. Bargerhuff, with the U.S. Border Patrol in Laredo, discussed homeland security and ITS issues.
- A representative from a freight company expressed her opinion that more trucks would use the route once it was completed. The same individual questioned the route to Raton, New Mexico and suggested that it will replicate congestion problems on I-25 similar to those on I-35. She asked why not keep going east instead of along I-25.
- Mr. Potter, with the U.S. Border Patrol in San Angelo, and another gentleman from the Red House Ranch asked about the section from Del Rio to Sonora. One of the gentlemen suggested that this section should be high priority because there are more trucks going on to El Paso and Del Rio. A question was asked about the status of a relief route around El Dorado. John DeWitt, with the TxDOT San Angelo District, noted that there has been active resistance to this route.
- Michael Reeves asked how he could help the project team and indicated that he would like to be actively involved in this process. He indicated that he was going to try to get more active support for the project from Laredo and Denver officials. He also noted that the Mayor of Del Rio is trying to help support the Corridor. At his request, the project team sent him a CD that includes the display boards and surveys used at the open house.
- Some attendees were aware that the Corridor will extend to Denver but did not seem to be familiar with highways connecting to the Corridor.
- One general questionnaire, two ITS surveys, and three comment forms were completed by attendees. All are included in Appendix A. The general points addressed in the comment forms include:
    - Richard Easingwood, Tom Green County Commissioner, commented that funding should continue to be aggressively pursued.
    - Lee Bargerhuff, with the U.S. Border Patrol, noted that the U.S. Border Patrol is interested in open dialogue with regard to their planned construction of a checkpoint in the area of US 83 and SH 45. They would like to coordinate with this project and are interested in discussing joint use possibilities for ITS fiber optics.
    - Bill Miller, with Northrop Grumman in Austin, asked if the project would involve any Transportation Management Center construction. He also asked about port security and weapons of mass destruction detection/tracking.

8.1.2 Second Round (July 27 and August 3, 2004)

The second round included an open house in Limon, Colorado on July 27, 2004, and an open house in Midland, Texas on August 3, 2004. The purpose of the second round meetings was to update stakeholders on the status of the CDMP, including explanations of the project prioritization process and

overviews of items such as traffic flows, environmental resources, and ITS. The interactive sessions provided significant opportunity for public comment and questions.

Limon Summary

The Colorado event was held on July 27, 2004, in the Limon Community Building from 4:00-7:00 p.m. In addition to displays illustrating various elements of the CDMP, project managers Mehdi Baziar, Mark Mehalko, and Billy Parks delivered a detailed PowerPoint presentation for attendees at 4:30 p.m. and repeated it at 6:00 p.m. The first presentation attracted approximately 50 people, including the following public officials:

- Terry Van Keuven, Staff for U.S. Rep. Tom Tancredo;
- Del Beattie, Trustee, Town of Limon;
- Trevor Williams, Trustee, Town of Limon;
- Paul Metcalf, Trustee, Town of Limon;
- Mike Kelly, Trustee, Town of Limon;
- Joe Kiely, City Manager, Town of Limon (also Vice President of Ports to Plains Corridor Coalition);
- Dave Stone, Public Works Director, Town of Limon;
- Jeff Anderson, Administrator, Town of Lamar;
- Gary Beedy, Commission Chair, Lincoln County;
- John Metli, Commissioner, Elbert County;
- Patricia Vice, Mayor, Town of Genoa;
- Gary Ensign, Clerk and Manager, Town of Hugo;
- Scott McClure, Manager, Town of Brush; and
- George Tempel, Transportation Commission of Colorado.

Also in attendance were candidates for Lincoln County Commissioner and Colorado House District 63; economic development and chamber of commerce professionals from Lincoln, Logan, and Broomfield counties; a former CDOT commissioner; Colorado Division of Wildlife staff; a specialist from the Colorado Department of Local Affairs/Colorado State University Community Technical Assistance Program; other CDOT staff; and a representative from the Federal Highway Administration. Other guests included small business owners representing a variety of industries and agricultural interests.

Members of the media in attendance included an editor and reporter from the Limon Leader, a reporter for the I-70 Scout, and the co-hosts of an Arapahoe County-based community talk radio program, "The Frank and Patty Show."

Because the project had advanced significantly since the first round of public meetings in March, the presentations generated more detailed questions and comments from attendees. Among the issues raised by attendees and answered by the project team during the discussion period were the following:

- Has the project team engaged federal elected officials in the process to encourage their support, specifically U.S. Congressmen Bob Beauprez and Tom Tancredo?
- What else has the team done to engage the communities along the Corridor and keep interested parties informed?
- Would the entire Corridor eventually become part of the U.S. Interstate system?
- Can the project team give a more detailed explanation of the relief routes planned along the Corridor and what they would accomplish?
- The prairie is already highly vulnerable to fires started by cigarettes tossed from passing vehicles. Would the Corridor design include any sort of non-flammable materials along the shoulders to help mitigate the danger from increased traffic?
- Would the Corridor improvements be constructed using asphalt or concrete?
- How would the Corridor's development affect CDOT's maintenance costs, particularly since there always seems to be a shortage of funding for maintenance and operations as things stand now?
- Is the cost/benefit analysis factoring how an improved Ports to Plains Corridor would draw traffic from I-25, thereby lowering construction and maintenance costs on the Interstate?
- Will the entire length of the Corridor ultimately become a divided four-lane highway?
- Will the CDMP address issues of access for landowners and the movement of livestock across the roadway?
- Does the project consider the parallel route, US 385, and the fact that communities along that route are seeking Corridor designation as well?
- Is the project considering the role of rail as an alternative to alleviate freight congestion along a fully-developed Corridor?
- What is the target date for completion of the plan and the Corridor's full development?
- What happens after the plan is completed?

Written comment forms filled out by attendees included the following:

- "Very valuable project. Make sure that tie-ins to Heartland Expressway and other Great Plains routes are factored into project planning. To maximize benefits to this Corridor, Heartland Expressway should be ultimately considered to be a four-lane roadway." – Scott McClure, City of Brush
- "Congressman Tancredo supports this project and is following its progress through Congressional committees." – Terry Van Keuven, Staff for U.S. Rep. Tom Tancredo

Midland, TX Summary

The Midland meeting was held on August 3, 2004, from 4:00 p.m. to 7:00 p.m. in the Center for Energy and Economic Diversification. Similar to the Limon event, the Midland open house included a 4:30 p.m. presentation by the project managers that was repeated at 6:00 p.m. Approximately 30 people attended

the earlier presentation. Five people attended the later presentation. These numbers do not include project team members and TxDOT staff.

TxDOT Odessa District Engineer Lauren Garduno, P.E. welcomed the audience and recognized elected and local officials. The following public officials attended the first presentation:

- Odessa City Council members Royce Bodiford and James Gates;
- Jenny Welch from Congressman Randy Neugebauer's office;
- Denise Perkins from State Senator Kel Seliger's office;
- City of Midland Airport Director Marvin Esterly; and
- City of Midland Planning Manager Cameron Walker.

Also in attendance were Michael Reeves, President of the Ports to Plains Corridor Coalition, and James Beauchamp, P.L. Jones, and Gloria Pena from the Midland Odessa Transportation Alliance, as well as other regional TxDOT staff.

Mr. Garduno noted that the TxDOT Odessa District is interested in the Corridor because it is a crossroads for the department in combination with the La Entrada Al Pacifico (LEAP), a proposed highway project extending from the Pacific Coast of Mexico through Chihuahua City to the Texas-Mexico border in Presidio County and into Midland-Odessa.

After both presentations, the project team asked for comments and questions. The following questions and points were raised:

- Mr. Mehalko discussed the outreach and the process the project team used to develop the ITS portion of the plan. He added that the plan seeks to propose a new set of agreements and/or procedures that could be utilized to make travel seamless along the Corridor. Mr. Garduno noted that the TxDOT districts are working on regional ITS architectures so that they would be able to compete for federal funding. Mr. Garduno indicated that Odessa is currently developing its own ITS plan. He said it is important for TxDOT to integrate the districts' regional ITS architecture plans with what the project team is developing.
- Will the Ports to Plains Corridor and the LEAP project compete for funding? Mr. Mehalko responded that there are 43 Corridor assessment projects under TEA-21. The LEAP project is not shown in the CDMP. He added that all of the corridors could be eligible for funding depending on what appears in the new highway reauthorization bill.
- Will it take $1.9 billion dollars from the federal government to complete the project? Mr. Mehalko said the project team is looking at all different funding options, including public private ventures and tolling capacity. Mr. Parks added that a portion of the cost is right-of-way and utility, some of which may be a local cost. Mr. Garduno noted that by Texas Transportation Commission direction, TxDOT has to study all projects with added capacity for toll viability. Mr. Mehalko noted that federal dollars are being used for this project. He said one of the tasks is to look at the costs and benefits of investing federal dollars in this Corridor so decision makers will have this information as they proceed.

- Mr. Garduno asked how the project team is looking at cost benefit ratio. He asked if the team is looking at factors that consider dollar values on certain movement of goods. Mr. Mehalko said that some factors being considered are the costs associated with the movement of goods and the operating costs for commercial vehicle movement from community to community. He said the team is creating a model that looks at how 500 different zones along the Corridor are affected by the changes the Ports to Plains Corridor will make and the kinds of jobs that will be created. Travel time savings as well as environmental, maintenance, operations, and ITS benefits are being considered.
- What recourse is there for those that think this is a waste of taxpayer dollars? Mr. Parks responded that people should fill out surveys to provide their thoughts and talk to their congressmen and state legislators. He noted that there will be another round of public meetings during the environmental study of each expansion project and relief route.
- It was suggested that bringing in cheaper beef from Mexico is not an economic incentive. Mr. Garduno responded that the Mexican State of Chihuahua is one of the bigger importers of Texas beef. He commented that if we can keep prices up and move goods more efficiently, we have to look at that element as a benefit to this region.
- One attendee asked if the routes would go around towns or through towns. He encouraged the team to consider relief routes as a priority and choose the safest route in the process. Mr. Mehalko said there are 15 relief routes, and most have already been through the planning process. He added that the team is taking that information and putting it into the plan. Once completed, the idea is to know what needs to be done; what it costs; and how could it be financed.
- What is the connection between LEAP and the Ports to Plains Corridor, and will the Corridor be built before LEAP? Why should we spend money on LEAP if we are also spending money on the Ports to Plains Corridor? Mr. Garduno responded that fortunately the Ports to Plains Corridor and LEAP mirror each other for just a small section. Those particular sections of the Corridor will not be competing for funding because they are congruent. Mr. Garduno added that the two projects may be built out congruently over time, but the benefit of the Ports to Plains Corridor is that it swings down to Laredo and relieves some of the congestion at that port. The LEAP project, he added, will come from Presidio and will relieve some of the congestion at the El Paso port.
- What input has been received from Mexico contacts or contacts along the border? Mr. Mehalko responded that the team has driven the route and identified the border crossings. He added that Mexico has provided some input as well. He noted that the concept of the ITS program includes how to identify things like opportunities for security, but the team has not conducted a review of how to make the borders safe. Mr. Parks added that the team has made contacts in the border region, including the city manager in Del Rio. He added that Michael Reeves, President of the Ports to Plains Coalition, has been meeting with a number of people involved with a new location for a bridge between Del Rio and the dam on Lake Amistad. Mr. Parks stated that the team has been in communication with the City of Laredo and Webb County officials and is planning more contacts with a number of partners that are working in that zone.

- Mr. Garduno asked if the team is going to look into the possibility of tapping into the Homeland Security Defense funding as part the financial plan. Mr. Mehalko responded not right now because the team already has a listing of potential funding opportunities from the federal side.
- Which agency has the legal authority to man the border crossings? And, will state and local officials be able to stop Mexican trucks if they think the trucks are not up to U.S. standards? Mr. Parks responded that this is predominately done by the U.S. Customs and Border Patrol. Mr. Garduno added that in Texas, the Department of Public Safety looks at vehicle safety inspection issues.
- Mr. Garduno asked if the team is looking at designing the facility to Interstate quality standards. Mr. Parks responded that some sections are not going to go that far, but there are others, such as relief routes, that TxDOT is planning as fully controlled access facilities. Mr. Mehalko added that the team is trying to follow each state's specific design standards and what they would each like to see.
- How does the funding break down on maintenance and operations? Mr. Parks discussed the difference between routine and preventative maintenance. He noted that routine maintenance is purely state dollars, while some preventative maintenance, or heavy maintenance, can qualify for federal funding.
- Mr. Parks commented that the project team was there to listen but stressed that projects moving forward along the Corridor still have to go through the local TxDOT process. He said the team can be messengers but not decision makers.

The Odessa American and the Midland Reporter-Telegram published stories about the meeting the day it occurred. Mr. Mehalko gave an interview to a Midland radio talk show on the day of the meeting, and Mr. Parks and Mr. Baziar gave television interviews during the open house. The Odessa American and the Midland Reporter-Telegram also published follow-up stories the day after the meeting. General surveys and comment forms were placed in every seat in the auditorium prior to the meeting. Three general surveys were completed, but no written comment forms were left with project team members. The results of these surveys are discussed in other sections of this document.

8.1.3 Third Round (October 26 and October 28, 2004)

The third and final round of public meetings included an open house in Lubbock, Texas on October 26, 2004, and an open house in Denver on October 28, 2004. The purpose of the third round meetings was to present the final outcome of the CDMP and to explain the next steps to stakeholders.

Lubbock, TX Summary

The Lubbock meeting was held on October 26, 2004, from 3:30 to 6:30 p.m. in the International Cultural Center on the campus of Texas Tech University. Project managers Mehdi Baziar, Mark Mehalko, and Billy Parks delivered a detailed PowerPoint presentation for attendees at 4:00 p.m. The presentation summarized the year-long effort to develop the CDMP and provided an overview of the plan's content.

Approximately 50 people attended the meeting, not including project team members and TxDOT staff. The following public officials attended:

- Lubbock County Commissioner James Kitten;
- Lubbock County Commissioner Patti Jones;
- Lubbock County Tax Assessor-Collector Barbara Brooks;
- Lubbock Mayor Pro Tem Tom Martin;
- Lubbock City Councilman Gary Boren;
- Lubbock City Councilman Floyd Price;
- Hale County Commissioner Mario Martinez;
- Hale County Commissioner Benny Cantwell;
- Nancy Sharp from U.S. Senator John Cornyn's office;
- Mary Whistler and Sara Matz from U.S. Congressman Randy Neugebauer's office; and
- Derrick Clowe from U.S. Congressman Charlie Stenholm's office.

Also in attendance were Michael Reeves and Duffy Hinkle from the Ports to Plains Coalition, Sam Woods from the Lubbock Metropolitan Planning Organization, Gary Lawrence from the Lubbock Economic Development Corporation, representatives from the Lubbock Chamber of Commerce and the Chamber's Transportation Committee, Melissa Matlock from the Lamesa Economic Development Corporation, representatives of real estate and motor carrier companies, and city staff and consultants from the City of San Angelo and the City of Plainview. TxDOT Lubbock District Engineer Randy Hopmann and other TxDOT district and regional staff also were in attendance.

Newspaper advertisements for the meeting were published prior to the meeting. A story about the project and the meeting was published in the Lubbock Avalanche-Journal on Sunday, October 24th, 2004. There was radio and television coverage prior to and following the meeting. Randy Hopmann gave a television interview after the meeting.

One question was asked from the audience following the presentation. The attendee commented that the presentation indicated that the projected completion would take 25 years and asked if it could be done. Mr. Mehalko noted that there is nothing magic about the projection of 25 years. He commented that if funding becomes available, it could be completed sooner. He noted that the 25 years is something that is achievable.

Mr. Mehalko then asked if the information was useful to those in attendance.

Mr. Hopmann said that he felt that it was a good overall summary and provided good information of where we are and what we can do to move forward.

Michael Reeves, President of the Ports to Plains Coalition, said that the Coalition appreciates the work. It gives them a good bag of tools to use and a roadmap of what needs to be done. It is good support for the coalition. He added that TxDOT has been supportive. He noted that the coalition has been saying that this plan is going to be a good economic development tool.

Denver, CO Summary

The Denver meeting was held on October 28, 2004, from 3:30 to 6:30 p.m. in the Telluride Room of the Holiday Inn Denver International Airport Hotel. As in Lubbock, the project managers delivered a PowerPoint presentation at 4:00 p.m. In addition, CDOT Executive Director Thomas E. Norton offered opening remarks and assisted the project managers in answering questions from attendees.

Approximately 50 people attended the meeting, including the following public officials:

- Gary Beedy, Commission Chair, Lincoln County;
- John Metli, Commissioner, Elbert County;
- Dale Kudlock, Trustee, Town of Limon;
- Joe Kiely, City Manager, Town of Limon (also Vice President of the Ports to Plains Corridor Coalition);
- Dave Stone, Public Works Director, Town of Limon;
- David Stang, Building Inspector, Town of Limon;
- Harvey Goodman, Superintendent of Schools, Town of Limon;
- Mac Callison, Principal Transportation Planner, City of Aurora;
- Gary Ensign, Clerk and Manager, Town of Hugo; and
- Deborah Crago, Economic Development Director, Town of Kimball, Nebraska.

Also in attendance were Kevin Hougen, President and CEO of the Aurora Chamber of Commerce; Greg Fulton, President of the Colorado Motor Carriers Association; Clarke Becker, Executive Director of the Colorado Rural Development Council; Eldon Strong, Director of Highway and Transportation Services for the Colorado Contractors Association; staff from the Agate Mutual Telephone Cooperative Association; state and regional CDOT staff; and approximately a dozen Montana State University students, attending as part of an educational forum sponsored by the Institute of Transportation Engineers.

Newspaper advertisements for the meeting were published prior to the meeting. Members of the media in attendance included a reporter from the I-70 Scout newspaper.

Following the presentation, Mr. Fulton inquired as to whether the benefit/cost analysis in the CDMP accounted for increased productivity that would result from highway improvements that allow longer and heavier tractor-trailers. Mr. Mehalko responded that the study calculated costs associated with improvements that would benefit truck drivers, such as improved rest areas and ITS facilities. He added that that it did not address in any detail the productivity issues raised by Mr. Fulton. Mr. Fulton later noted that the state of Colorado needs to make its tax and regulatory environments more amenable to attract shipping and distribution related businesses.

An attendee from Limon, Colorado inquired about the Heartland Expressway and whether the CDMP addressed that Corridor. Mr. Norton responded that the project team was familiar with the Heartland Expressway but did not incorporate it into the CDMP, and that it would be under the scope of any

future study of the Heartland Expressway to determine connection with the Ports to Plains Corridor. Another attendee asked whether the CDMP addresses intermodal rail/truck facilities. Mr. Norton responded that it did not, other than taking an inventory of existing facilities.

Mr. Kiely noted that the Ports to Plains Corridor Coalition appreciates the work of the project team and hopes it opens the door not only to transportation funding but economic development funding from the federal government as well.

Commissioner Metli said that Elbert County would be interested in hiring consultants to help implement some of the economic development recommendations of the CDMP so that the county can begin taking advantage of the Ports to Plains Corridor.

8.2 Community Workshops

The project team conducted eight workshops along the Corridor to gather detailed input from local public works and economic development experts as well as elected officials and other community leaders. Attendees at some of these meetings included citizens, but the focus of these workshops was to meet with transportation planning officials and staff.

Locations for community workshops were selected to help cover geography in the Corridor that was not necessarily covered by open house meetings. In New Mexico, public hearings were being held at the same time for the environmental clearance process, so the team utilized these events to also inform the public about Ports to Plains.

8.2.1 Big Spring, Texas (March 1, 2004)

Held at the Dora Roberts Community Center, this workshop provided an insight to a community that is involved with the planning stages of a relief route. Deputy Project Manager, Billy Parks, conducted the meeting and was assisted by TxDOT staff during pointed discussions about the relief route. He provided an overview of the CDMP and explained why the meetings were being held, what had been done thus far, and the anticipated results of the project. Thirty-five individuals attended this workshop.

Comments and questions raised during the workshop and addressed by the project manager included:

- Why does TxDOT not look at different relief route locations at Big Spring?
- How do we highlight a particular bridge that is a restriction to traffic?
- Will the projects be prioritized?
- There is an interchange being designed south of Big Spring. Where is TxDOT on this?
- Would relief routes be the last to be built?

8.2.2 Lamesa, Texas (March 2, 2004)

Held in the Lamesa City Hall, this workshop was a joint meeting with the TxDOT Lubbock District. The TxDOT portion was related to a stakeholders meeting for further discussion of the proposed Lamesa relief route. Mr. Parks conducted the Ports to Plains Corridor portion of the meeting. Thirty-nine individuals attended this workshop.

Comments and questions raised during the workshop and addressed by the project manager included:

- How will this Corridor impact Lamesa?

- Was Access Management considered?
- Will the relief route kill Lamesa?
- A question was asked about freight movement south towards Mexico.
- With a movement underway to stop NAFTA, how will this impact the Ports to Plains Corridor?
- How will prioritization of sections occur?
- Who will prioritize the sections, the project team or the departments of transportation?

8.2.3 Amarillo, Texas (March 8, 2004)

Held in the TxDOT Amarillo District Office Complex, this workshop was attended by seven people. Mr. Parks conducted this meeting and was assisted by project team members Don Holloway and Alan Eckman, who provided input about traffic studies and the Geographic Information System data collection system. There were no pointed questions following the presentation, but the team provided a good overview of the project for Dan Martinez, a board member of the Ports to Plains Corridor Coalition, who was appreciative.

8.2.4 Dumas, Texas (March 9, 2004)

Held in the Dumas Community Center, this workshop was attended by nine people. Mr. Parks conducted this meeting and was assisted by Mr. Holloway and Mr. Eckman. There were no major questions after the presentation.

8.2.5 Stratford, Texas (March 9, 2004)

Held in Imagination Station, this workshop was attended by nine people and conducted by Mr. Parks. Gaynelle Riffe, secretary for the Ports to Plains Corridor Coalition, was pleased with the presentation. Comments and questions raised during the workshop and addressed by the project manager included:

- Concern was expressed as to total reliance on ports of entry at Laredo for transport of freight. There is the need to enhance the use of other ports to increase the flow of freight between Mexico and the United States.
- The Corridor connecting the west coast of Mexico to Texas through Presidio was discussed, since it ties to the Ports to Plains Corridor.
- TxDOT's rest areas were complemented. The trucking industry is using them.
- The expansion of the US 83 Corridor, as it compares to the Ports to Plains Corridor, was discussed.
- The community is concerned with the impact north-south rail movement has on traffic restrictions.
- The two rail lines, plus not having four-lane facilities, creates significant delays and concerns for the local community.
- Local citizens feel that the crossing of two rail lines and two highways creates a positive situation for rail-highway transfer facilities, similar to those in Santa Rosa, New Mexico.

- Older people use the four-lane highways rather than two-lane roads, even if the two-lane road is shorter.
- The downtown, three-block area in Dumas is very crowded.
- Attendees commented that they see additional truck traffic from the south off of I-10, which could be on the Ports to Plains Corridor but probably along US 54.

8.2.6 Boise City, Oklahoma (March 10, 2004)

Held in Boise City at the City Hall, this workshop was conducted by Mr. Parks, who was assisted by Mr. Mehalko, Mr. Holloway and Mr. Eckman. Eight individuals attended. Ronnye Farmer, a board member of the Ports to Plains Corridor Coalition, was pleased with the presentation.

Comments and questions raised during the workshop and addressed by the project manager included:

- The previous Wilbur Smith study showed the cost/benefit was marginal. The question was asked, how are we going to overcome this?
- Will investments include right-of-way costs?
- Are we adding in the impacts of the other corridors?
- Discussion regarding assessment of how we should change our coordination with Mexico, by increasing, redirecting, or other options.
- Discussion of the criteria for the cost/benefit analysis, including trade analysis and economic benefit.
- How are we considering Mexico's planning and growth?
- Reliability, safety, and speed will sell.
- Allocated funds for construction will be a part of priority process in review of the individual sections.
- Tax rebate programs for job creation were discussed.

8.2.7 Del Rio, Texas (March 23, 2004)

Held in the Del Rio Civic Center, this workshop was conducted by Mr. Parks and attended by 13 people, including Ports to Plains Corridor Coalition President, Michael Reeves. Comments and questions raised during the workshop and addressed by the project manager included:

- Are we talking to Ciudad Acuña?
- There is a huge sign supporting the Ports to Plains Corridor in the Acuña square.
- Will there be an environmental report?
- Do we anticipate that if we build it, they will come, or does the current traffic justify construction?

8.2.8 Sonora, Texas (March 24, 2004)

Held in the Sonora Community Center, this workshop was conducted by Mr. Parks and attended by 23 people. Comments and questions raised during the workshop and addressed by the project manager included:

- There was considerable discussion about relief routes, pro and con.
- Federal legislation was discussed, specifically identified funds for the Ports to Plains Corridor?
- Oil and gas drilling was discussed. The ratio of acres per well may be reduced from 40 to 20 making it harder to locate expansion projects and relief routes.
- Discussion of hazardous material routes.
- Is the town's support necessary, and what impact will it have on projects and the Corridor?
- What is the impact of railroads on the Corridor?
- San Angelo is refurbishing its multi-modal railroad station.
- There is a new road from Odessa to New Mexico for hazardous material.
- A question about the impact of Texas House Bill 3588 on the Ports to Plains Corridor.
- Mr. Parks inquired of the TxDOT representatives about the price of right-of-way for highways. The estimate is $300 to $400 per acre with an increase of 10-percent to-12 percent per year for the section between Sonora and Del Rio.

8.3 Interest Group Meetings

8.3.1 Colorado Motor Carriers Association (March 29, 2004)

Project managers Mehdi Baziar and Mark Mehalko, accompanied by project public outreach director, Drew Kramer, attended a meeting on March 29, 2004, with Colorado Motor Carriers Association (CMCA) president Greg Fulton at the organization's headquarters in Denver, Colorado. CMCA is the lead trade group representing Colorado trucking, including more than 400 companies ranging in size from two trucks to large shippers such as UPS. Mr. Fulton provided the team with an overview of the trucking and shipping industry in the state, including a discussion of the tax and regulatory structures that make it a difficult market in which to be competitive. He also noted that industry participation in Corridor studies and other types of research is low, as company owners and drivers tend to be wary of how data will be construed and presented. He said independent owner-operators are particularly difficult to reach for those seeking to study the industry.

A significant portion of the meeting was spent discussing the factors that influence truck route decisions. According to Mr. Fulton, truck drivers look at several factors in opting for one road over another:

- Road conditions and geometrics (grades, curves, etc.);
- Lane and shoulder width;
- Prevalence of at-grade railroad crossings;
- Weather, particularly prevalence of wind and drifting snow;
- Maintenance and presence of law and emergency personnel; and

- Facilities, including rest stops, restaurants, and gas stations.

Mr. Fulton noted that tolling does not necessarily dissuade trucks from taking a particular route, as long as the amount is fair and in proportion to the benefits the tolled route provides in terms of facilities and time-savings. He also noted that truck drivers prefer relief routes for efficiency around urban areas.

8.3.2 Economic Developers' Council of Colorado (April 16, 2004)

The project team organized a panel discussion to explain the Ports to Plains Corridor to members of the Economic Developers' Council of Colorado (EDCC), a nonprofit association of economic development professionals established to further the economic development of Colorado. The group convened April 16, 2004, at the Wyndham Hotel in Colorado Springs as part of the EDCC's annual conference.

Panel members included Jeff Kullman, Region 1 Transportation Director, CDOT; Joe Kiely, City Manager of Limon, Colorado and Vice President of the Ports to Plains Corridor Coalition; Mr. Greg Fulton, President of the Colorado Motor Carriers Association; and Robert J. Loew, Executive Vice President of TransPort, a multi-modal business complex on I-70 east of Denver. Don Dunshee, a member of both the EDCC and the President and CEO of the Broomfield Economic Corporation, moderated the panel. Mr. Mehalko and Mr. Kramer from the project team also attended.

Mr. Kiely emphasized Colorado's strategic position at the crossroads of several NAFTA trade networks and the Ports to Plains Corridor's connection to two other regional corridors, such as the Heartland Expressway and Theodore Roosevelt Expressway. The Heartland Expressway begins in Limon on SH 71, then continues through Nebraska on US 385, and terminates in Rapid City, South Dakota. The Theodore Roosevelt Expressway would extend from the Canadian border in western North Dakota southward to I-90 in western South Dakota. Mr. Kullman indicated that CDOT had invested $300 million in the Ports to Plains Corridor in the last 10 years but warned that millions more would be needed to make all desired improvements.

Mr. Loew noted that the movement of freight is a $400 billion business that will double in the next 20 years. He said the future of freight will key on the establishment of strategically located, multi-modal transportation and distribution centers, such as Alliance in Texas and TransPort in Colorado. Finally, Mr. Fulton offered the trucking industry's perspective, emphasizing the factors that determine which routes drivers select. The panel received positive evaluations from the approximately 35 EDCC members who attended.

8.3.3 Eastern Colorado Transportation Planning Region (April 19, 2004)

The sixth of Colorado's 15 transportation planning regions (TPRs), the Eastern Region, is host to roughly half of the state's portion of the Ports to Plains Corridor. On April 19, 2004, the Eastern TPR held a regularly scheduled meeting at the Limon Community Center. The project manager, Mr. Mehalko, made a presentation to the group, offering an overview of the CDMP. Also in attendance was Mr. Joe Kiely, Limon City Manager and Vice President of the Ports to Plains Corridor Coalition.

8.3.4 TransPort (May 19, 2004)

Project engineer Eckman and Mr. Kramer met at Front Range Airport in Denver with aviation manager Dennis Heap and Mr. Loew of TransPort to gather more information on TransPort and what it might

mean for traffic on the Ports to Plains Corridor and economic development modeling. Key items discussed include the following:

- Timeline: They are optimistic that FasTracks (a transit initiative on the November 2004 Ballot in Colorado) will bring funding to move the Union Pacific rail yards out of Denver and to the TransPort location. If FasTracks passes, this move could occur sometime between 2005 and 2008. If the transit initiative does not pass, Mr. Loew thinks the investment will still be made due to the need for Union Pacific to upgrade their facilities. In the next year, they will be completing a new tower at Front Range Airport that will allow larger and more diverse types of aircraft to land.
- Modal Split: TransPort is heavily reliant on rail. They feel that 90 percent of the goods transferred will involve rail. While anything transferred from rail ends up on trucks, the question is whether they have originations or destinations via the Ports to Plains Corridor. The remaining 10 percent of the activity would be by air.
- Previous Studies: Mr. Loew supplied two studies and a source for another published by the American Association of State Highway and Transportation Officials (AASHTO). The first study was conducted in 2001 and was an air cargo feasibility study. The second study was conducted in 2002 and attempts to assess the potential market demand for TransPort.
- Type of Goods: TransPort would like all types of goods to pass through its facility. Mr. Loew specifically mentioned partners such as Lowe's, Wal-Mart, and UPS.
- Capacity of Facility: TransPort is modeled after Alliance in the Dallas/Fort Worth area in Texas. Using the growth and capacity of Alliance as a correlation for the size of the TransPort facility would be a good place to start for modeling purposes.
- General Opinions: While not a part of the CDMP, TransPort and Front Range Airport officials believe that Denver International Airport is undersized and poorly designed to handle increased cargo. Existing rail and air cargo facilities in the entire Denver area are constrained, and once the constraints are lifted, it is hard to tell how the distribution/commercial market may grow. With southern California areas now becoming sensitive to increasing the rail/box traffic and facilities, there may be room to capture this facility growth in Colorado.

8.3.5 Metro Denver Chamber of Commerce (May 21, 2004)

On May 21, 2004, Mr. Mehalko, Mr. Kramer and CDOT Steering Committee representative, Ms. Tammy Goorman, attended a meeting of the Metro Denver Chamber of Commerce's Transportation Committee. The committee works with CDOT, Regional Transportation District, Denver Regional Council of Governments, Colorado Mobility and Air Quality Council, Southeast Mobility Coalition, Transit Alliance, and other related industry organizations to ensure that Colorado has an adequate multi-modal transportation infrastructure.

Team members attended primarily to observe the Ports to Plains Corridor presentation by Mr. Joe Kiely, Vice President of the Ports to Plains Coalition. They ended up, however, answering questions and engaging in dialogue with local transportation leaders, particularly about funding issues. Mr. Mehalko promised to make the project team available to the committee for future questions or updates.

8.3.6 Colorado Statewide Freight Advisory Council (June 25, 2004)

Ms. Goorman, Mr. Baziar, Mr. Mehalko, and Mr. Kramer attended a regularly scheduled meeting of the Freight Advisory Council, which was chaired by CDOT Executive Director, Tom Norton. Mr. Baziar gave a presentation and status report on the Ports to Plains Corridor.

A question was asked about the Heartland Expressway, particularly the section of roadway in Wyoming. Mr. Norton and Diane Koller Gray, who is with the CDOT Policy Office, gave a clarification on the existing route and indicated that, to their knowledge, no determination had been made regarding the designation of the route in Wyoming.

Peggy Catlin, CDOT Deputy Director, asked if there were any tolling efforts in the study to determine what may be possible. Ms. Catlin mentioned that the State of Texas is currently under a mandate from their transportation commission to look at tolling options for all capacity enhancement projects. Mr. Mehalko explained that tolling had not been looked at throughout the Corridor, but he would look into the possibility and bring the matter up to the project steering committee.

In addition to CDOT staff, attendees included:

- Craig Larson, Federal Highway Administration;
- Leo Penne, AASHTO;
- Bob Loew, TransPort;
- Pete Rickershauser, Jay Chapa & Cathy Norris, Burlington Northern Santa Fe Railway;
- Dick Hartman and Scott Moore, Union Pacific Railroad;
- Rick Busch, Denver International Airport;
- Mike Ogborn, Omnitrax;
- Quenton Vance, Washington County Commissioner;
- Andy Goetz, Denver University Intermodal Institute;
- Eldon Strong, Colorado Contractors Association;
- Jeff Anderson, Colorado Department of Revenue;
- Randy Grauberger, PB World Consultants; and
- Tammy Ottmer, Colorado Department of Health and Environment.

8.3.7 Action 22 (July 30, 2004)

Ms. Goorman, Mr. Baziar, Mr. Kramer and Mr. Eckman attended a regularly scheduled conference of Action 22, an economic development-focused coalition of 22 counties in southern Colorado. The team offered a presentation on the status of Ports to Plains Corridor to the organization's Transportation Committee. Approximately half a dozen members, including committee chairman and Director of the Baca County Economic Development, Verlin Hopkins, heard the presentation and asked questions about timing and funding.

8.3.8 I-70 East Corridor EIS Project Team (Aug. 16, 2004)

One of the most prominent highway projects underway in the Denver area is the I-70 East Corridor Environmental Impact Statement (EIS). The Corridor includes I-70, between I-25 and Tower Road, a portion that coincides with the northern-most section of the Ports to Plains Corridor. The CDOT project team working on the EIS is studying and analyzing alternative transportation projects that could improve safety and mobility and address congestion in the Corridor.

Given the overlap of the two corridors and the potential impact the respective projects could have on each other, Mr. Baziar, Mr. Mehalko and Mr. Kramer met with the EIS project team to share information on the status of both studies. In addition to agreeing to coordinate the timing of any public meetings the two teams would be holding in the Denver area, the attendees agreed to add each study's website links to the other's.

8.3.9 Ports To Plains Corridor Coalition

As noted throughout this section, there was significant contact and coordination with the nonprofit Ports to Plains Corridor Coalition throughout the CDMP process. Coalition officials attended the project public meetings, and project team members attended the coalition's annual meetings in Denver in November 2003 and in Laredo in November 2004. The two entities consulted and shared information with each other on a variety of topics. It is expected that the coalition will play a critical role in leveraging the finished CDMP to increase awareness of the Corridor and seek funding sources for its development. The Communications Guide discusses strategies for these tasks in more detail.

8.3.10 Other Groups

The project team met or communicated with a variety of other groups that either already had an interest in the Ports to Plains Corridor or were not familiar with the Corridor but represented a constituency that could potentially offer stakeholder support. Contact with these organizations ranged from single telephone calls or e-mail exchanges to face-to-face meetings:

- Border Trade Alliance;
- Texas Border Infrastructure Coalition;
- Border Counties Coalition;
- U.S.-Mexico Chamber of Commerce;
- USTranscom;
- Mexico state officials;
- Luis Saenz, Texas Assistant Secretary of State and liaison to Mexico;
- Laredo Development Foundation;
- Recreational Vehicle Industry Association;
- Good Sam Club (recreational vehicle organization);
- Texas Motor Transportation Association;
- Texas Recreational Vehicle Association;
- American Association of State Highway and Transportation Officials;

- Western Association of State Highway and Transportation Officials; and
- Federal Highway Administration.

8.4 Project Newsletter

As part of the 2004 public outreach process, the project team published three editions of a project newsletter entitled "Progress" to inform readers about the development of the CDMP. The three issues were published in March, July and October, roughly to coincide with the three rounds of public meetings. Postcards were mailed in advance of the first and third newsletters to advise stakeholders of upcoming meetings. The second newsletter was mailed to the project mailing list in advance of the July meetings and, therefore, served as a meeting reminder as well. In all three cases, newsletters were distributed at the public meetings and made available on the project website.

Rather than publish a fourth newsletter, the project team mailed a final executive summary of the CDMP to the mailing list, which by the end of the project included more than 1,400 entities. The mailing list included approximately 1,100 contacts at the beginning of the project. Additional names were added throughout the project based on contacts and meetings. The project team has provided the mailing list to the Ports to Plains Corridor Coalition.

8.5 Project Website

As part of the 2004 public outreach process, the project team established and maintained a project website at www.portstoplainscorridor.com. The team also purchased the .net and .org designations, thus ensuring that the website could be accessed using the .net and .org domain names as well.

The website was used to post project background and updates; frequently asked questions; newsletters, announcements, and summaries of public meetings/open houses; and public meeting presentations and project team contact information. The website was linked to the four state departments of transportation websites, the Ports to Plains to Coalition website, and other related websites. Meant to be interactive, the project website also allowed visitors to post comments or questions to the project team.

A brief summary of site activity through October 2004 follows: (Note: We will provide final website figures at project completion on November 30th)

- There were 81,206 total requests (i.e., "hits") on the website.
- Months with the highest requests, from most to least requests, were August, July, September, June, March and April in 2004.
- The most requested areas, besides the home page, were the news section, Corridor map, overview, and frequently asked question/links.
- Weekdays saw the most hits from 8 a.m. to 5 p.m. There were more hits in the afternoons than mornings, with peak hits generally occurring around 4 p.m.

- The website was accessed by a number of public agencies and other constituencies, including the four Corridor state DOTs and the Kansas DOT; National Oceanic and Atmospheric Administration; U.S. Department of Agriculture; U.S. Environmental Protection Agency; U.S. Department of Justice; U.S. Department of Homeland Security; U.S. Courts System; U.S. House of Representatives; military entities; educational institutions; consulting/engineering firms; newspapers; Texas state agencies; Wilson County, North Carolina; the state of North Dakota; and several foreign countries, including Mexico and Canada.
- The most frequent manner in which the website was accessed was by direct request, indicating visitors knew the website address in advance and did not have to use an Internet search engine. The most frequent referring website was CDOT's website, which included a link to the project website for most of the year.
- There were five requests for information via the website. The project team responded to all requests by providing information directly to the person or putting the person in contact with an appropriate contact.
- A number of visitors completed surveys via the website. The results of those surveys are discussed in other chapters of this document.