Transportation Policy Brief #3

# Nearshoring in Mexico: Recent Trends and Relevance to Texas


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TRACY DEL BIANCO
MAIA DRAPER

**September 2015**

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## FOREWORD

The Lyndon B. Johnson School of Public Affairs at The University of Texas at Austin has established interdisciplinary research on policy problems as the core of its educational program. A major part of this program is the nine-month policy research project (PRP), in the course of which two or more faculty members from different disciplines direct the research of 10 to 20 graduate students of diverse backgrounds on a policy issue of concern to a government or nonprofit agency.

During the 2014–2015 academic year, the Texas Department of Transportation (TxDOT) supported a policy research project on manufacturing trends in Texas and Mexico, addressing six key policy issues. The project was a collaboration of the Center for Transportation Research (CTR) and the Lyndon B. Johnson School of Public Affairs at The University of Texas at Austin, and the Center for Economic Development and Research at the University of North Texas.

The research team interacted with TxDOT officials throughout the course of the academic year. Overall direction and guidance was provided by Mr. Marc Williams, Director of Planning for TxDOT. Mr. Williams participated in an October 10, 2014, workshop to determine the scope of the study. As a consequence, the following policy issues were selected for study:

1. Texas Manufacturing Competitiveness;
2. Reshoring in Texas;
3. Nearshoring in Mexico;
4. Inland Ports and Logistics Hubs;
5. Intra-Industry Trade; and
6. Implications of the Trans-Pacific Partnership on Transportation in Texas.

The findings of each policy issue are presented within the context of separate transportation policy briefs. This particular policy brief, “Nearshoring in Mexico: Recent Trends and Relevance to Texas,” was researched and written by Tracy Del Bianco and Maia Draper.

## ACKNOWLEDGEMENTS

This policy research project would not have been possible without the generous contributions of numerous individuals and organizations. In particular, we would like to thank Eduardo Hagert of the Texas Department of Transportation (TxDOT) and the staff of CIDAC (*Centro de Investigación para el Desarrollo)* for helping us in the early stages of this project.

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## TABLE OF CONTENTS

## EXECUTIVE SUMMARY

As foreign companies increasingly relocate their manufacturing operations to Mexico, the Mexican government and industry are implementing reforms to increase the country's competitiveness as a global, high-tech manufacturing hub. Mexico is working to increase its competitiveness through significant infrastructure investments, development of high-tech manufacturing clusters in the automotive and aerospace industries, energy and security reforms, and a significant governmental effort to increase public-private partnerships (PPPs).

Due to the substantial economic integration of the Mexico-Texas border trade region, these transformations will also have an impact on the Texas economy, necessitating investment in infrastructure and trade logistics to accommodate an increase in U.S.-Mexico freight traffic and in general trade flows. This paper discusses current policy and industry developments in Mexico that are supporting the nearshoring trend and assess their viability.

The policy brief's introduction provides background and context for the current nearshoring and reshoring trend in Mexico. It presents evidence for the existence of a nearshoring and reshoring growth in Mexico and argues this trend as important to consider for transportation planning in Texas.

The next section explores the current manufacturing climate in Mexico. It provides the reader with data showing the change and growth of Mexico's manufacturing industry from its origins in *maquiladora* manufacturing. This section highlights the large and growing amount of foreign direct investment (FDI) in Mexico.

The next section takes an in-depth look at a specific example of Mexico's manufacturing climate: the automotive industry. This section outlines the rapid growth of automotive manufacturing in Mexico and suggests that future growth trends will remain strong. This section also describes the clustering of the automotive industry in central and southern Mexico and posits that this clustering will have important transportation ramifications.

The policy brief then shifts to Mexican policies that have spurred nearshoring and reshoring, including infrastructure improvements. This section presents past and current infrastructure improvements and outlines the Mexican government's infrastructure improvement plan. This section suggests that, although deficient in some regards, Mexican infrastructure is greatly improving, making travel within the country easier and inevitably affecting travel across the border and in Texas.

The subsequent section explores the rise in PPPs and the efforts by the Mexican government to foster a friendly environment for PPPs. These partnerships are increasingly used for funding infrastructure and other projects.

The remaining sections outline additional governmental reforms that could potentially affect the nearshoring and reshoring trend. These include energy reforms, namely opening the Mexican energy sector to private investors and security reforms. As Mexico looks to make itself a desirable location for multinational corporations, it continues to battle with security issues, both real and perceived. The government has initiated a series of reforms aimed at improving safety in Mexico.

The policy brief concludes with recommendations for TxDOT to ensure preparedness for the impact that expanded manufacturing in Mexico will have on the economy and transportation infrastructure of the Texas-Mexico region. The recommendations include:

- TxDOT should monitor new automotive manufacturing operations in Mexico and the corresponding impact on freight traffic from Mexico to the United States. Establishing a line of contact with the Mexican Automotive Industry Association is one way that TxDOT could improve its awareness of trends in the industry on the Mexican side of the border, in particular in terms of emerging industry issues related to transportation infrastructure.

- As the Mexican government leverages private investment to carry out projects under this new regulatory framework, TxDOT should keep an eye on the law's impact on private infrastructure investments and on Mexico's ability to follow through with the ambitious projects it has proposed.

- TxDOT should continue to monitor private investments in the Mexican energy sector. These investments could include financial support of existing projects like the Los Ramones Pipeline, or new investments by companies that obtain rights to drill in Mexican oil fields. TxDOT should continue to prioritize studies of this phenomenon.

## INTRODUCTION: RESHORING AND NEARSHORING IN MEXICO

Beginning in the 1990s, many manufacturing firms operating in the United States and Mexico began to relocate their production operations to Asian countries, most often China, but to other low-cost countries like Vietnam and Malaysia as well. Domestically, this multi-decade trend was viewed with concern and it became known as "offshoring." However, in recent years, as wages in China have risen and countries and regions closer to consumer markets have regained viability as potential manufacturing sites, many corporations have begun to rethink this strategy. In particular, companies with an interest in the U.S. market have found that relocating their operations back to the United States or nearby, in Mexico, gives them a competitive advantage over companies with manufacturing facilities in China by decreasing shipping time and costs.

Benefiting from a shared border and trade integration supported by the North American Free Trade Agreement (NAFTA), Mexico plays an important role in this trend. Mexico's manufacturing sector has grown rapidly over the past decade, accounting for 84 percent of the country's exports and nearly a quarter of its GDP in 2013.[1] And, as manufacturing booms in Mexico, trade at the Mexican border has grown significantly as well. The total value of trade with Mexico increased by 10 percent from 2011 to 2012, from USD $204.1 billion to USD $223.6 billion, with truck crossings increasing by 5.6 percent in the same year.[2,3] In fact, the Economist Group projects that if current trends continue, Mexico will become the United States' top trading partner by 2018.[4]

A 2013 survey conducted by global business consulting firm AlixPartners found that 84 percent of manufacturing executives surveyed said that nearshoring their operations would be an important decision to consider in the coming year, representing a considerable increase over the previous year, when 53 percent were considering this move.[5] Moreover, the study projected that by 2015, the cost of importing manufactured products from China would be more or less equivalent to the cost of manufacturing them in the United States. Specifically, 37 percent of those surveyed in 2013 would choose Mexico as a location for nearshoring and the same percentage would choose the United States.

More indications of the central role that reshoring and nearshoring increasingly play in the U.S.-Mexico relationship come from the automotive industry, with 70 percent of Mexico's vehicle exports going to the United States and Canada in 2012. Overall, investment planned or underway in Mexico's automotive sector totaled approximately USD $10 billion between January 2013 and August 2014, according to government estimates.[6] As the impact of these new plants begins to be felt in the Mexican economy, the country's ability to provide the

[1] CIDAC, "Reshoring Mexico 2014."
[2] U.S. DOT, "Border Crossing/Entry Data: Time Series Analysis."
[3] U.S. DOT, "Freight Facts and Figures 2013."
[4] "The Rise of Mexico."
[5] Bond, "Report."
[6] Althaus, "Kia Plans $1 Billion Mexico Car Assembly Plant."

necessary infrastructure and trade integration with the United States and other countries will be crucial, as Mexico seeks to consolidate its competitive advantage as a prime nearshoring destination for the automotive industry.

## MEXICO: A COMPETITIVE MANUFACTURING HUB

Mexico has become a competitive destination for reshoring operations from China for several reasons. First, its proximity to the U.S. border allows companies to reap the benefits of significantly lower transportation costs and less time in transit, as compared to shipping from Asia. Additionally, as labor costs in China have risen dramatically over the past few decades—Chinese wages rose at a rate of 10 percent per year from 2000to 2005 and 19 percent per year from 2005 to 2010, according to some studies—Mexico's wages have become highly competitive due to their relative stability, growing by only 1 percent per year over the past decade.[7,8] By some projections, Mexico is on track to have wages 30 percent lower than China (when adjusted for productivity) by 2015.[9]

Mexico's existing manufacturing infrastructure, particularly in the northern part of the country, is another key advantage, as is its ample supply of workers specialized in assembly and manufacturing. Moreover, Mexico's numerous free trade agreements—40 agreements with 45 countries as of 2015, more than any other nation—are seen as an advantage by many companies, who see an opportunity for easy access not only to the U.S. market, but also to markets in Europe, Latin America, and Asia.[10] As a point of comparison, the United States maintains free trade agreements with only 20 countries.[11] Finally, a variety of other factors can give Mexico the edge over China when considering nearshoring, such as a more stringent enforcement of intellectual property rights, more familiar customs and language, shorter travel times from the United States, and locations in the same time zones.

FDI in Mexico has already shown significant increases in recent years, rising by more than 50 percent from 2009 to 2012 to USD $7.4 billion. Exports from foreign-owned factories also went up by 50 percent to USD $196 billion during the same period.[12] Representative of the general composition of manufacturing investment, the Mexican Association of Private Industrial Parks (AMPIP) reports that 42.2 percent of its companies are from the United States, followed by Mexico with 29.7 percent. Other countries operating in Mexico's industrial parks include Japan (4.7 percent), South Korea (2.8 percent), and Canada (2.4 percent).[13] More broadly, currently the bulk of nearshoring and reshoring activity is coming from the United States.[14] Manufacturing is by far the most significant industry in

[7] CIDAC, "Reshoring Mexico 2014."
[8] "The Rise of Mexico"
[9] Boston Consulting Group, "Made in America, Again: Why Manufacturing Will Return to the U.S."
[10] ProMéxico. "México y Sus Tratados De Libre Comercio Con Otros Países."
[11] Althaus and Boston, "Why U.S. Auto Makers Are Building New Factories in Mexico, Not the U.S."
[12] Li, "More U.S. Companies Opening High-Tech Factories in Mexico."
[13] Association of Private Industrial Parks, "AMPIP."
[14] CIDAC, "Reshoring Mexico 2014."

the makeup of Mexico's FDI inflows, with 77.7 percent of total FDI during 2014 attributable to this sector of the economy.[15]

## HIGH-TECH MANUFACTURING GROWTH AND THE AUTOMOTIVE INDUSTRY

One important driver of recent growth in Mexico's manufacturing sector is high-tech manufacturing, particularly in the automotive and aerospace industries. The growth of Mexico's highly skilled labor pool, coupled with investment by foreign firms, has enabled considerable growth in these sectors in recent years. In 2013, 118,000 Mexican students graduated with engineering degrees, placing it among the top 10 countries in the world in terms of engineering graduates per year.[16]

In the automotive industry, in particular, Mexico has been the location for explosive growth in production in recent years. One company that is placing its bets on Mexico as an ideal manufacturing location is Kia, which in 2014 announced plans to open a USD $1 billion car assembly plant in Monterrey. During that same year, BMW AG, Renault SA, and the Nissan Motor Co. and Daimler AG partnership also announced plans to manufacture in Mexico. Moreover, existing automotive companies are expanding their Mexican production. For example, General Motors is increasing production at its Silao, Mexico, plant from 280,000 to 730,000 vehicles per year, while Honda, Mazda, and Volkswagen, among others, are also expanding their manufacturing presence in the country.[17,18] Mexican auto exports in the first quarter of 2015 were up 13.6 percent over the same period the previous year, and overall production was up by 9.6 percent.[19]

One notable feature of the remarkable growth in Mexico's auto cluster is its location. Whereas in the past, the *maquiladoras* in Mexico's northern border regions have been at the center of the country's manufacturing sector, many of the foreign automotive companies fueling the most recent investment boom have chosen to locate in the central states of Guanajuato, Aguascalientes, and Queretaro. Car manufacturers relocating operations to the region include Volkswagen, Nissan, Honda, Mazda, and Kia. While as of March 2015 the vast majority of cars produced in Mexico still go directly to the United States (70 percent) and Canada (11 percent), companies also have an eye to markets worldwide, particularly Latin America (7 percent), Asia (4.1 percent) and Europe (3.5 percent).[20] As a result, connectivity to Mexico's ports has become an important part of firms' export logistics considerations.

Moreover, a 2014 tax reform increasing the tax burden on *maquiladoras* on its northern border, along with ongoing security concerns related to drug violence, means that some of

[15] National Commission on Foreign Investment, "Informe EstadíStico."
[16] Hernandez, "Se gradúan en México más ingenieros que en Alemania."
[17] Ludwig, "Dressing for a Hot Market in a Cold Network."
[18] Althaus, "Kia Plans $1 Billion Mexico Car Assembly Plant."
[19] Mexican Association of the Automotive Industry, "Boletín de Prensa."
[20] Ibid.

the incentives for companies to prioritize setting up operations on the border may be less compelling than in years past.[21] This relocation of manufacturing activity to central regions of Mexico makes supply chains and transport networks within Mexico all the more important to the country's trade flows to and from the United States, as manufacturing sites shift farther away from the U.S. border.

## BUILDING MEXICAN INFRASTRUCTURE CAPACITY TO ACCOMMODATE TRADE

### MEXICAN GOVERNMENT INFRASTRUCTURE PLAN 2013–2018

Mexico's infrastructure plan for 2013–2018 makes clear that the government is prioritizing modernization of its transportation networks to attract nearshoring activity and other types of FDI. Mexico's President, Enrique Peña Nieto, asserted that "the vision of this government is to make Mexico a superior global logistics hub with high added value," and he has shown that his administration recognizes transportation infrastructure improvement will be necessary to achieve its vision.[22] Currently, Mexico ranks 64th out of 148 countries for infrastructure competitiveness according to the 2013–2014 World Economic Forum's Global Competitiveness Index.[23]

Mexico's infrastructure plan proposes to expand and protect the federal highway network; make improvements to roads and bridges, railroads, ports, and airports; provide more and better mobility in urban and cargo transport; reduce travel times; lower logistics costs; achieve greater security; and improve telecommunications coverage. Overall, 211 transportation infrastructure projects are proposed at a total cost of about USD $38 billion. Particularly relevant for freight concerns, 149 of these projects involve construction or improvements to highways and roads, and 10 are improvements to Mexico's rail networks.[24] These projects will also include new airports, doubling port capacity, new rail lines, and high-speed trains. The plan also emphasizes the need for PPPs to carry out these improvements, and for cities attracting private investment as a major goal.[25,26]

Peña Nieto's infrastructure and communications plan is ambitious, promising to invest about twice as much, in terms of percentage of GDP, as his predecessor, former president Felipe Calderón.[27] His government's ability to implement projects in effective collaboration with the private sector will be key in determining to what extent Mexico will meet its ambitious goals in improving its infrastructure. As a metric for comparison, the Calderón administration had invested about 70 percent of the USD $2.5 billion promised in its infrastructure plan by the time he left office in 2012.[28]

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[21] Cuellar and Zamora, "Mexico: Tax Reforms for Maquiladoras (IMMEX) are Relaxed."
[22] Secretaría de Comunicaciones y Transportes, "Programa de Inversiones."
[23] Schwab, "The Global Competitiveness Report: Full Data Edition 2013-2014."
[24] Secretaría de Comunicaciones y Transportes, "Programa de Inversiones."
[25] Ibid.
[26] Luhnow, "Mexico President Turns to Cementing Overhauls."
[27] Casillas, "Plan de infraestructura orientado a energía y al Sur y Sureste de México."
[28] Ibid.

Going further back, infrastructure planning in Mexico must also keep in mind the lessons learned in the 1980s and 1990s, when the country built its toll roads on unrealistic forecasts (which then failed to generate sufficient revenue to service the loans), resulting in crumbling infrastructure across the country and forcing the government to incur USD $14 billion in debt to ameliorate the situation.[29] More recent efforts at public-private collaboration in infrastructure development under former president Calderón have been more successful, in part by granting longer concessions—of 20–30 years, as compared to 10 years previously—that motivate private operators to bear more responsibility for long-term highway upkeep.[30]

The Peña Nieto administration has continued its planning along the same lines when it comes to infrastructure, and a PPP law passed in 2012 promises a more transparent framework for managing these types of collaborations. As the current government pursues its ambitious infrastructure improvement plans, its ability to strike an effective balance between leveraging private sector investment and ensuring adequate government oversight and involvement will be key to determining the Peña Nieto administration's ability to follow through on its promises for Mexico's infrastructure by 2018.

## INFRASTRUCTURE PROJECTS UNDERWAY

### *Mazatlán-Matamoros Corridor*

Recent infrastructure projects underway, as of 2015, include significant improvements to Mexico's Mazatlán-Matamoros trade corridor, which connects Mexico's east and west coasts. This road is particularly important for Mexico's automotive and agriculture industries. Many export products move from Matamoros into Texas at the Matamoros-Brownsville border crossing, and local industry in Brownsville has welcomed the influx of trade and corresponding local job creation from development of this corridor in Mexico, which has required close to USD $2 billion in Mexican government investment since its inception.[31]

In 2012, the completion of the Baluarte Bridge over the Sierra Madre Occidental mountain range along the Durango-Sinaloa border marked a major improvement for firms shipping freight along this corridor, reducing transit time from the Gulf of Mexico to the Pacific Ocean by about three hours.[32] Mexican investment in this corridor continues. In February 2015, the Mexican government announced completion of a USD $58 million package of highway improvements in the northern border state of Coahuila, including widening of several important highways in the state and construction of the Abasolo-Periférico Vehicle Bridge. The bridge increases capacity and connectivity in an area that is key for the

[29] Dillon, "Mexico's Privately Run Highways Prove a Costly Failure."
[30] Abrew Quimbya, "La infraestructura es un gran negocio, hay que aprovecharlo."
[31] Clark, "Mexican infrastructure improvement may present local opportunities."
[32] "El Puente Atirantado Baluarte Es Oficialmente el Más Alto del Mundo."

Mexican automobile industry, which produces 20 percent of its cars in Coahuila.[33] Figure 1 provides a map of the Mexican states.

**Figure 1. Map of Mexican States**


Source: Whereig.com, "Map of Mexico."

Mexico is also investing to increase the capacity of its ports. Capacity improvements are planned for three major ports in Tamaulipas on Mexico's Gulf coast. As just one example, the Mexican government has committed to increasing capacity at the Port of Altamira to 40 million tons per year by 2018.[34] As a point of comparison, the port moved 17.3 tons of freight during 2014. However, officials note that in order to take full advantage of increased capacity at these ports, landside connectivity problems in the region must be resolved. To that end, the government has invested a total of USD $832.5 million, not only in port expansions and improvements, but also in numerous infrastructure projects designed to accommodate the new transportation flows generated by this increased port capacity.[35]

[33] Secretaría de Comunicaciones y Transportes, "Cumple Sct Con La Entrega De Tres Compromisos Presidenciales En Coahuila."
[34] Secretaría de Comunicaciones y Transportes, "Aumenta SCT Conectividad en Altamira, Tampico y Matamoros."
[35] Ibid.

### *Nuevo Laredo Border Port of Entry*

Also with an eye to growing international trade activity in Mexico, in 2014 Peña Nieto committed to completing a long-promised commercial air freight terminal at the Quetzalcoatl airport in the northern border city of Nuevo Laredo. The project was initiated in 2008, but has been held up in legal red tape. If completed, the new freight terminal is projected to operate 24 cargo flights per day. Given Nuevo Laredo's economically crucial position as the largest inland port of entry between Mexico and the United States, processing 40 percent of landside imports and exports, the renewed government commitment to the project has officials and industry in Nuevo Laredo again attentive to the possibilities of this air freight terminal. Successful completion of this terminal could also potentially draw traffic away from the airport in Laredo, Texas. Currently, the project is 46 percent complete.[36,37,38] Due to the considerable integration of the northeastern Mexico-Texas region, this project would likely have considerable repercussions on both sides of the border, with truck traffic patterns potentially changing as some air cargo is redirected from Laredo, Texas, to Nuevo Laredo, Mexico.[39]

Mexico is also paying attention to the needs of specific industries in its planning. For example, the automotive industry will benefit from projects such as the construction of 500 kilometers of new roads and a highway linking the cities of León and Salamanca. Additionally, an important rail bypass and interchange project is underway in Celaya, Guanajuato, to serve both Ferromex and Kansas City Southern de Mexico. As Guanajuato's governor, Miguel Marquez, affirmed to *Automotive Logistics Magazine*, "We are investing to allow companies to take full advantage of Guanajuato's strategic location."[40]

## PUBLIC-PRIVATE PARTNERSHIPS

As focus on infrastructure development increases, the Mexican government has prioritized fostering PPPs as a key source of investment. PPPs provide an opportunity for Mexico to merge private and public funding, resulting in greater resources and expedited timelines where successful. To that end, the Mexican government created a national infrastructure fund and passed a sweeping law that regulates and provides a framework for public-private collaborations on infrastructure projects.

In 2008, the government created a new agency, the National Infrastructure Fund (*Fondo Nacional de Infraestructura*, known as "Fonadin"), to bring together government and private sector funding for key projects. Fonadin has invested more than USD $8 billion in nearly 100 projects since its inception, focusing mainly on roads and urban transportation.[41] These projects have attracted nearly USD $20 billion in supplemental

[36] Llamas, "No despega Terminal de Carga Aérea en Nuevo Laredo."
[37] "SCT Tiene 7 Proyectos Aeroportuarious, Solo 1 en Ejecuion."
[38] Pérez-Benítez, "Aeropuerto de carga de Nuevo Laredo."
[39] Aguilar Barajas, "Trade Flows Between the United States and Mexico."
[40] Ludwig, "Dressing for a Hot Market in a Cold Network."
[41] "Private Investments in Mexico."

private investments. The result has been a rapidly improving and expanding Mexican infrastructure. FDI has been an important contributor to this development, with large companies from the European Union, the United States, Japan, and South Korea contributing to projects.[42] Given the priority the Mexican government has placed on PPPs and the initial success of these projects, they are likely to continue to shape growth and development in Mexico.

In addition to investment and coordination by Fonadin, in 2012 the Mexican government passed the landmark Public-Private Partnership Law, which provides a legal framework for government and private sector collaboration and aims to facilitate additional investments and projects. The law provides regulations for projects as well as guidelines for estimating the social benefit afforded by the project.[43] The law was well received both by potential investors and by legal scholars, and helped spur investment by providing clarity and legal certainty in the realm of government collaboration with industry in Mexico.

Some key aspects of the law highlighted by the U.S. Department of Commerce show why the law motivates investors and eases their concerns. The law focuses on formalizing agreements between private investors and the Mexican government by establishing the following:

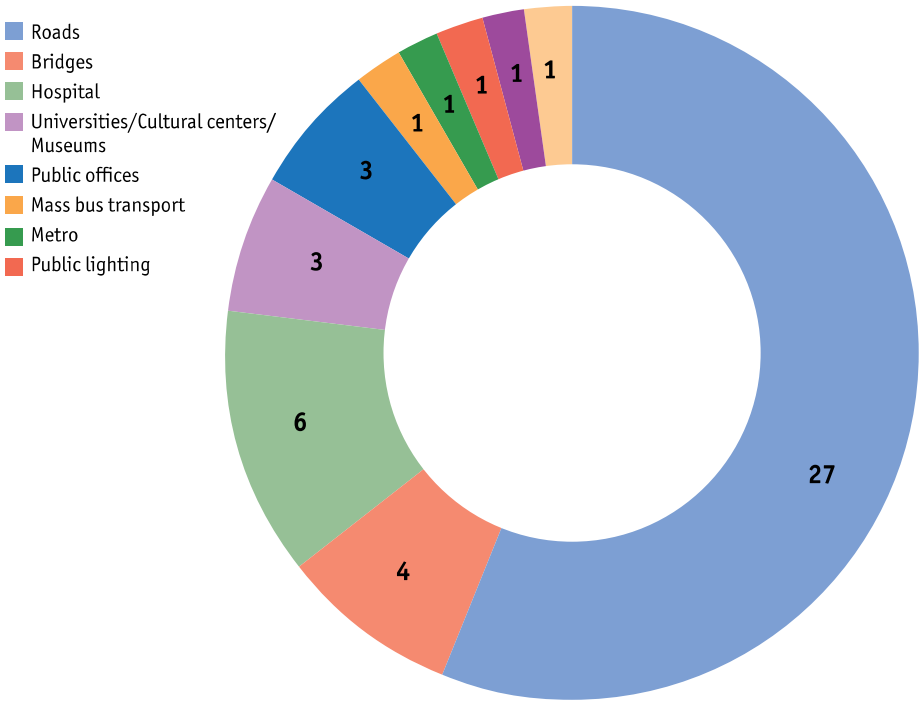
- Formalizing partnerships entered into by the public federal administration with individuals for the provision of services through financing structures.[44]
- Requiring that the Mexican government sign contracts to receive services from the private sector without requesting the acquisition of fixed assets.
- Requiring that service contracts better stipulate the terms and conditions being provided by the private entity, specifications, and the risks that each of the parties would assume in developing the project.

The law also aims to provide competition and transparency by requiring that projects be adjudicated through a public bidding process, in which any interested parties that fulfill the requirements may compete.

By minimizing the risks associated with both domestic and foreign investment in Mexican infrastructure, the law provides the framework to support a robust PPP environment. By providing mechanisms to hold the government accountable, the law also ensures security to investors not guaranteed before. This increased viability for PPPs is particularly important for infrastructure projects, which represented 56 percent of Mexico's PPPs from 2003 to 2012 (Figure 2).[45]

[42] Ibid.
[43] Del Rio Loaiza et al., "Mexico Has a Full Legal Framework for Implementing Public-Private Partnerships."
[44] Orta, "Mexico: Mexican Senate approves Public-Private Partnership Law to Boost Infrastructure Investment."
[45] EIU, "Evaluating the environment for public-private partnerships in Latin America and the Caribbean."

**Figure 2. Mexico: All PPPs by Sector, 2003–2012**




Source: EIU, "Evaluating the environment for public-private partnerships in Latin America and the Caribbean," 17.

The impacts of both the creation of Fonadin and the PPP Law have been significant, and Mexico has received international recognition for its improved climate for PPPs in recent years. Mexico's ability to effectively support PPPs increased dramatically from 2009 to 2014, when an Economist Intelligence Unit report on PPPs upgraded its status from "emerging" to "developed." The report ranks Mexico fourth in Latin America in terms of its overall environment for PPPs, and first in terms of the country's regulatory framework, alongside Chile and Peru. Remaining challenges in the country include administrative weaknesses affecting follow-through with projects at the state level, and the difficulty of ensuring commitment to long-term public-private projects by elected officials with a shorter-term political outlook.[46]

Mexico's longer-term history with public-private infrastructure investment also gives reason for skepticism. For example, the Mexican government has taken on USD $14 billion in debt from failing toll road projects in the 1990s. The government spent more than USD $60 million after the private firms left roads unfinished.[47] Additionally, *The Economist* notes that the current PPP push may suffer from long delays. This pattern, they cite, comes from two main issues: a shortage in public sector employees to oversee and navigate the

[46] Ibid.
[47] Dillon, "Mexico's Privately Run Highways Prove a Costly Failure."

accompany regulations designed to eliminate corruption.[48] The lack of a streamlined process for PPP project oversight is also a problem, with different agencies responsible for different steps of the process.

Though concerns remain, PPPs are a priority for the Peña Nieto administration. As a framework for funding many types of projects in Mexico, including infrastructure development, PPPs have received significant funding and administrative muscle in the form of the PPP Law. The expected increase in infrastructure development will be of great importance to TxDOT.

## REFORMS DURING THE PEÑA NIETO PRESIDENCY

### ENERGY REFORM

President Peña Nieto came to office promising sweeping reforms to Mexico's government. Among these were the diversification of multiple industries, including the energy sector, and a focus on safety and decreasing crime. For the most part, Peña Nieto has made good on his promises and many of the reforms enacted have had or are likely to have an impact on firms with nearshoring operations in Mexico.

In 2014, under the leadership of Peña Nieto, the Mexican government enacted numerous reforms through a series of constitutional amendments. The reforms were primarily energy-focused and promise to have profound effects on Mexican industry and likely on the number of companies choosing to establish operations in Mexico.

Since 1938, Petróleos Mexicanos (Pemex) and the Federal Electricity Commission (CFE) have had a monopoly on the Mexican energy sector, resulting in hampered innovation, dirty production methods, and unnecessarily expensive energy costs, with costs for industrial users 75 percent higher than in the United States.[49] Additionally, constitutional restraints have limited Pemex's ability to work with international companies and efficiently utilize technological advancements.[50] The 2014 reforms potentially change Pemex's long period of decline.

Once regulatory and administrative rules are approved, the reforms will partially open the Mexican energy market, including the country's rich oil and gas fields and its expanded energy grid.[51] They are also expected to make it easier for foreign firms to invest in physical infrastructure like pipelines.[52] As both domestic and foreign bidders compete for blocks of oil-rich Mexican shoreline, the government projected in 2014 that the winning bidders will invest USD $50 billion over the next four years (although the unanticipated

[48] "The PPP Traffic Jam."
[49] "A New Mexican Revolution."
[50] Villiers, "Mexico's Energy Reform Becomes Law."
[51] CIDAC, "Reshoring Mexico 2014."
[52] "A New Mexican Revolution."

decline in oil prices may extend this horizon).[53] In addition to the economic boon, the opening of the energy sector is projected to lead to falling energy prices. Because Mexico's high energy costs have often been cited as a disincentive for companies considering operations in the country, the decrease in energy prices that is likely to accompany privatization will be an important metric to watch when analyzing Mexico's competitiveness as a destination for manufacturing.

For companies considering Mexico as a base of operations, these reforms are a positive step. The Brookings Institution notes that "the oil industry has responded positively, giving a 'fairly pro-market' grade to the new regime."[54] The opening of the market promotes both stability and lower energy costs for potential investors.

At the intersection of both infrastructure and energy reforms lies the proposed Los Ramones pipeline. The 430-mile pipeline carrying natural gas from Texas to the regions of Nuevo León and Guanajuato is currently in its second phase of building. The Los Ramones pipeline represents the first major private investment in the Mexican energy sector since the reform, with Black Rock Inc., a U.S. firm, securing a 45 percent stake in the pipeline with a USD $900 million investment. The total government investment will be USD $3 billion and is set to dramatically effect energy accessibility in the region. Though the project has not hit its proposed timelines, construction is proceeding. The head of Pemex, José Manuel Carrera, noted that this was "the first material implementation of the energy reform in Mexico."[55,56]

Though persistently low oil prices and missed deadlines cast a shadow of doubt on the revolutionary impacts of the reforms, they seem to be coming to fruition. If the Black Rock investment is indeed the first of many, the energy landscape is sure to shift in a favorable direction for potential investors.

## SECURITY REFORM

The government has also used constitutional reforms in an attempt to ameliorate the effects of crime, or the perceived lack of safety, on investment and development. Following a crime wave from 2007 to 2012, safety remains a concern for companies that are considering relocation of their operations to Mexico, particularly in many northern border states.[57] According to the Bank of Mexico, 86 percent of companies in the north of Mexico, 61 percent in the central region, and 48 percent in the south have been affected by crime, and corporate security expenditures have gone up by 11 percent.[58]

[53] Ibid.
[54] Villiers, "Mexico's Energy Reform Becomes Law."
[55] BNAmericas, "Phase II North Los Ramones Natural Gas Pipeline System."
[56] Iliff, "Mexico's Pemex Lands Pipeline Deal with BlackRock, First Reserve."
[57] CIDAC, "Reshoring Mexico 2014."
[58] Ibid.

Instituting a strong rule of law and solving the crime problem would be worth "10 energy reforms," according to Mexico's foreign minister, Luis Videgeray.[59] Peña Nieto has proposed to Congress constitutional amendments to consolidate police forces from local to state, going from 1,800 local to 32 state forces.[60] However, the depth of these problems means that only a sustained effort to root out corruption would show meaningful progress.

As Mexico's domestic crime continues to make headlines, Peña Nieto's government will need to show progress on the security front to potential and existing investors. If the government follows through on these reforms, as it has on those in the energy sector, the result could have a positive impact on Mexico's nearshoring trend.

## RELEVANCE FOR TEXAS DEPARTMENT OF TRANSPORTATION

The forces driving companies to reshore and nearshore operations to Mexico show no signs of changing course over the near term. A 2013 McGladrey Manufacturing and Distribution Monitor Report showed that 52% of respondents reaffirmed the importance of locating manufacturing operations in physical proximity to their consumers.[61]

As the high-tech manufacturing sector in Mexico's central regions booms and the nature of freight transport within the country continues to shift, along with an increasing number of foreign companies reshoring or nearshoring their operations to Mexico, Mexico is investing heavily to become more competitive for FDI. Mexico is doing this by improving its infrastructure, becoming more competitive in energy costs, improving its security, and improving the quality of its labor pool. TxDOT should be attentive to the impacts of increased trade flows on the Texas freight transportation network due to increased manufacturing activity and modernized infrastructure in Mexico.

In particular, any planning within Texas aimed at easing congestion at the border should be coordinated with Mexico's infrastructure planning process. In this way, TxDOT can plan appropriately to accommodate the likely increase in cross-border traffic generated as a result of more companies relocating to Mexico with an eye on serving the U.S. market.

The importance of coordinating plans with Mexico can be seen in the problems that arise from differences in border procedures, which have led to even longer wait times at the border. As Mexican customs brokers assume responsibility for goods crossing the border, Mexican brokers often stop the freight, unload the trailer, and inspect the goods. According to one third-party logistics operator, "That takes time. Less-than-truckload (LTL) shipments from all over the United States get trapped by customs brokers on the border, waiting to be consolidated into truckload shipments."[62] Economic trends suggest this problem will grow.

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[59] "Peña Nieto's reforming of mordant Mexico."
[60] Martin and Chase, "Mexico's Pena Nieto Calls for Changes to Boost Rule of Law."
[61] McGladrey, "The Pros and Cons of Nearshoring: Moving Manufacturing Closer to Home."
[62] Harrington, "U.S.-Mexico Trade: Two-Way Traffic."

Additionally, trends show that as companies relocate to Mexico with an eye on the U.S. market, they are increasingly relying on road-based modes of transportation to serve it. The U.S. Department of Transportation's Transborder Freight Data shows that truck usage rose 7.2 percent from 2012 to 2013, while rail usage fell 2.3 percent.[63] Trucks already account for 80 percent surface value of U.S.-Mexico trade and 88 percent of Texas-Mexico trade surface value.[64] As Texas's roads bear the heaviest load in the nearshoring trend, the effects will continue to be of utmost importance to TxDOT.

## RECOMMENDATIONS

TxDOT should carefully monitor the developing nearshoring trends in Mexico. To keep abreast of key developments, we recommend that TxDOT closely monitor the following trends and metrics:

- **Automotive industry manufacturing boom:** The arrival and expansion of the world's major car companies in Mexico has already spurred the country to accommodate the needs of this booming national industry. TxDOT should monitor new auto manufacturing operations in Mexico and the corresponding impact on freight traffic from Mexico to the United States. Establishing a line of contact with the Mexican Automotive Industry Association is one way that TxDOT could improve its awareness of trends in the industry on the Mexican side of the border, particularly in terms of emerging industry issues related to transportation infrastructure.

- **Political push for PPPs and related infrastructure projects:** On a legislative level, the Mexican government has shown a consistent commitment in recent years to promoting PPPs as a way to improve its infrastructure, most notably through the PPP law passed in 2012. While historically some projects in Mexico have been mismanaged and follow-through has sometimes been unreliable, more recent projects, such as the Baluarte Bridge completed in 2012, provide some cause for optimism. As the government leverages private investment to carry out projects under this new regulatory framework, TxDOT should keep an eye on the law's impact on private infrastructure investments and on Mexico's ability to follow through with the ambitious projects it has proposed. Resources include:

    1. *PPP projects underway*: Using the Fonadin website, TxDOT can monitor the number of projects currently in progress that have received government investment. This will provide a snapshot of the growth resulting from the PPP push. A list of current projects can be found here: http://www.fonadin.gob.mx/wb/fni/transporte_ipa.

[63] Kilcarr, "Logistics study projects slow economic growth and more 'near-shoring' in the future."
[64] Texas Freight Advisory Committee, "North American Free Trade Agreement."

2. *PPP projects completed:* Completion of projects and compliance with deadlines is another important metric in evaluating the success and real timelines for PPP projects in Mexico. Monitoring progress of the Los Ramones Pipeline will be of particular relevance to TxDOT. In addition, the 100 projects that Fonadin oversees are scheduled to have completion dates within the next 5 to 10 years. By keeping an eye on the extent to which projects conform to their projected timelines, TxDOT will be able to more accurately predict the composition of Mexican infrastructure over the next few years.

- **Investment in energy sector by private firms:** Following the pipeline investment from Black Rock, TxDOT should monitor additional private investments in the Mexican energy sector. These investments could include financial support of existing projects like the Los Ramones Pipeline, or new investments by companies that obtain rights to drill in Mexican oil fields. TxDOT should continue to prioritize studies of this phenomenon.

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