

# HORIZON

THE FUTURE OF TRANSPORTATION

A PUBLICATION OF THE TEXAS DEPARTMENT OF TRANSPORTATION

WINTER 2007

## Transportation & the Economy:

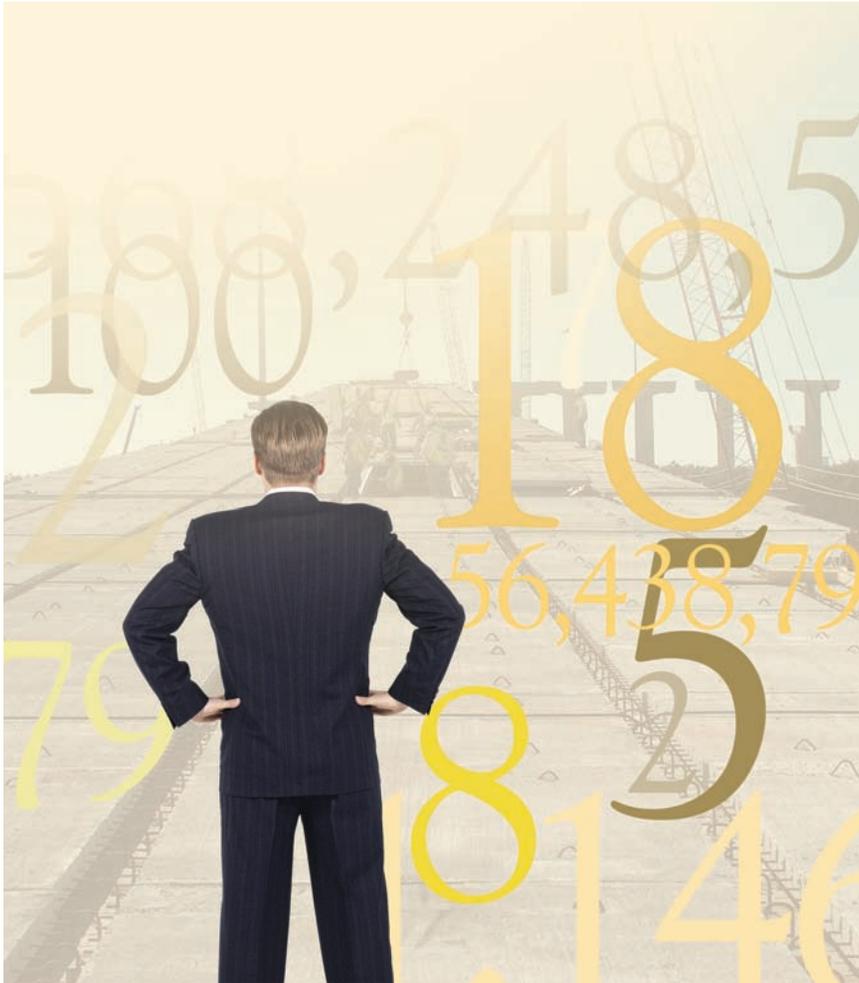
*Building the Wealth of a Nation*



Commentary: The Challenging Economics of Transportation ::

Transportation Investment & the Economy: Strategies to Maximize Economic Return ::

AllianceTexas: How Transportation Shapes the Economy :: Effects of the  
Panama Canal Expansion on Texas Ports & Highway Corridors



# Table of Contents

From the Publisher .....	iv
<b>Commentary: The Challenging Economics of Transportation</b> <i>by Arthur Laffer, Ph. D.</i> .....	1
<b>Transportation Investment &amp; the Economy: Strategies to Maximize Economic Return</b> <i>by Lance Neumann Ph. D., John Kaliski, Jim Brogan, and Dan Hodge</i> .....	5
<b>AllianceTexas: How Transportation Shapes the Economy</b> <i>by Russell Laughlin</i> .....	15
<b>On the HORIZON</b> .....	23
<b>Effects of the Panama Canal Expansion on Texas Ports &amp; Highway Corridors</b> <i>by Cambridge Systematics</i> .....	25
Submission Guidelines for Authors .....	40
Subscription Form .....	41

The statements, comments, or opinions expressed within these articles are those of their respective authors, who are solely responsible for them, and do not necessarily represent the views of the Texas Department of Transportation or the Texas Transportation Commission.

---

# HORIZON

## THE FUTURE OF TRANSPORTATION

*“It is not the wealth of a nation that builds roads, but roads that build the wealth of a nation.”*

Quote attributed to President John F. Kennedy

Throughout history, societies have evolved, but one thing has remained constant—that an effective and efficient transportation system serves as the foundation for a vital and dynamic economy. Examining some of transportation’s greatest achievements—the ancient Roman roads, British maritime supremacy, or modern America’s network of ports, railroads, airways and highways—it is clear that successful societies have understood that investing in transportation is the path toward economic opportunity. Today, our ability to move people and goods drives America’s economy, but with congestion threatening our continued prosperity, we must upgrade our transportation infrastructure to meet this challenge.

In this issue, HORIZON examines the relationship between transportation and economic wellbeing. First, in *The Challenging Economics of Transportation*, noted economist Dr. Arthur Laffer discusses why we must encourage investment in our transportation system. Next, in *Transportation Investment & the Economy: Strategies to Maximize Economic Return*, Dr. Lance Neumann and his colleagues at Cambridge Systematics explore the trends that influence transportation investment and provide examples of

---

how some states have responded to the need for such investment. Russell Laughlin, vice-president of Hillwood Properties, offers *AllianceTexas: How Transportation Shapes the Economy*. He points to the AllianceTexas development in Fort Worth as an example of public and private investment creating a thriving economic center despite rising congestion and decreased federal funding. Finally, On the HORIZON summarizes a recent TxDOT-sponsored report by Cambridge Systematics on the impact that the planned expansion of the Panama Canal will have on Texas rail and port traffic, as well as how the Trans-Texas Corridor fits into the mobility landscape of the future.

We hope you enjoy this issue of HORIZON and we welcome your comments.

Sincerely,



Michael W. Behrens, P.E.  
Executive Director  
Texas Department of Transportation



# Commentary: The Challenging Economics of Transportation

by Arthur Laffer, Ph. D., Laffer Associates

**T**he ability to move goods and people is critical to the freedom and economy of any nation or state. Good roads, rail, air, and information technology infrastructure are what allow us to live where we want to live, enjoy quality food and goods produced far from our homes, and easily and safely travel for work or relaxation.

Today, transportation is at a crossroads. Our highways and bridges are aging and in need of ever more costly repairs. Population increases and expanding interstate and international trade mean more and more traffic for our roads, rail lines, ports, and airports.

Texans may have the most at stake when it comes to transportation. Texas is the top growth economy in the nation

according to the Dallas Federal Reserve Bank, adding more than 600,000 jobs since 2003. The Lone Star State is also the top exporting state, surpassing even California, and many jobs depend on the ability to transport Texas-made products nationally and internationally.<sup>1</sup>

The state demographer predicts that if Texas continues its 1990–2000 pace of growth, by the year 2040, the population will reach 51.7 million, compared to about 23 million today. Those new Texans will put millions of new vehicles on the road and add greater pressure to the already strained transportation infrastructure system currently in place.<sup>2</sup>

Yet, the American Association of State Highway Transportation Officials (AASHTO) reports that the federal highway trust fund could have a deficit

---

by 2009, meaning that the federal funding well that so many state and local governments depend on may soon run dry.<sup>3</sup>

The Texas Transportation Commission says the 25-year mobility gap between anticipated revenue and projected transportation needs is \$86 billion. Texans would have to swallow a \$1.20 per gallon gasoline tax increase to bridge that gap and still maintain a quality transportation system. After the high gasoline prices of summer 2006, the public has little appetite for such tax hikes.

Thankfully, entrepreneurship is helping to solve the coming transportation funding crisis. A number of state and local governments, with support from federal policymakers, are finding new,

fiscally sound ways to pay for needed roads without raising taxes or depending on the federal government. Texas is at the forefront. It is a shining example of a state taking charge of its economic future by finding innovative ways to fund needed infrastructure. Leaders of both political parties have come together to increase local authority in transportation planning, to ask drivers who use specific roads to help pay for them through user-fees and finally, to encourage private sector investment in roads through public-private partnerships (PPPs).

One of the most significant economic and societal benefits to these PPPs in the transportation sector is that Texans will see less traffic on existing roads as new, privately funded roads get built faster. Commuters will have a choice of



continuing to use existing, non-tolled roads or choosing newer tolled lanes. Those who choose to stay on existing roads pay nothing more, but benefit when those motorists who pay the toll free up lanes on the non-tolled roads. Drivers in both Dallas and Houston have had these options for years and enjoy two of the nation's best and most popular tollway systems.

---

***Texas . . . is a shining example of a state taking charge of its economic future by finding innovative ways to fund needed infrastructure.***

---

Another benefit is that these new transportation corridors will likely lead to increased land and home values for those communities in the newly built transportation corridor. The homeowners, property owners, and communities surrounding the new Texas State Highway 130, a road some view as the first leg of the Trans-Texas Corridor, have already seen their property values and tax revenues increase dramatically, as new jobs and businesses move into the area.

Moreover, private funding for new roads allows traditional government road funds to go much further. Private funds mean more state monies are available for

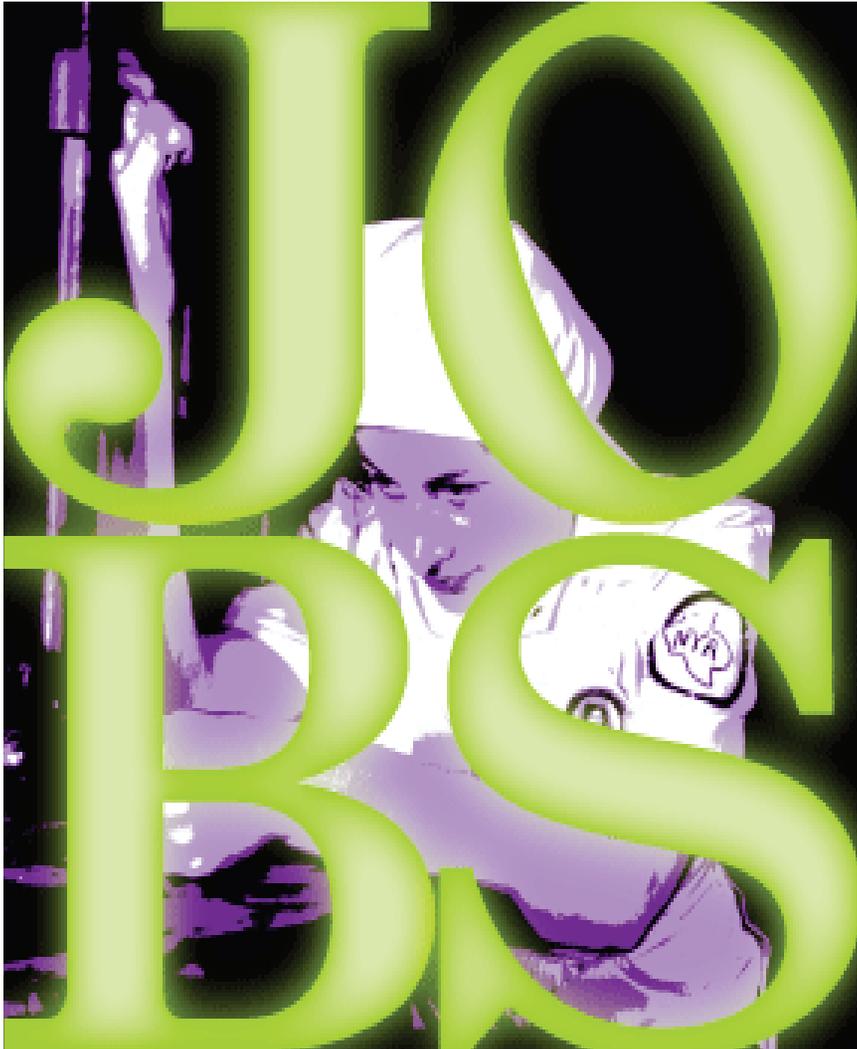
maintaining existing infrastructure and for building new non-tolled roads. Texas policymakers have found a way to stretch existing highway dollars without asking motorists to pay higher fuel taxes.

Like so many times in the past, Texas is leading the way and finding economically sound solutions to transportation challenges, keeping economic growth on track, and improving the quality of life for families across the state.

#### **WORKS CITED**

1. <http://www.dallasfed.org/eyi/regupdate/0609update.html>
2. [http://txsdc.utsa.edu/download/pdf/presentations/2006\\_10\\_12\\_South\\_Tx\\_School\\_of\\_Law\\_Houston.pdf](http://txsdc.utsa.edu/download/pdf/presentations/2006_10_12_South_Tx_School_of_Law_Houston.pdf)
3. <http://www.transportation.org/sites/aashto/docs/Basso-2006-09-29.pdf>

*Dr. Arthur Laffer, the "Father of Supply-Side Economics," is the founder and chairman of Laffer Associates, an economic research and consulting firm that provides global investment-research services to institutional asset managers, pension funds, financial institutions, and corporations. In 1999, he was noted in a Time Magazine cover story on "The Century's Greatest Minds" for inventing the Laffer Curve, which the magazine deemed "one of the advances that powered this extraordinary century."*



---

# Transportation Investment and the Economy: Strategies to Maximize Economic Return

---

by Lance Neumann, Ph. D., John Kaliski, Jim Brogan, and Dan Hodge,  
Cambridge Systematics

**A**s congestion on the nation's passenger and freight systems grows and key facilities on those systems reach the end of their useful lives, it is important to remember the critical role that transportation plays in supporting the nation's economy. Similar to land, labor, and capital, transportation is a key input to industry productivity and economic growth. National studies consistently find a positive economic return from transportation investment, though the economic gains have declined as the system has matured. For example, the rate of return to producers and

consumers exceeded 30 percent during the 1950s through the 1960s, but was still 10 to 15 percent in the 1990s<sup>1</sup>. Consequently, the current debate within the National Surface Transportation Policy and Revenue Commission on how to finance transportation over the long term is more about the appropriate role of different financing strategies than whether continued investment in transportation is critical for the nation's economic competitiveness.

The importance of transportation to the economy can be seen at the state level as

well. For example, the transportation and warehousing industry contributed over \$35 billion in gross domestic product (GDP) in Texas in 2005 and almost 470,000 jobs<sup>2</sup>. In each case, the share of economic activity in the transportation industry is higher in Texas than the United States overall. A recent study done for the Texas Department of Transportation (TxDOT) estimated that the expenditure of \$5.1 billion per year on transportation infrastructure preservation and capacity enhancement from 1996 to 2006 led to \$10.2 billion in total economic activity (including multiplier effects) and 89,000 jobs per year<sup>3</sup>. Finally, the economic value of specific transportation facilities or corridors is reflected in the increasing interest by the private sector to invest in transportation through a variety of public-private partnership arrangements.

## FACTORS SHAPING THE FUTURE DEMANDS FOR TRANSPORTATION AND NEEDED INVESTMENT

While the importance of transportation to economic growth over the past 50 years has been well documented, the ability of the transportation system to be a key engine supporting future economic vitality may be threatened. Several factors are increasing the demand for moving both people and freight nationwide, with particular impacts on states such as Texas:

- Modern logistics systems, taking full advantage of telecommunications and information technology, have supported “manufacturing to order” and “just-in-time” manufacturing, allowing firms to substitute transportation for warehouse capacity.

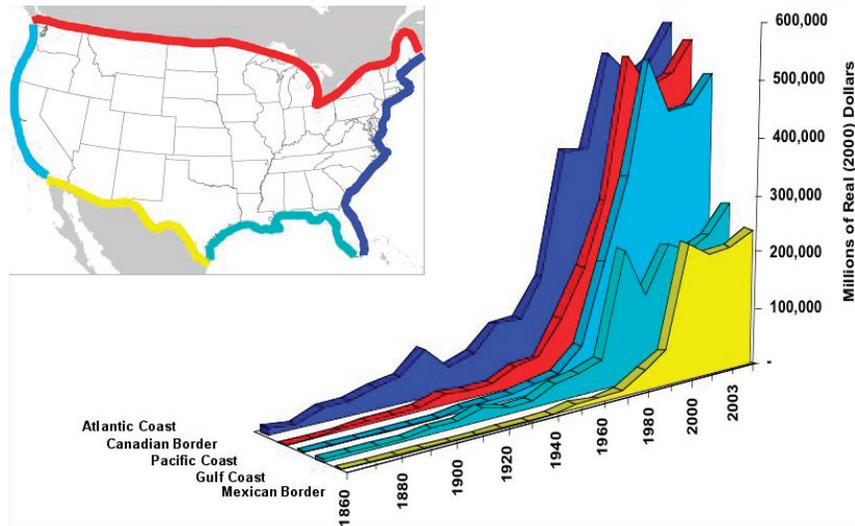


Figure 1. Growth in U.S. Trade By Border Region

Source: Global Insight for AASHTO Freight Demand and Logistics Bottom Line Report (2006).

- International trade is becoming an increasingly critical component of the national economy. The dollar value of imports and exports has increased from 23 percent of GDP in 1997 to 27 percent in 2005, and is anticipated to exceed 60 percent by 2030, according to forecasts done for the American Association of State Highway and Transportation Officials (AASHTO). Figure 1 shows the growth in trade across all of the U.S. borders.

**... 50 percent of the population growth between now and 2030 will occur in just three states (Texas, California, and Florida).**

- Employment growth is shifting to the service and information industries, leading to more on-the-clock travel by employees and smaller, high-value shipments of time-sensitive goods. Meanwhile, productivity gains are enabling manufacturers to increase production with fewer workers, leading to growing demands for moving freight via all modes of transportation.

- The nation’s population continues to be one of the fastest growing of the major industrialized nations. The U.S. population surpassed 300 million in late 2006 and is anticipated to reach 400 million by 2043, according to U.S. Census Bureau projections. Most of this population growth will occur in the South and West and close to 50 percent

of the population growth between now and 2030 will occur in just three states (Texas, California, and Florida).

- The U.S. population is also continuing a decades-long shift from central cities to suburbs and “exurbs” (small, usually prosperous communities that are situated beyond the suburbs of a city). This trend is generally leading to longer commutes and longer freight delivery and service trips, as people increasingly live further distances from their jobs and from shopping, recreational, and cultural activities. Average annual household expenditures on transportation were almost \$8,000 in 2004, the second largest category of consumer spending only behind housing<sup>4</sup>.



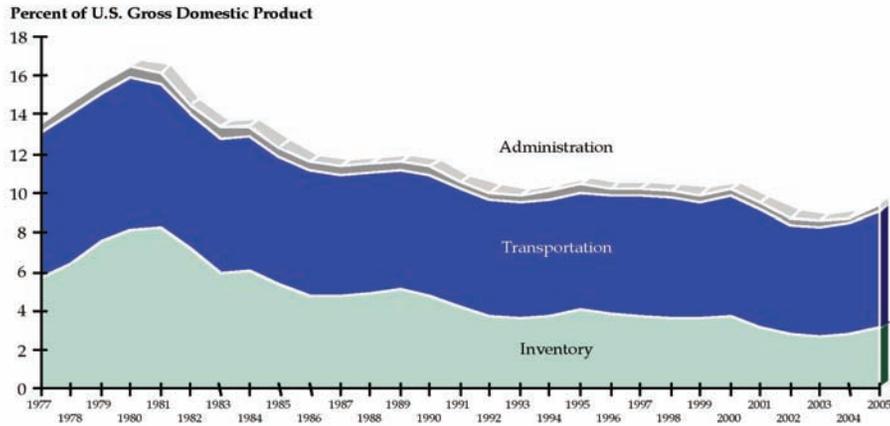


Figure 2. Total Logistics Cost

Source: Rosalyn A. Wilson, *State of Logistics Report*, Council of Logistics Management, 2006.

The cumulative impact of these trends is a significant increase in the demand for moving people and freight, and growing concerns about whether the transportation system can meet this demand, particularly in fast growing states like Texas. Nationally, the growth in vehicle-miles-traveled (VMT) on the highway system has outpaced the addition of new lane-miles to the highway system. The result is a significant increase in congestion and delay.

The demand for moving freight will grow from 15 billion tons today to 26 billion tons in 2035, an increase of 89 percent, according to AASHTO forecasts<sup>5</sup>. This growth is expected to double the number of trucks on the road, to increase the number of rail cars by more than 50 percent, and to triple the cargo volumes at the nation's largest and most critical ports,

terminals, and border crossings. Without increases in capacity and efficiency, the nation's freight system will struggle to absorb this growth.

After declining for more than two decades, the share of the nation's GDP that is spent on transportation, inventory, and associated logistics activities is inching upwards (Figure 2). More and more businesses are finding that they need to hold additional inventory and spend more on premium delivery options as a buffer against anticipated delays in the supply chain related to congestion and incidents such as terrorism, strikes, and weather emergencies. States are finding that the decisions they make about transportation investments are a critical determinant of their future economic competitiveness.

## HOW DO STATES RESPOND? STRATEGIES TO TARGET INVESTMENTS FOR POSITIVE ECONOMIC RETURN

While the critical importance of transportation in supporting economic growth and competitiveness is well established, it is not the case that every transportation investment will have positive economic returns or that every industry is equally affected by transportation. Faced with many competing priorities, states need to focus their investments which are intended to support economic growth on the projects and services that will have the greatest return. In just the past few years, states as diverse as Florida, Mississippi, Missouri, Montana, Oregon, and Michigan have all developed economic impact and benefit/cost analysis tools and methodologies to be applied as part of long-range planning and project investment decisions. The following case studies highlight instances where transportation policy and prioritization strategies are directly linked to economic considerations.

### FLORIDA: TRANSPORTATION, ECONOMIC COMPETITIVENESS AND GROWTH MANAGEMENT

Florida, a high-growth state like Texas, is in the midst of a fundamental shift in its transportation strategy that is refocusing the state's role on statewide and interregional travel and reemphasizing the

critical linkage between transportation, economic competitiveness, and growth management.

In 2003, Florida Governor Jeb Bush and the Florida Legislature created Florida's Strategic Intermodal System (SIS). A collaborative effort between the Florida DOT and more than 40 statewide partners, SIS was created to identify the significant transportation hubs, corridors, and connectors that serve inter-regional travel within Florida and trade and visitor flows between Florida and other states and nations. Through the SIS, FDOT has significantly increased state investments in rail and seaports, with particular attention being given to the connectors between ports and terminals and the highway or rail systems. SIS projects involving railroads and "on-hub" investments at seaports and airports require a local or private sector match, which has leveraged

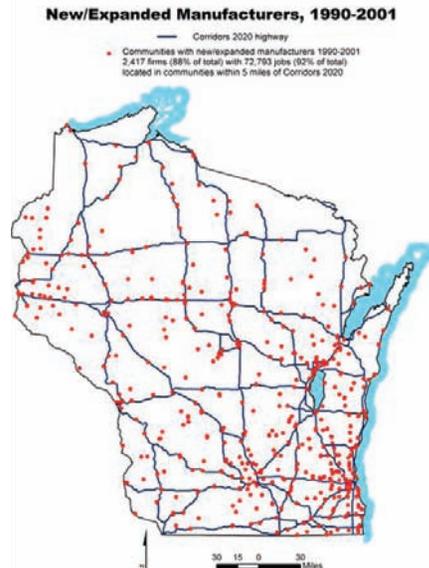


additional investments in Florida's most critical transportation facilities.

FDOT's 5-year work program is estimated to generate approximately \$5.50 in user and economic benefits for every dollar of state funds invested. The value of these investments, together with the consensus that FDOT built with its partners, has led to significant increases in state transportation funding, including an additional \$7.5 billion in funding over a 10-year period for the SIS and regional transportation projects as part of a landmark reform of the state's growth management laws in 2005<sup>6</sup>.

### **WISCONSIN: CORRIDORS 2020 AND EVALUATION OF ECONOMIC BENEFITS**

The Wisconsin DOT (WisDOT) created a Corridors 2020 plan, which designates 2,100 miles of roadway segments that provide essential links between key employment and population centers, tying Wisconsin communities to the interstate system for improved access to national and international markets. Since the plan was created in the late 1980s, approximately 900 miles of new highways have been constructed to address needs. The corridors have travel performance standards (speed, congestion) and were identified based on a number of economic factors such as connectivity to trade, agricultural, tourism, and manufacturing centers. WisDOT completed a study of new and expanding



manufacturing firms and found that those companies created more than 80,000 jobs in Wisconsin and that 90 percent of the jobs are located within 4 miles of a Corridors 2020 highway.

### **TEXAS: TTC AND NEW FINANCING TOOLS**

Acknowledging that growth in Texas is inescapable and that today's congestion levels, already onerous on several of the state's rail lines and roadways, will become worse without significant action, TxDOT has engaged in the planning of a multimodal Trans-Texas Corridor (TTC) system to improve mobility and sustain the state's economic competitiveness well into the future. Crisscrossing the state, the corridors may be up to 1,200 feet wide and include rail lines, highways, pipelines,

and communications and utility lines. Once complete, the TTC project will be a 4,000-mile multimodal transportation system that will reduce congestion and increase mobility for Texas' businesses and citizens. Freight forms an integral part of the Trans-Texas Corridor plan, which includes dedicated freight rail lines and truck lanes.

**40% of all travel delay occurs at bottlenecks and total annual truck-hours of delay exceeded 240 million hours.**

In addition to the TTC, the Texas plan has introduced new tools, goals, and strategies to complement the traditional "pay as you go" system of building and improving facilities. Some of these new tools were established by recent legislation and include the Regional Mobility Authorities (RMAs), comprehensive development agreements (CDAs), and the Texas Mobility Fund. These tools have allowed the state to fund more transportation improvements, completing them earlier than would be possible through traditional funding. These funds will be used to build or expand roads, and to develop bus or passenger rail service.

### **ECONOMIC EFFECTS OF BOTTLENECKS AND CHOKER POINTS**

On highways, freight congestion problems are most apparent at "bottlenecks" –

specific locations where volumes routinely exceed capacity. A recent national study by the Federal Highway Administration (FHWA) estimated that 40 percent of all travel delay occurs at bottlenecks and that, in 2004, total annual truck-hours of delay exceeded 240 million hours<sup>7</sup>.

Consequently, some states and regions are evaluating these bottlenecks more closely and developing strategies to improve traffic flow. Given its industrial economy and location nestled between major markets in the Northeast and Midwest, the state of Ohio has one of the highest volumes of truck traffic in the country. A recent study by the Ohio DOT identified the top freight bottlenecks in the state, measured the truck and auto delay, and evaluated the benefits and costs of potential operations and capacity improvements<sup>8</sup>. The estimated benefit/cost ratios of bottleneck improvements were large, ranging from 9.8 to 26.1, meaning that the reduction in travel delay from improving the bottlenecks is estimated to generate travel time savings benefits for trucks and autos that are 9.8 to 26.1 times higher than costs. This demonstrates that even modest improvements to capacity in severely congested bottlenecks can result in significant economic returns.

Increasingly, multi-jurisdictional coalitions of public and private organizations are working together to address critical rail infrastructure operational and capacity needs. The long distance nature of most

---

freight rail trips ensures that the effects of one bottleneck will impact shipments headed for destinations in other states and regions. For example, the Mid-Atlantic Rail Operations Study (MAROpS) is a joint initiative of five states (New Jersey, Pennsylvania, Delaware, Maryland, and Virginia), and three railroads (Amtrak, CSX, and Norfolk Southern). MAROpS identified a 20-year program of rail improvement projects to improve the north-south movement of goods and people. These projects are intended to increase rail capacity in anticipation of increased freight volumes, thus maximizing the amount of freight handled by rail while lessening the growth of truck traffic on already congested highways. The initial assessment of the program estimated approximately \$12.8 billion in benefits, with \$2.9 billion in shipper cost savings, \$6.3 billion in reduced highway travel times, and an additional \$3.7 billion from indirect economic benefits to the region's industries.

## **CONCLUSIONS AND FUTURE CHALLENGES**

An efficient transportation system is a critical building block for a strong and competitive economy. For the nation as a whole, and particularly for rapidly growing states like Texas, the next few decades will be a challenging time to meet the needs of a growing and shifting economy. Continued globalization, the emergence of a predominantly service economy, and

population growth and migration will all place new and greater demands on the transportation system. Meeting these demands in a cost-effective manner will require investments in all elements of the nation's transportation system. The key to success will be focusing these investments where the economic benefits and return on investment are the greatest. The appropriate strategies will vary from state to state and even for different regions within a state. Many states, including Texas, are already taking the initiative to invest in the future. As the National Commission completes its work and the next federal reauthorization cycle begins, national leadership and a focus on the economic benefits of transportation will be important ingredients in making the case for more investment at every level of government and from the private sector.

### **WORKS CITED**

1. Theofanis Mamuneas and Ishaq Nadiri, "Production, Consumption and the Rates of Return to Highway Infrastructure Capital," for the Federal Highway Administration (2003).
2. Source: U.S. Bureau of Economic Analysis.
3. "Transportation Spending and Economic Activity in Texas" for the Texas Department of Transportation by Cambridge Systematics, Inc. (2006).
4. Source: U.S. Bureau of Labor Statistics, Consumer Expenditure Survey.

5. "Freight Demand and Logistics Bottom Line Report" for AASHTO by Cambridge Systematics, Global Insight and Boston Logistics Group (2006).
6. "Macroeconomic Impacts of the Florida Department of Transportation Work Program" for the Florida DOT by Cambridge Systematics and Glaze Associates (2003), and [www.dot.state.fl.us/planning/sis/](http://www.dot.state.fl.us/planning/sis/)
7. "An Initial Assessment of Freight Bottlenecks on Highways" for the Federal Highway Administration by Cambridge Systematics (2005).
8. "Ohio Freight Mobility, Access, and Safety Strategies" for the Ohio Department of Transportation, Office of Research and Development by Cambridge Systematics (2006).

*Dr. Lance Neumann is the President of Cambridge Systematics, a consulting firm that*

*serves local, state, national, and international agencies in the public and private transportation industries. Dr. Neumann has more than 25 years of experience in transportation policy, planning, programming, and finance.*

*John Kaliski is a Principal of Cambridge Systematics with expertise in the areas of economic development, economic impact analysis, and transportation policy.*

*Jim Brogan is a Senior Associate of Cambridge Systematics with expertise in the areas of freight and intermodal planning, transportation planning, and freight modeling.*

*Dan Hodge is a Senior Associate of Cambridge Systematics with expertise in regional economic modeling, benefit/cost analysis, economic development analysis, and public finance.*



# AllianceTexas: How Transportation Shapes the Economy

by Russell Laughlin, Hillwood Properties

**T**he increasing globalization of the world's economy has brought about an evolution in how companies approach logistics and transportation. This globalization is shaping transportation policy. Not long ago, the concept of logistics was merely an afterthought as companies focused primarily on manufacturing and sales. Today, however, as more products are manufactured abroad and imported, the supply chain has gained importance from both a cost and reliability standpoint. Major colleges now offer degrees and programs on supply chain management, with an almost singular focus on identifying the most efficient and lowest cost distribution network through

organization and optimization of every available transportation mode.

Transportation is the backbone of an efficient logistics plan, and by extension, the platform for a healthy and expanding economy. As transportation needs (both existing and future) far outpace traditional available resources, the public and private sectors must invest transportation dollars wisely. They must focus on projects that lead to the development of new economic centers and make existing ones more efficient.

With more than 70 percent of Texas' population living in metropolitan areas today, our largest transportation

problem is the movement of goods and services within those urban areas. The return on our transportation dollars, in terms of goods movement, jobs, new tax revenues, air quality improvements, and decreased transit times, must be a key factor in deciding which infrastructure projects to advance and when to fund them. Curtailing the development of new projects would have a significant economic impact on the region.

A noteworthy example of such ongoing investment in both its vision and commitment is the 17,000-acre AllianceTexas development located 15 miles northwest of Dallas-Fort Worth International Airport. Since its inception, this development has generated more than \$456 million in property tax revenue, created 24,000 jobs, and had an overall economic impact of \$28 billion on the region. To date, private investment has totaled \$5.8 billion, meaning the development has generated more than \$25 in private investment funds for every dollar of public money that was invested.

## VISION

Such impressive results have become the envy of cities and economic development professionals around the world, so it is hard to imagine that the project was initially met with resistance. It was only through the commitment of the City

of Fort Worth, the Texas Department of Transportation (TxDOT) and the Federal Aviation Administration (FAA) that AllianceTexas was able to get off the ground.

**. . . more than \$456 million in property tax revenue, 24,000 jobs, and overall economic impact of \$28 billion on the region.**

To kick off the development, the FAA invested approximately \$74 million in the construction of the world's first industrial airport, Fort Worth Alliance Airport. Along with the FAA's investment, TxDOT's commitment of \$59 million to build frontage roads, interchanges and highways, particularly State Highway 170 (SH 170), elevated the development into one of the world's premier global logistics hubs.

The result of a true public-private partnership between TxDOT, local government, and the private sector, SH 170 went from conception to completion in 30 months. The state invested \$42 million to build the highway, and Hillwood, the developer of AllianceTexas, paid for engineering and design services and contributed the right of way. When the freeway opened, Arnold Oliver, the Executive Director of TxDOT at the time, said, "It is one of the most successful public-private projects that I've had the pleasure of being involved with."

## ALLIANCETEXAS

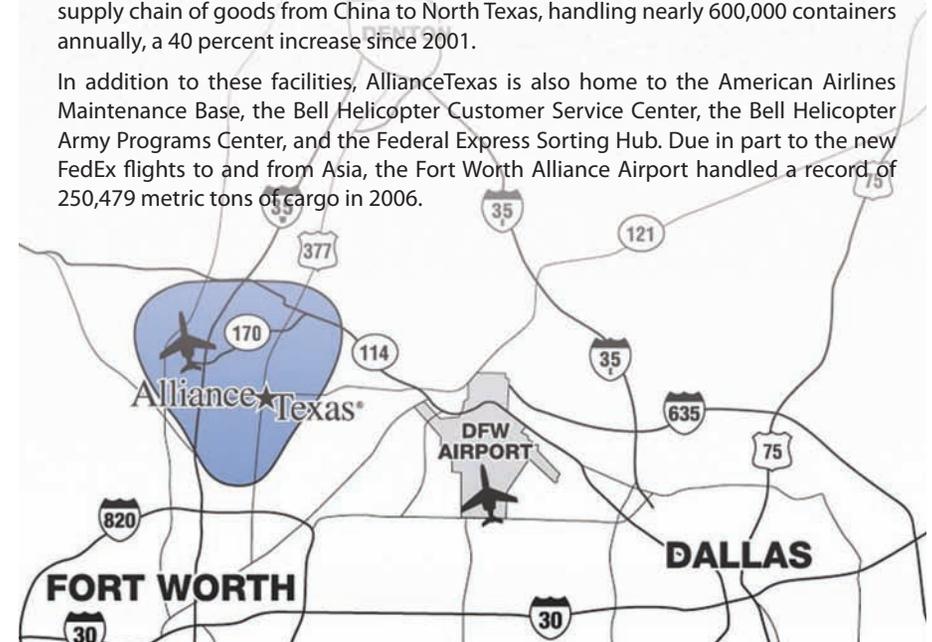
AllianceTexas is a 17,000-acre, mixed-use, master-planned community in north Fort Worth, Texas that includes three distinctive developments – Alliance, the commerce and logistics center which anchors the project; Circle T Ranch which offers corporate campuses, golf courses, and a recreational component; and Heritage, a residential community.

This development is located 15 miles northwest of Dallas-Fort Worth International Airport. AllianceTexas houses 140 companies, including 62 that can be found on the Fortune 500, Global 500, or the Forbes List of Top Private Companies. There are currently 25.4 million square feet of commercial space and 24,000 employees in the development, which lies within four cities (Fort Worth, Haslet, Roanoke, and Westlake) and two counties (Denton and Tarrant).

AllianceTexas was created by and received its name from a public-private partnership between the City of Fort Worth, the Federal Aviation Administration, the Texas Department of Transportation, and Hillwood. Together, these partners turned land in northern Fort Worth into a premier global logistics hub.

The facility opened in December 1989 with the Fort Worth Alliance Airport, the world's first purely industrial airport. Development progressed during the 1990s with the creation of the BNSF Intermodal Yard and construction of Texas Highway 170. The Alliance BNSF intermodal yard is the busiest North Texas local link on the \$12.3 billion supply chain of goods from China to North Texas, handling nearly 600,000 containers annually, a 40 percent increase since 2001.

In addition to these facilities, AllianceTexas is also home to the American Airlines Maintenance Base, the Bell Helicopter Customer Service Center, the Bell Helicopter Army Programs Center, and the Federal Express Sorting Hub. Due in part to the new FedEx flights to and from Asia, the Fort Worth Alliance Airport handled a record of 250,479 metric tons of cargo in 2006.



The completion of SH 170, the major connector between AllianceTexas and Dallas-Fort Worth International Airport (DFW), provided the opportunity to develop almost 2,300 acres of previously unused prairie land. Today, there are dozens of companies, many of them global industry leaders, occupying more than 15 million square feet and employing more than 11,000 workers. General Motors, Ford, AIG, Cardinal Health, AmerisourceBergen, Ryder, AT&T, UPS, Motorola, Honeywell, Philips Electronics, Texas Instruments, Bell Helicopter, HP, and General Mills are among these.

“With an infrastructure that provides easy access to rail, air and truck, we can improve speed and efficiency of operations to better service our customers

and impact bottom-line results,” said Jim Stamm, former group director of Ryder System Inc., when the company opened its North American Command Center at Alliance. Ryder currently occupies more than 1.2 million square feet at Alliance to provide third-party logistics services for industry leaders, such as HP and Philips Electronics.

Since development began, property that in 1991 yielded no property taxes has provided more than \$101.2 million in property taxes between 1992 and 2005. Over the past three years, the average property tax growth from AllianceTexas has been approximately 25 percent, with annual property tax revenue reaching close to \$73 million in 2005. Employment growth in AllianceTexas is now leading to other development, particularly from



Before

retail and restaurants, providing even more sales and property tax revenues. Due in part to the influx of new funds, the region has improved city and county services, provided new amenities (parks, improvements to historic downtown areas and neighborhoods) and it continues to attract a skilled and efficient labor force to the Dallas-Fort Worth metropolitan area.

### ONGOING INVESTMENT

During the past 50 years, as the United States has become increasingly urbanized, the majority of new growth has taken place in metropolitan areas. Despite this growth, Texas has been competitive in providing economic opportunities because of its lower urban congestion relative to other metropolitan regions. But as our unmet transportation needs

increase, Texas has begun to see its competitive advantage deteriorate.

One of the biggest challenges in meeting these needs is identifying new funding and revenue sources as well as problem-solving tools to deliver transportation improvements and avoid choking off existing businesses and future growth with congestion and delays. Current estimates indicate that the DFW metropolitan planning area will have approximately \$70 billion in unmet transportation needs during the next 25 years. For the state overall, Texas will have an estimated \$86 billion funding shortfall over the same timeframe. An added challenge is attracting more significant private sector involvement to secure ongoing infrastructure investments. Texas' solution was the enactment of transportation



After



*Alliance Texas control center*

legislation. Enacted in 2003, this legislation added several new financial tools to traditional gas tax revenue, including state infrastructure bank loans (SIBs), toll road use of private equity and debt, pass-through toll financing, increased Texas Mobility Fund levels and comprehensive development agreements (CDAs), which will accelerate the funding of needed infrastructure. The new legislation places additional emphasis on private sector involvement in the planning, design, finance and construction to encourage competition and more cost-effective delivery methods.

One such example of private sector involvement is the 35W Coalition.

Formed 2 years ago, this group includes more than 150 landowners and businesses along the stretch of Interstate 35W between downtown Fort Worth and State Highway 114 in north Fort Worth. The coalition has two goals: 1) to work in partnership with TxDOT and local communities on transportation solutions along the corridor, and 2) to establish guidelines to promote quality development along the corridor. It is the coalition's intention that these measures will help attract high quality development and protect property values that will lead to expanding economic growth and increased tax revenues for the community. Already, this group has lent its support to local government attempts at accelerating

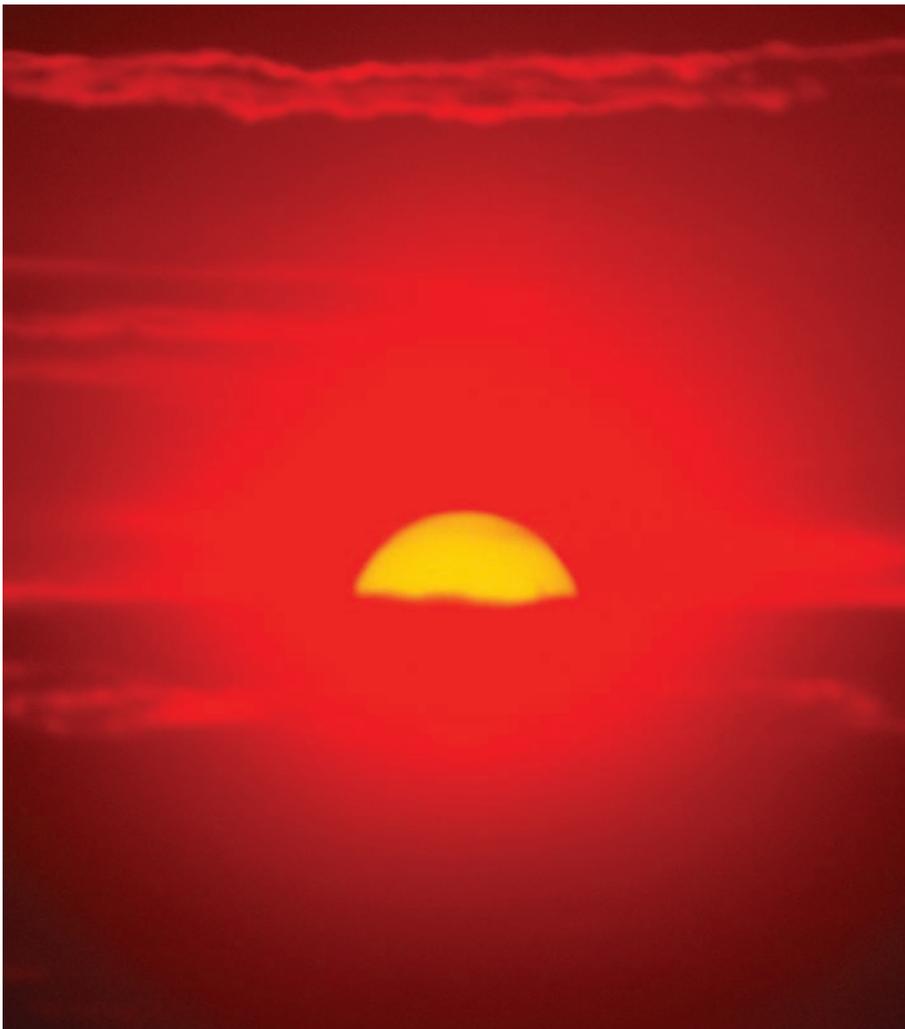
the delivery schedule for the construction of the North Tarrant Express, a 36-mile, \$2 billion that adds capacity to State Highways 121 and 183, Loop 820, and I-35 W. Through a CDA with private-sector toll-road developers, the timetable for this project could be sped up by as many as 10 years. Beyond the positive impact that the North Tarrant Express will have on the movement of goods and services to and from AllianceTexas, this project is also expected to alleviate the commute of thousands of employees that work in and around the AllianceTexas area.

Our large metropolitan areas are fully dependent on future transportation investment to retain and attract the highly skilled technology and service labor, which can now locate almost anywhere in the world. AllianceTexas, including its \$28.5 billion economic impact, more than 25 million square feet of space, 24,000 jobs, and \$5.8 billion in private investment,

will continue to expand. More than 60 million square feet of mixed-use space is planned at AllianceTexas over the next 10 to 20 years, but this will only be possible if continued investment in transportation infrastructure is made.

In another 25 years, the population of Texas and its demands on our transportation system will have increased, while revenues for traditional transportation funding will have continued to decrease. It is clear that our statewide mobility needs will not be met without using every available means. What this demands is that both the public and private sectors have the foresight and courage to implement all available funding tools to continue improvements and keep the Texas, U.S., and global economies thriving.

*Russell Laughlin serves as a Senior Vice President of Hillwood Properties, the developer of AllianceTexas.*



---

# ON THE HORIZON

**B**y 2015, the Panama Canal expansion should be completed and the impact on Texas ports and roadways will be significant. The planned expansion is of great interest to the Texas Department of Transportation (TxDOT) as it will lead to more trade volume and an increase in truck and rail traffic from port cities.

Last fall, TxDOT asked Cambridge Systematics to research the proposed expansion and to provide suggestions to help TxDOT prepare for the Canal expansion. One way TxDOT is already preparing for the impacts of the Canal expansion is through the Trans-Texas Corridor initiative.

Completion of this critical set of projects will help ensure that Texas is able to absorb the growth in freight traffic that will result from the Canal expansion and meet the challenges of serving evolving freight and passenger mobility needs.

The following is the Executive Summary of the report, “Effects of the Panama Canal Expansion on Texas Ports and Highway Corridors.” It discusses the background of the Panama Canal and outlines key strategies to aid TxDOT and state ports in preparing for the future of trade in Texas.

Visit [http://www.txdot.gov/publications/government\\_business\\_enterprises/panama\\_complete.pdf](http://www.txdot.gov/publications/government_business_enterprises/panama_complete.pdf) to read and download the full report.



# Effects of the Panama Canal Expansion on Texas Ports and Highway Corridors

Executive Summary prepared by Cambridge Systematics

**T**he proposed expansion of the Panama Canal will have significant impacts on Texas ports, their surrounding communities, and the highways and rail lines that serve them.

Full realization of the Trans-Texas Corridor initiative will help ensure that the state is able to absorb the growth in freight traffic that will result from the Canal expansion and ensure that it can meet the challenges of serving evolving freight and passenger mobility needs.

It is critical that existing Trans-Texas Corridor and other transportation planning activities explore different

approaches, which will ensure the provision of sufficient rail capacity and/or highway capacity for trucks.

Capitalizing the Texas Rail Relocation and Improvement Fund (RRIF) will allow railroads in the state to more effectively improve their infrastructure and operations, allowing them to more effectively serve growing volumes of international trade.

## SUMMARY

Expansion of the Panama Canal, through the development of new channels and the widening and deepening of existing ones, will allow it to maintain



*Cargo ship in one of Panama Canal's three locks.*

and even enhance its market share for trade between Asia and the United States. This expansion, scheduled for completion by 2015, will significantly impact the intermodal transportation system in Texas and accelerate growth at all of the state's seaports. In the short term, these impacts will be felt most heavily in and around the Port of Houston, the state's largest container port and a key trading partner for goods shipped via the Panama Canal. Through joint marketing with the Panama Canal Authority, the development of the new Bayport Container Terminal, and improvements to existing access routes, the Port is already preparing for the anticipated increase in container traffic resulting from the Canal expansion and other global maritime and trade trends.

The Texas Department of Transportation (TxDOT) is also preparing for the impacts of the Canal expansion, particularly through the Trans-Texas Corridor (TTC) initiative. Completion of this critical set of projects will help ensure that the state is able to absorb the growth in freight traffic that will result from the Canal expansion and ensure that it can meet the challenges of serving evolving freight and passenger mobility needs. In addition, the TTC will enhance the competitiveness and connectivity of the state's port facilities, allowing them to more effectively serve growing regional and national markets, create and retain jobs, and improve the state's overall economic vitality.

In the longer term, the Panama Canal expansion will have other impacts on

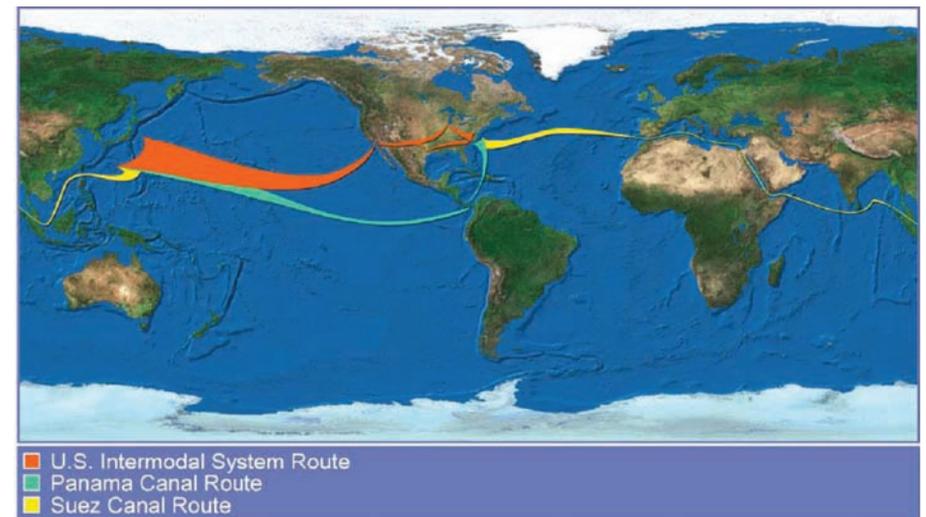
the state's transportation system, as other Texas ports make improvements to capture market share, shippers evaluate their supply chain and develop new distribution centers and warehouses, and increasing volumes of intermodal freight result in transportation, environmental, and land use issues at or around Texas port facilities. These and other impacts raise key policy questions to consider as TxDOT, metropolitan planning organizations (MPOs), economic development agencies, and other public and private freight stakeholders work to improve the safety, security, and efficiency of people and goods movement statewide.

## BACKGROUND

The Panama Canal is one of three common routes, along with the Suez Canal and the U.S. intermodal system,

connecting Asian-based manufacturers and exporters with major consumer markets on the U.S. Gulf and East Coasts. The combination of congestion at the Ports of Los Angeles and Long Beach (which handle approximately half of all U.S. imports), increasing costs and decreasing reliability on the U.S. intermodal system (particularly rail connections), and the proliferation of distribution and warehousing centers near ports along the Gulf and Southeast coasts of the U.S., have combined to make the Panama Canal route (also known as the "all-water" route) a more attractive option to shippers serving these markets, particularly those shipping consumer goods in intermodal containers.

As a result of these and other trends, the Panama Canal's share of total container shipments between Asia and the U.S. has increased from 11 percent in 1999





*With growing cargo ship sizes, the Panama Canal needs to grow as well.*

to over 38 percent in 2004 and container volumes through the Canal are expected to grow by nearly 6 percent annually over the next several years<sup>1</sup>. Although the Panama Canal remains a critical conduit for trade between Asia and the U.S., there are concerns about the ability of the Canal to absorb future growth in trade volumes. At these estimated growth rates, the Canal is expected to reach its practical capacity sometime between 2009 and 2012.

The capacity constraints affecting the Panama Canal are driven primarily by the physical limitations of the Canal itself. The maximum size of vessel which can use the Canal is dictated by the effective dimensions of the lock chambers (currently 100 feet by 1,000 feet). In

2006 more than 45 percent of the ships utilizing the Canal matched those exact dimensions. These ships, known as Panamax vessels, have significant impacts on traffic and operations throughout the Canal. Most of these ships cannot cross safely at speed, slowing operations and generating longer queues. In many cases, the Canal can only serve Panamax ships traveling in one direction at a time.

Rapidly growing trade between the U.S. and Asia is driving many shippers to utilize “post-Panamax” vessels (those larger than the dimensions permitted through the Panama Canal), despite the fact that only a handful of ports have sufficient infrastructure to handle these ships, and growing congestion at and around those ports can degrade overall

shipment reliability. The advent of these “mega-ships,” which are forced to use the Suez Canal or the U.S. intermodal system to access U.S. markets, could threaten the existing market share for the Canal.

Recognizing these trends, the Panama Canal Authority is proposing to undertake a \$5.25 billion expansion project that would involve the construction of two lock facilities (one on each side of the Canal); the excavation of new access channels to the new locks and widening of existing channels; and the deepening of the existing navigation channels. As approved by the Panamanian voters on October 22, 2006, construction is expected to begin in 2007 and the new set of locks (to allow post-Panamax ships to navigate through the Canal) would begin operation by 2015<sup>2</sup>. In addition to these significant infrastructure investments, the Panama Canal Authority has developed

strategic partnerships with key U.S. ports, including the Port of Houston, to boost trade through the Canal. This combination of wider navigation channels and locks, coupled with these partnerships, will increase demand through the Canal itself and for ports along the Gulf and East Coasts, including those in Texas. Table 1 shows the expected growth in traffic through the Panama Canal both with and without this expansion.

As shown in Table 1, the share of expected overall tonnage growth through the Canal will decrease for most market segments from 2005 to 2025 if the expansion is not implemented. These decreases will occur for two key reasons. First, the Panama Canal Authority is focused on serving the intermodal market, as that market segment is its primary revenue generator<sup>3</sup>. Even without an expansion, the Canal would still focus on the intermodal

*Table 1 Expected Growth in Tonnage through Panama Canal 2005-2025 (In Millions)*

Market Segment	2005 Tons	Year 2025 Tons	
		Without Expansion	With Expansion
Containers	98	185	296
Dry Bulk	55	49	73
Liquid Bulk	34	19	28
Passenger	10	13	19
Car Carrier	36	40	58
Refrigerated Cargo	19	15	22
General Cargo	7	3	4
Other	20	6	8
<b>TOTAL</b>	<b>279</b>	<b>330</b>	<b>508</b>

Source: Panama Canal Authority, 2006.



container market, often to the detriment of these other market segments. Second, as described earlier, large ships often cannot navigate the Canal (as currently configured) at speed, causing queues and other operational delays. Because the Canal would continue to focus on serving the intermodal market even without an expansion – and as the volume of this traffic continued to rise – these existing delays would be exacerbated, and would primarily affect the Canal’s “secondary” customers, i.e., non-container shipments (bulk, passenger, or general cargo). Over time, these non-container carriers would seek out other less-congested and more cost-effective routes, avoiding the Canal

altogether. Completion of the proposed expansion, however, will allow the Canal to effectively strengthen its market share for intermodal traffic while maintaining or slightly enhancing service for most other market segments.

### **IMPACTS ON TEXAS PORTS AND HIGHWAY CORRIDORS**

Even though only a handful of ports in Texas serve significant volumes of containerized traffic (currently Houston, Galveston, and Freeport), the impacts of the Panama Canal expansion will not be limited to only those facilities. Rather, the expansion may have significant impacts

on many Texas ports, their surrounding communities, and the highways and rail lines that serve them. These impacts, along with key policy and planning strategies that TxDOT may wish to consider to address these impacts, are described below.

#### **1. Growth at Texas Ports Will Be Accelerated**

Texas ports are already growing significantly, and are expected to grow by more than 40 percent (on average) between now and 2035. Some specific market segments such as containerized traffic are growing even more rapidly, in some cases greater than 10 percent per year. The expansion of the Panama Canal will accelerate these existing growth patterns, particularly at the ports in Texas that currently handle containerized traffic. Even without the Canal expansion, the Port of Houston (which handles over 80 percent of the states container throughput) expects its containerized traffic to grow between 16 and 23 percent over the next several years. When the expansion is complete, the Port of Houston’s growth rate will most likely increase significantly, placing pressure on terminal operators, trucking companies, railroads, state and local transportation planning agencies, and other stakeholders in the maritime and transportation communities to maintain operational efficiency at or around port facilities. Accelerated growth in Houston and other intermodal facilities may encourage other ports in the state to make

physical infrastructure improvements to act as either overflow or reliever facilities for the larger load-center ports or to serve markets that may be displaced from these larger ports altogether.

In response to these trends, many ports within the state are enhancing existing or developing new container terminals to more efficiently handle the growing volumes of containerized traffic, including:

**Port of Houston, Bayport Terminal**, a new facility expected to be constructed over the next 15-20 years. The initial development phase, scheduled to open in the late summer of 2006, will accommodate approximately 300,000 TEUs (twenty-foot equivalent units, a standardized maritime industry measurement used to count cargo containers of different lengths) when fully developed. This facility will approximately triple the available capacity for containerized traffic at the Port and allow it to more effectively handle Panamax and post-Panamax ships;

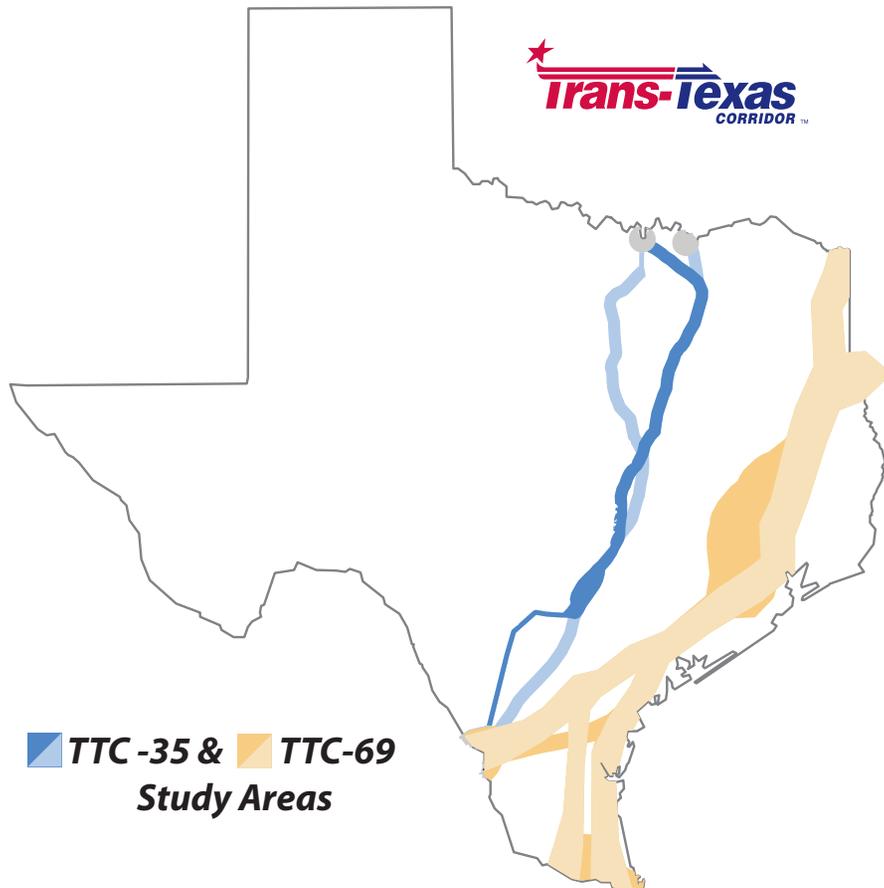
**Texas City International Terminal**, an intermodal terminal being jointly developed by the City of Texas City and Stevedoring Services of America, which will serve as the terminal operator; and

**La Quinta Trade Gateway**, a container terminal being developed by the Port of Corpus Christi to compete with, or offer

congestion relief from, existing container terminals in Texas and other Gulf states.

While the completion of these new facilities will allow these ports to capture additional market share for intermodal traffic, the impacts of these new facilities will most often be felt locally and regionally, through increased highway traffic around port areas, increased congestion on intermodal access routes, and worsening air quality in some

areas. Completion of these facilities also heightens the importance of fully realizing the TTC initiative, as goods moving through these ports and terminals will need to efficiently and reliably access markets within Texas and across the region. Without completing the suite of TTC projects, it is unlikely that the state's existing transportation system will be able to absorb this anticipated growth in freight traffic.



### Key Planning and Policy Strategies

- Continue development of TTC projects. Completion of the TTC will help ensure that the state is able to absorb the growth in freight traffic that will result from the Canal expansion and ensure that it can meet the challenges of serving evolving freight and passenger mobility needs. In addition, the TTC initiative will enhance the competitiveness and connectivity of the state's port facilities, allowing them to more effectively serve growing regional and national markets, create and retain jobs, and improve the state's overall economic vitality. It is critical that this set of projects continues to advance toward implementation and TxDOT should work closely with the Texas Port Authority Advisory Committee (PAAC) and other key stakeholders to ensure that TTC plans, programs, and strategies reflect the potential impacts of the Panama Canal expansion on key facilities and corridors.

- Ensure that freight trends and issues, including the potential impacts of the Panama Canal expansion, are fully integrated into transportation policy, planning, and programming activities at the statewide, regional, district, and metropolitan levels.

### 2. The Performance of Intermodal Connections Will Be Strained

The growth in freight traffic, particularly container traffic, associated with the

expansion of the Panama Canal may further strain intermodal access to key ports and terminals in the state and prevent port facilities from effectively serving key regional and national markets. Population and travel growth in urban areas, particularly in and around Houston, coupled with the increases in freight traffic expected to occur as a result of the Panama Canal expansion and other global and trade trends, will strain the ability of existing highway and rail infrastructure to meet passenger and freight mobility needs. Completion of the Interstate 69 Trans-Texas Corridor (TTC-69) and Interstate 35 Trans-Texas Corridor (TTC-35) will help absorb some of this growth, but it is critical that existing TTC-69 and TTC-35 planning activities explore different approaches to ensure that sufficient rail capacity and/or highway capacity for trucks will be provided.

Compounding the problem is the fact that the "last mile" intermodal connectors may not have sufficient capacity to handle expected increases in freight traffic either. Although several ports, including the Port of Houston, have undertaken efforts to make improvements to these critical linkages, the capacity gains resulting from these improvements may not keep up with the increases in demand. Making improvements to these facilities can be challenging, as many are local roadways and some local agencies are hesitant to invest scarce transportation funds on

---

improvements whose benefits accrue regionally, nationally, or to the private sector freight industry.

Rail is an important and growing port service alternative at larger ports, but high infrastructure development costs and network capacity bottlenecks both within and outside the state can limit its potential as a viable option to trucking for some ports. Capitalizing the Texas Rail Relocation and Improvement Fund (RRIF)<sup>4</sup>, which was established in 2005, would allow railroads in the state to more effectively improve their infrastructure and operations, allowing them to retain or enhance their market share, expand the transportation options available to shippers, and improve overall mobility and economic competitiveness statewide.

Similarly, some ports have invested in intelligent transportation systems (ITS) to improve flows of cargo through port facilities. However, advances in ITS technology have not fully kept pace with growth in overall freight volumes at most ports and terminals. In many cases, the operational efficiencies gained by deploying ITS applications have been overwhelmed by the volume of freight moving through these facilities. Although other strategies, such as enhanced gate operating hours and physical improvements to marine access routes to cargo flow, such improvements must be made systematically and require close

cooperation between port operators, users, and state and local transportation officials.

#### *Key Planning and Policy Strategies*

- Identify key bottlenecks on the highway and rail systems and determine how those bottlenecks may be affected by the anticipated growth in container traffic caused by the Panama Canal expansion.
- Work with the PAAC – along with partner agencies (i.e., MPOs and local planning agencies), and the private sector freight community (i.e., ports, railroads, shippers, and other stakeholders) – to describe the existing performance of intermodal connectors, identify key issues, and develop appropriate investment strategies.
- Capitalize the Texas Rail Relocation and Improvement Fund (RRIF)<sup>5</sup> allowing railroads in the state to more effectively improve their infrastructure and operations, retain or enhance their market share, expand the transportation options available to shippers, and improve overall mobility and economic competitiveness statewide.
- Work with the PAAC, individual ports, and the private sector freight community to investigate the use of ITS or other operational strategies to improve mobility on and around port facilities.



### **3. Distribution and Warehouse Development Around Port Areas Will Be Accelerated**

Distribution centers and warehouses are often located in close proximity to intermodal ports and terminals, allowing shippers and carriers to serve regional and national markets more effectively. Major retailers, including Radio Shack, JC Penney, Wal-Mart, and Target have already invested in major distribution centers around the Port of Houston, and Houston was ranked as the second most “logistics-friendly” metro area in the country<sup>6</sup>, based on its strong transportation and distribution workforce, highway and rail infrastructure, water port access and air cargo facilities, and other factors. Increasing volumes of containerized freight at Texas ports caused by the expansion of the Panama Canal will accelerate the development

of these shipper-controlled distribution centers and warehouses around key ports and intermodal facilities, particularly around the state’s existing container ports of Houston, Freeport, and Galveston.

Because these distribution centers and warehouses are often located in close proximity to ports and intermodal facilities, they favor trucks as their primary mode of transportation. While trucks are able to serve these facilities most effectively, they also contribute to congestion at terminal gates and along port and terminal access routes, as drayage operators serving these centers often make multiple trips to and from port facilities per day. The development of distribution and warehouse facilities can also have important land use and transportation implications. Despite the close relationship between

transportation – particularly intermodal freight transportation – and land use, many DOTs, MPOs, and local agencies find it difficult to coordinate freight transportation and land use planning activities to ensure that new facilities are compatible with existing land uses or that land use decisions are consistent with freight mobility and operational needs. The proliferation of new distribution centers and warehouses generated by the Panama Canal expansion will require more effective integration of land use into transportation planning at all levels – including project, corridor, and system-level plans – to ensure that safety, security, mobility, and environmental needs are being met.

#### *Key Planning and Policy Strategies*

- Ensure that freight and land use implications are incorporated into current and future transportation planning activities, particularly corridor and system-level plans, at the statewide, regional, district, and metropolitan levels.
- Encourage MPOs and other local planning agencies to work closely with ports to ensure that land use and master planning activities or strategies are coordinated.
- Develop a better understanding of how port-related drayage movements affect the performance of the transportation system and the overall mobility of

people and goods in and around key port facilities.

#### **4. There Will Be Pressure to Increase Channel Depths**

The new generations of containerships, including many of the post-Panamax ships that will be attracted to the expanded Panama Canal, typically require channel depths of at least 50 feet, particularly for fully loaded vessels. Few Texas ports currently have the ability to handle ships of that depth. Although at 45 feet, the Port of Houston will have one of the deeper channels among Gulf Coast ports, it will still lag behind several of its major East Coast competitors for containerized traffic, including the Port of New York/New Jersey, which has plans to increase its depth to 50 feet, and the Port of Hampton Roads (Virginia), whose channel is already at a depth of 50 feet.

In order to effectively compete for the container traffic increases expected to result from the expansion of the Panama Canal, many Texas ports will need to deepen their existing channels. Although the cost of dredging is shared by the federal government (U.S. Army Corps of Engineers) and local sponsors (typically a port or port authority), limited federal funds for dredging projects, coupled with the high cost of dredge spoil disposal (which is the responsibility of the local sponsor), makes channel deepening projects challenging. Those ports that are not able to effectively improve their

channel depths may evolve into “niche” ports serving key commodities or local markets, rather than major load-centers for regional, national, or international shipments.

#### *Key Planning and Policy Strategies*

- Consider developing a program to provide matching funds for dredging operations at key ports around the state to allow for a more comprehensive, systematic investment strategy for dredging activities.
- Consider capitalizing the Texas Port Access Account Fund, authorized in Chapter 55 of the Texas Transportation Code. This account authorizes funds for port improvement projects such as dredging, infrastructure improvements, and other enhancements.

#### **5. There Will Be Air Quality and Other Environmental Impacts**

As described earlier, growth in overall freight traffic at Texas ports – which will be accelerated with the expansion of the Panama Canal – has caused many ports in the state to investigate or undertake significant capacity improvements. In addition to dredge spoil disposal, a sensitive environmental issue in many areas, such expansions can also create other serious environmental concerns, as ports are usually located in environmentally sensitive waterfront areas and access improvements may generate additional truck or rail trips in air quality non-attainment regions. In addition, neighborhoods adjacent to ports and those that are most seriously impacted by expanding port traffic often house the poorest citizens in the community.



*Corpus Christi: Integrating expanding port activity with community life.*

Many ports are under pressure to resolve their access problems while minimizing additional community impacts.

In many cases, a variety of state, federal, and local agencies are involved in the planning and approval of port improvements. Interlocking requirements for coordination among federal, state, and local agencies, along with permit and environmental approvals, can significantly expand the time required to plan and implement projects, often driving up the cost of a project significantly. Without effective interagency coordination, improvements in such complex areas may stumble. The problem of meeting maritime system needs is further complicated by pressures to “reclaim waterfronts” with competing non-marine development, such as housing and high-value commercial/industrial land uses that may generate higher revenues for local governments.

In order to mitigate these and other environmental impacts, it is critical that TxDOT work closely with its regional, local, and private sector partners to balance transportation improvements with environmental needs. The development and implementation of plans and strategies that improve the capacity and efficiency of the highway system, relocate high volume freight rail corridors away from non-attainment areas, or improve circulatory patterns in and around port facilities can often enhance freight

mobility while simultaneously improving air quality in many regions.

#### *Key Planning and Policy Strategies*

- Work with the PAAC, other stakeholders in the maritime community, MPOs, districts, and other planning agencies to ensure that potential environmental issues related to the Panama Canal expansion and other global maritime trends are identified and accounted for within the transportation planning process at the statewide, regional, district, and metropolitan levels.
- Consider developing a program to preserve critical commercial infrastructure, facilities, or land parcels (including brownfields), particularly around smaller ports in the state, to ensure adequate capacity exists to address future maritime system needs.

#### **WORKS CITED**

1. Panama Canal Authority, 2006.
  2. Panama Canal Authority (ACP) – Proposal for the Expansion of the Panama Canal. April 2006.
  3. Intermodal traffic accounts for 35 percent of total volume through the Panama Canal, and over 40 percent of total revenue.
  4. Texas Constitution, art. 3 sec. 49(o)
  5. Texas Constitution, art. 3 sec. 49(o)
  6. Logistics Today Magazine, 2006. Beaumont-Port Arthur ranked number 54; Brownsville number 95.
- [http://www.txdot.gov/publications/government\\_business\\_enterprises/panama\\_complete.pdf](http://www.txdot.gov/publications/government_business_enterprises/panama_complete.pdf)

#### **SUBMISSION GUIDELINES FOR AUTHORS**

Horizon is a journal of the Texas Department of Transportation, Government and Business Enterprises Division. It provides innovative and trend-setting articles about transportation policies in Texas and throughout the world. Research findings and policy issues are presented in accessible language to allow for discussion among policy-makers, professionals, and citizens.

The journal seeks manuscripts, preferably original, (i.e., articles, commentary, and book reviews) which are timely in scope and relevant to transportation.

1. Submit manuscripts by email in MS Word format to the Editor at: TxDOTHorizonEditor@dot.state.tx.us
2. Acceptance of manuscripts for publication is subject to approval by the editorial staff.
3. The author must inform the editor if the article has appeared in, or was submitted to, any other publications. The author must provide written approval from the publication in which his article appears. If the article was presented as a paper at a seminar or other event, please state the location, time, and event.
4. Sales presentations for organizations, promoting a particular product or service, are not suitable for publication.
5. The text of manuscripts is to be double-spaced and 12-point type. Articles are limited to a maximum length of 2000 words (approximately 5-6 pages); commentary and book reviews are limited to a maximum of 1000 words.
6. The manuscript should have a title page which includes the names, affiliations, addresses (mailing and email) and phone numbers of all authors. Brief biographical sketches for all authors should be included with the manuscript.
7. Include an abstract that briefly describes the contents, procedures, and results of the manuscript and does not exceed 100 words.
8. Endnotes are to be used rather than footnotes and placed at the end of the manuscript. Footnotes may be occasionally used within the document for clarification purposes, but not for citing references.
9. The Modern Language Association Style (MLA) is to be used for endnotes and references. At the end of the manuscript, complete references are listed alphabetically (not by number) by author surname, government agency, or association name.
10. Photo/Art Guidelines.
  - If you provide photos, please include caption, photographer's credit, and written permission from the photographer for each image.
  - If sending compressed files, please send as a self-extracting file (SEA).
  - All photos must be scanned or saved at 300 dpi or greater and sent separately from the document. Please send photos in high resolution: JPG, TIFF or GIF file formats.

## SUBSCRIPTION FORM

---

Subscribe to receive free quarterly issues of HORIZON. Fill out this form and fax it to the number below.

Full Name: \_\_\_\_\_

Title: \_\_\_\_\_

Organization: \_\_\_\_\_

Type:     Private Sector         University         Media  
          Government         Other

Street Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ Country: \_\_\_\_\_

Phone Number: \_\_\_\_\_ Fax: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

How did you hear about HORIZON? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Please fax to:**

**HORIZON Subscriptions  
512-416-2329**

If you have any questions or need assistance  
call 512-416-2382



Prepared by the Government & Business Enterprises Division  
at the Texas Department of Transportation  
125 East 11th Street, Austin, Texas 78701-2483  
[www.TxDOT.gov](http://www.TxDOT.gov)

Copies of this publication have been deposited with the Texas State Library  
in compliance with the State Depository requirements.  
Winter 2007