



Inland Ports: Economic Generators in Texas?

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Background

U.S. businesses compete in a global environment in which access to international markets through multimodal transportation systems is regarded as critical to ensuring their competitiveness. In the global environment, “the performance of supply chains is vital to shippers, not only for the sake of bringing goods to market, but because logistics itself has become a source of market advantage” (Cambridge Systematics, Inc., n.d.). One of the outcomes of improved supply chain management is facilities—i.e., inland ports—designed specifically to capitalize on multimodal transportation systems.

What Is an Inland Port?

An inland port has been defined as “a site located away from traditional land and coastal borders with the vision to facilitate and process international trade through strategic investments in multi-modal transportation assets and by promoting value-added services as goods move through the supply chain” (Prozzi et al., 2002). By this definition, well-established inland ports:

- tend to be large regional centers serving domestic and international markets;
- facilitate international trade and expedite shipments in and out of the United States;
- have multimodal capabilities and good access to interstate and state highway systems;
- have Foreign Trade Zone status;
- serve niche markets, which tend to involve higher-valued commodities; and
- have access to sufficient labor and skills (Prozzi et al., 2002).

How Do Inland Ports Develop?

Inland ports throughout the world vary substantially in physical design and philosophy, as well as institutional and organizational structure and ownership. Some have developed from industrial parks, while others have evolved from long-established modal sites, such as those on rivers. Others have developed at abandoned military bases, while others, such as AllianceTexas, have been greenfield developments. A review of the literature, however, suggests that inland ports follow a development life cycle—similar to the product life cycle frequently used in business and marketing

analysis—and that the various development phases of the inland port site can profoundly impact the need for transportation investments. The development life cycle of an inland port can be described using the following five phases:

- I. preparation,
- II. establishment,
- III. expansion,
- IV. stabilization, and
- V. decline/innovation.

Figure 1 illustrates the development phases of an inland port, elaborates on critical investments/activities required during each development phase, and describes the level of support that can be expected at each phase of the inland port life cycle from a transportation agency, such as the Texas Department of Transportation (TxDOT).

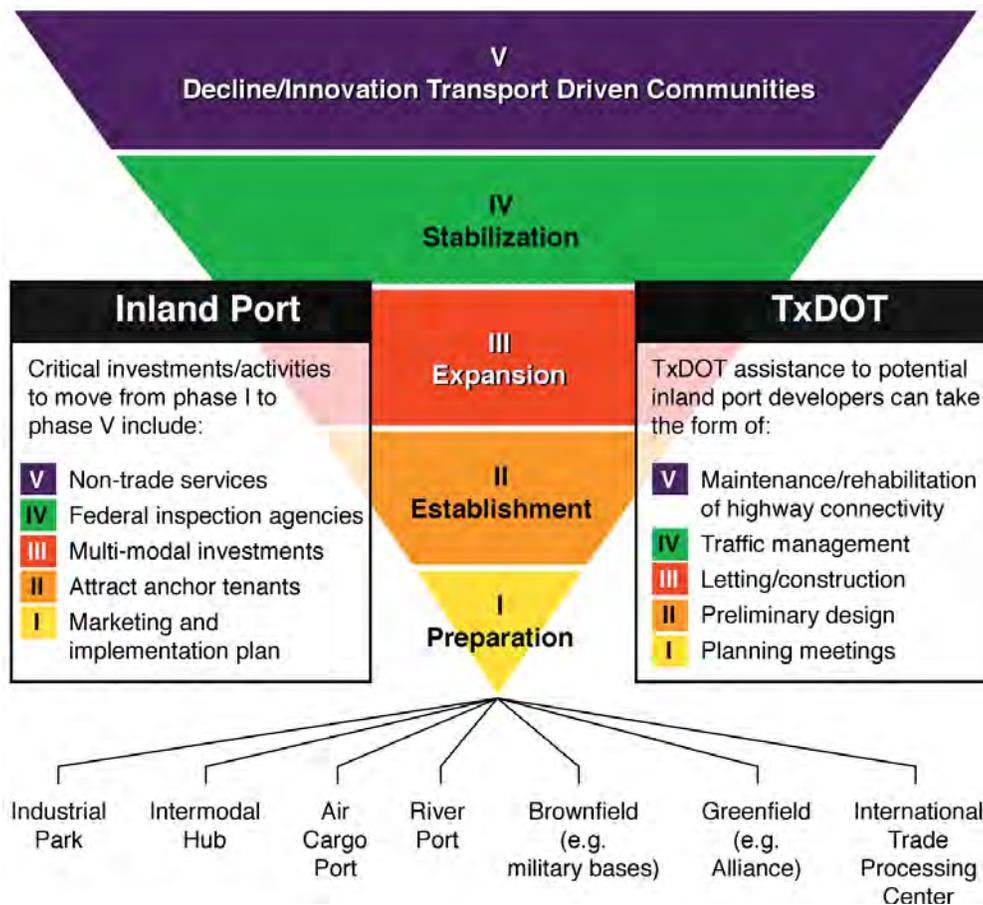


Figure 1: Development Life Cycle of Inland Ports

Specifically, the figure illustrates the key elements/activities that are expected from the proponents or supporters of an inland port. For example, the first critical activity for the developers of an inland port during *phase I: preparation* is to develop a marketing and implementation plan that stipulates the vision for the inland port and the benefits of locating at the inland port—initially to potential anchor tenants but also subsequently to prospective ancillary businesses. In *phase 2: establishment*, inland port proponents typically focus on attracting a number of major companies to locate at the site—the so-called anchor tenants. It is, however, important to note that the boundaries between different inland port development phases tend to be somewhat vague. Also, the sequence and exact investments/activities that occur in each phase may vary, depending on the characteristics of the site. A brownfield site, such as an old military Air Force base, might already have certain infrastructure and critical multimodal assets in phase 1. Furthermore, the development of an inland port is a long-term prospect. It can literally take half a decade or more to move from phase 1 to phase 2.

Locational advantage can take the form of favorable zoning/site classification, access to existing markets in terms of large metropolitan areas (existing demand), North American Free Trade Agreement (NAFTA) trading partners, potential shippers, skilled labor, and transportation access to the site (for example, a location close to existing transportation infrastructure, such as priority highway corridors).

The development phase of an inland port, from the perspective of a transportation agency such as TxDOT, is relevant in terms of the impact that the inland port site activities will have on the transportation network. For example, the number of truck trips generated at the site may be relatively low when the site is newly opened. As the inland port develops, traffic will grow to a point in time when there is a thriving transportation system (usually multimodal), generating a variety of trips that will impact both local and regional highway networks.

What Types of Benefits Do Inland Ports Generate?

Successful inland port developments can benefit the private sector, transportation agencies, and society at large. This section highlights some of the benefits of inland ports.

Private Sector

Inland ports complement global supply chains and can be an integral part of transportation trade corridors by providing opportunities for increased service levels, providing value-added assembly/processing of imports, and lowering total supply chain costs. For the private sector to embrace inland ports, inland port supply chains must offer efficiency benefits superior to traditional supply chains. In this regard,

location advantages and access to multimodal transportation systems (which include highways, rail, and air) are keys to the eventual success of inland port developments.

Figure 2 illustrates the benefits of the spatial organization of the inland port supply chain compared to a traditional supply chain. As shown in Figure 2, inland ports can facilitate a reduction in the number of intermediate links and the average length of haul for distribution, thereby streamlining shipping systems and reducing overall transportation costs. Additional benefits include improved transit times, increased reliability, and the potential balancing of inbound and outbound freight movements to and from the inland port, thus reducing empty backhauls and

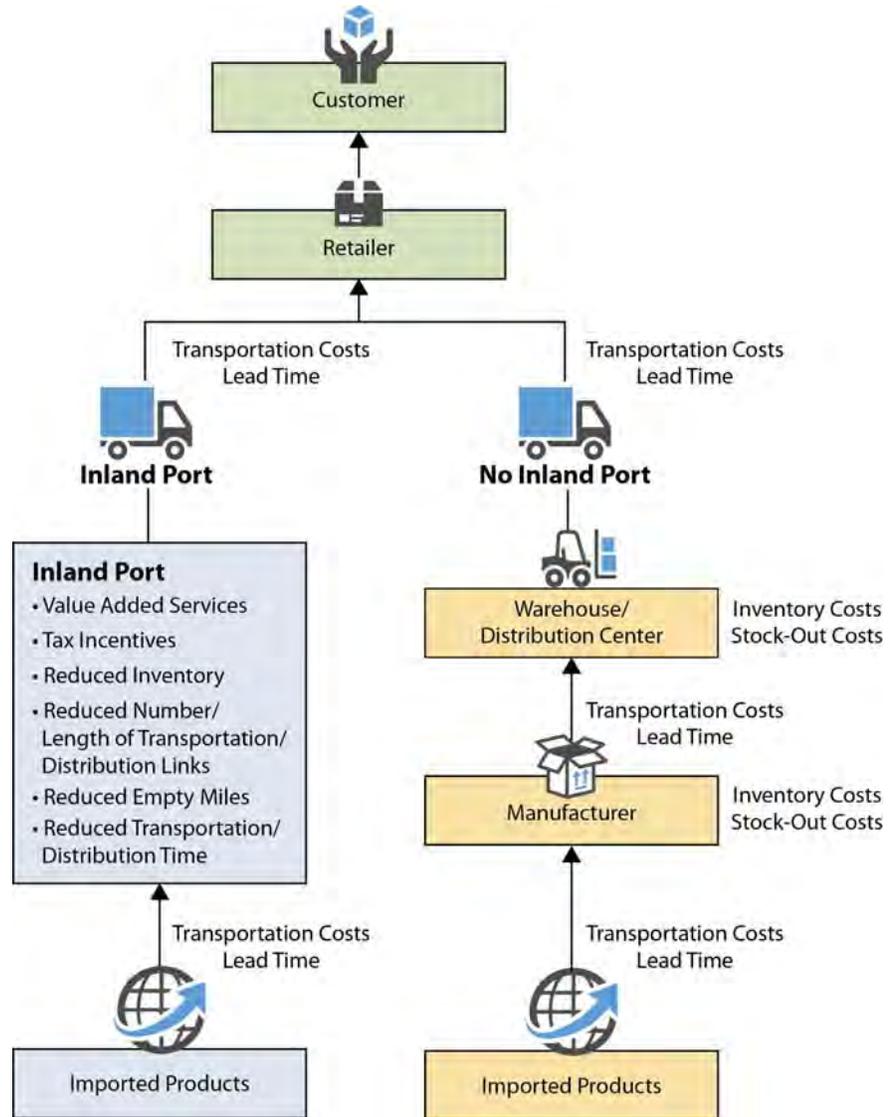


Figure 2: Inland Port Supply Chain Compared to Traditional Supply Chain (Simplified)

decreasing transportation costs. Furthermore, multimodal options offer the private sector the flexibility to select the mode or combination of modes that best meets specific shipment requirements in terms of cost, speed, and reliability of service. Inland ports thus potentially facilitate more efficient and lower-cost supply chains when compared with more traditional supply chains. The effect of a reduction in costs (including transportation costs) is immediate because it influences the price of the output and thus the competitiveness of a company.

Societal Benefits

In addition to the benefits directly accruing to inland port tenants and local businesses, inland port investments also result in higher land values and more competitive services, which translate into broader societal benefits in the form of increased tax revenues, employment, and economic development:

- *Increased tax revenues*—Inland port investments typically result in higher land values with benefits in the form of increased tax revenues. For example, AllianceTexas spans four cities (Fort Worth, Haslet, Roanoke, and Westlake), two counties (Denton and Tarrant Counties), and two school districts (Northwest and Keller ISD). Property taxes paid to these public entities by AllianceTexas amounted to more than \$1 billion over the past 22 years. The City of Fort Worth alone received \$22 million in property taxes in 2011—compared to \$9 million in 2000. With more development and the planned addition of more square footage, property taxes are expected to increase accordingly (City of Fort Worth, 2012).
- *Employment*—Inland ports tend to be labor intensive because of the value-added services provided at the ports. Value-added services can take the form of manufacturing traded products; manufacturing intermediary components for traded products; providing component assembly, packaging, labeling, transportation, storage, and distribution; or providing auxiliary services such as finance, accounting, marketing, legal advice, and customs brokerage. Some of these services require an educated or trained workforce (and higher salaries) to respond to changing logistics demands and advanced technologies.
- *Economic development*—One of the goals of many inland port developments is to accelerate economic growth and create employment opportunities. CDM Smith (2012) reported that Rickenbacker International Airport generates 4,806 jobs (direct and indirect), \$267 million in payroll, and almost \$1 billion in total annual output.

“Payroll measures the total annual wages, salary, and benefits paid to all workers whose employment is directly attributable to...airport activity.

“Economic Activity (Output) measures the value of goods and services related to...airports. The output...is assumed to be the sum of annual gross sales and average annual capital expenditures.”

Source: CDM Smith, 2012

Public Agency Benefits

Before September 11, 2001, the crossing of trucks in-bond through traditional ports of entry to be cleared by U.S. Customs and Border Protection (CBP) at inland sites was viewed as an option to enhance the overall efficiency with which international

trade enters/exits the United States. The most important benefit was viewed as a reduction in the time necessary to cross the border, thereby facilitating the processing of increased trade without additional capital investments to expand existing border facilities.

For state transportation agencies, the benefits associated with inland port developments have been cited as an opportunity to leverage private funds for transportation investments and reduced maintenance expenditures if inland port developments facilitate a mode split away from heavy trucks. Increasingly state departments of transportation (DOTs) are faced with the challenge of narrowing an increasing gap between the cost of funding/maintaining the transportation system and available funding. Given the benefits of increased access to potential inland port developments to both the developers and the public, public-private partnerships (PPPs) to fund roadway enhancements seem appropriate. Furthermore, it has been argued that a mature inland port has the potential to facilitate a modal split away from heavy trucks. This results in potentially a better use of road capacity and less damage to road infrastructure.

PPPs Required for Road Investments

Multimodal access (and thus multimodal capabilities in the form of highway, rail, air, and/or waterway) is considered a critical investment for inland ports. To ensure the successful development of the prospective inland port, it is thus essential that agreement be reached in terms of the required multimodal investments and infrastructure improvements required. This will ensure coordination between the timing of the transportation infrastructure investments and the increase in inland port activity.

TxDOT and metropolitan planning organizations (MPOs) in Texas play a key role in the planning of highway/road projects. Accordingly, when approached to fund a roadway project to enhance access to a particular inland port site—e.g., an existing segment needs additional lanes, or an overpass is needed to eliminate truck conflicts—transportation planners need to review and evaluate the infrastructure investment required by the inland port proponent from a transportation planning perspective.

New highways or major road investments can only move forward after considering traffic volumes, construction costs (including interchanges), environmental impacts, and inducement to development. Furthermore, given inadequate transportation funding to

“In 2012, the San Antonio-Bexar County Metropolitan Planning Organization (MPO) approved \$6.24 million for improvements to the intersection of Quintana Road at Dunton Avenue—the main access point for commercial traffic into the [East Kelly] Railport. Port San Antonio will contribute \$1.56 million in design services and funding for land acquisition toward the effort, for a total project cost of \$7.8 million.”

Source: Port San Antonio, 2013



address all the highway needs in the state, prospective inland port developers can increase the probability of securing funding for roadway projects by:

- having a good, basic understanding of the TxDOT/MPO planning and project development process (PDP);
- providing information to TxDOT/MPOs on the proposed inland port activities in a timely fashion;
- providing (i.e., funding or donating) right-of-way required for the project; and
- entering into or creating joint partnerships to partially fund the roadway construction requested.

The earlier the required road investments and future constraints on modal expansion are identified, the higher the probability of finding a timely resolution.

Inland Ports in Texas

Texas inland ports are likely to develop at locations where value can be added to traded products, where there is a significant density of trade trucks on nearby highway trade corridor segments, and where good access exists to major Texas gateways, such as traditional ports of entry on the Texas border, major sea ports, or airports. Dallas/Fort Worth and San Antonio present such locations.

AllianceTexas

AllianceTexas is “a 17,000-acre master-planned, mixed-use community” located about 20 miles north of downtown Fort Worth (AllianceTexas, n.d.). A key component of the AllianceTexas development is the Alliance Global Logistics hub that includes Alliance Airport, a large Burlington Northern Santa Fe (BNSF) rail intermodal facility, access to two Class I rail lines, and connecting highways. The AllianceTexas development also includes a number of corporate campuses, office complexes, shopping and entertainment venues, residential housing, schools, and churches (AllianceTexas, n.d.).

Multimodal Access

AllianceTexas provides access to three modes of transport: rail, air, and truck. AllianceTexas is located on IH 35W with direct access to SH 114 and SH 170 and in close proximity to IH 20, IH 30, and IH 40—major trade corridors in Texas.

On the western border of AllianceTexas, BNSF operates a 735-acre intermodal rail yard where containers can be loaded, unloaded, or transferred between rail and truck. The facility conducts approximately 600,000 lifts per year, and it is projected that

this number will increase to 1 million lifts per year (AllianceTexas, 2013). Union Pacific's tracks run along AllianceTexas's far eastern border near Roanoke. Rail sidings serve companies such as DSC Logistics and Nestle, but most of Union Pacific's AllianceTexas traffic is routed through the BNSF intermodal yard (Prozzi et al., 2002). There are currently plans for transload facilities next to the intermodal yard, as well as a container yard (AllianceTexas, 2013).

Fort Worth Alliance Airport—a dedicated freight airport—is near the center of the park. The airport has two runways: 8,200 and 9,600 feet in length. The airport has 3.5 million square feet of cargo-handling ramp/tarmac surface space. On-site CBP offices reduce clearing times for international flights (Frawley et al., 2011). Alliance Airport ranked fourth in 2012 in cargo tonnage landed among Texas airports, behind Dallas/Fort Worth, George Bush, and San Antonio International Airports. Alliance Airport landed over 317,061 tons of cargo, or approximately 8 percent of air freight landed in Texas, in 2012 (Federal Aviation Administration, 2013).

The extension of the main runway from 9600 feet to 11,000 feet is currently in progress. The purpose of the runway extension is to provide freight companies the ability to fly non-stop to Europe and Asia (through Alaska) fully loaded. The project is sponsored by the City of Fort Worth, owner of Alliance Airport. Funding has come from the Federal Aviation Administration, Tarrant County, the City of Fort Worth, and the North Central Texas Council of Governments (Frawley et al., 2011).

Tenants

AllianceTexas's anchor tenants include:

- aerospace/aviation companies, such as American Airlines, Bell Helicopter, DynCorp International, Lockheed Martin, and Rolls-Royce;
- automotive companies, such as Bridgestone, Ford Motor Company, GM, Hyundai, and Volkswagen;
- health-care companies, such as AmerisourceBergen, Blue Cross Blue Shield, Cardinal Health, Patterson Dental, Teleflex Medical, and Texas Health Resources;
- consumer goods companies, such as AT&T, Behr, Coca-Cola, JC Penney, Kraft, Lego, Michaels, Nestle, SC Johnson, and Safeway/Tom Thumb; and
- company offices, such as AT&T, DynCorp International, eCommerce Industries, Fidelity Investments, Mercedes Benz Financial Services, and TD Ameritrade.

Third-party logistics companies (3PLs) specialize in a number of logistics services, such as transportation, warehousing, cross-docking, inventory management,



packaging, and freight forwarding. A number of 3PLs are located in AllianceTexas. These include DB Schenker, DSC Logistics, Exel, FedEx Freight, Performance Team, Ryder, Trans-Trade, and UPS Supply Chain Solutions (AllianceTexas, n.d.).

The Alliance Global Logistics Hub is designated as a General Purpose Foreign Trade Zone (#196) and has Triple Freeport Inventory Tax Exemption. The latter means that no taxes are paid to the city, county, or school district for inventory stored 175 days or less. CBP is on-site at Alliance Global Logistics Hub (AllianceTexas, 2013).

Economic Benefits

More than 320 companies reside at AllianceTexas, and more than 31,000 workers are employed there (AllianceTexas, n.d.). The economic impact of AllianceTexas in the North Texas region has been estimated at more than \$40 billion over the past 22 years (Weeks and Meyer, 2012).

Port San Antonio

Port San Antonio is located approximately 6 miles southwest of downtown San Antonio at the site of the former Kelly Air Force Base, which was closed by the Base Realignment and Closure Commission in the 1990s. Port San Antonio is a private—although publicly supported—economic redevelopment/reuse project. The overall redevelopment is a broad-based project that includes air and rail freight components (along with commuter rail) and transit-oriented housing development (Frawley et al., 2011).

*“Port San Antonio is a master-planned, 1,900 acre aerospace, industrial complex and international logistics platform.”
Source: Port San Antonio, n.d.*

Multimodal Access

Port San Antonio (Figure 3) provides access to three modes of transport: rail, air, and truck. US 90 runs east-west just north of the airport with major connectors along General Hudnell Drive, Billy Mitchell Road, Frio City Road, and the newly completed 36th Street extension. Military Drive also runs east-west to the south of the airport, while IH 35, IH 10, and IH 37 are in close proximity to the inland port. IH 35 is approximately 2 miles to the east of the airport, providing north-south freight access, and IH 10 is approximately 3 miles to the northeast. IH 37 is also in close proximity to Port San Antonio and links the inland port to the Port of Corpus Christi.

Port San Antonio's East Kelly Railport—a 350-acre facility—is on the eastern side of the development. San Antonio Central Railroad, operated by Watco Companies, provides switching services to Union Pacific Railroad and BNSF Railway in Port San Antonio. The railport can accommodate 20,000 railcars per year (Port San Antonio, 2013).

Kelly Field is a joint-use civilian/military runway. The runway is owned and operated by the U.S. Air Force at Lackland Air Force Base (Port San Antonio, n.d.). The Kelly Field runway is 11,500 feet long and can accommodate an Airbus A-380 and other heavy aircraft (Frawley et al., 2011).

Port San Antonio recently invested in an 89,600-square-foot air cargo terminal capable of accommodating up to four Boeing 747s and built to state-of-the-art truck specifications (Frawley et al., 2011; Port San Antonio, n.d.).

Tenants

Port San Antonio has more than 80 tenants, but the port's anchor tenants are undoubtedly the large aerospace companies. Some of the port's major aerospace tenants include Boeing, Chromalloy, General Dynamics, Gore Design Completions, Lockheed Martin, StandardAero, and Pratt and Whitney (Port San Antonio, 2013). A number of third-party logistics firms offer transloading, warehousing, import-export, and foreign trade zone services to tenants. The latter include companies such as Cornell Carriers, Fiesta Warehousing and Distribution, New Breed Logistics, Operational Technologies (OpTech), and RLI Logistics Solutions (Port San Antonio, n.d.).

Port San Antonio is designated as a General Purpose Foreign Trade Zone (#80-10) (Port San Antonio, n.d.). Kelly Field has an on-site CBP and agricultural inspector to process international cargo and agricultural products from 7:00 a.m. to 2:30 a.m. Monday through Thursday and 7:00 a.m. to 11:00 p.m. Friday through Sunday (Port San Antonio, n.d.).



Figure 3: Port San Antonio

Economic Benefits

Approximately 12,700 workers are employed (direct jobs) at Port San Antonio in the aerospace, Air Force, logistics, government support, and other key industries such as educational services and equipment repair. The average salary of a worker employed at Port San Antonio was in excess of \$60,000 per year—approximately 70 percent higher than the average annual salary in the region of \$35,000 in 2011. Furthermore, the overall payroll of employers at Port San Antonio amounts to approximately \$726 million per year (Port San Antonio, 2013).

Between 1997 and 2012, more than \$476 million has been invested in Port San Antonio to result in more than 13 million square feet of warehouse, distribution, office, and related facilities. Of the \$476 million, 40 percent was from the Port of San Antonio; 11 percent was from Federal, state, and local agencies; and 49 percent was from the private sector (Port San Antonio, 2013).

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In 1995, the annual economic benefits of Kelly Air Force Base to the region were estimated at \$2.5 billion. In 2010, the economic benefits of Port San Antonio were reported to be more than \$4.2 billion per year (Port San Antonio, 2013).

References

- AllianceTexas. No date. *About AllianceTexas*. Available at <http://www.alliancetexas.com/Home.aspx>.
- AllianceTexas. 2013. *Alliance Global Logistics Hub*. Available at [http://www.alliancetexas.com/Portals/0/PDF/Alliance Global Logistics Hub Brochure.pdf](http://www.alliancetexas.com/Portals/0/PDF/Alliance%20Global%20Logistics%20Hub%20Brochure.pdf).
- Cambridge Systematics, Inc. No date. *Trade: From National Markets to Global Markets*. Prepared for the Federal Highway Administration Office of Freight Management and Operations under contract DTFH61-97-C-00010, BAT-99-020.
- CDM Smith. 2012. *Columbus Regional Airport Authority: Economic Impact Study Update: Executive Summary*. November. Available at <http://columbusairports.com/files/about-us/craa-ei-brochure.pdf>.
- City of Fort Worth. 2012. *AllianceTexas Surpasses \$1 Billion in Taxes Paid over Project's Lifetime*. December 6. Available at <http://fortworthtexas.gov/citynews/default.aspx?id=105116>.



- Federal Aviation Administration. 2013. *Preliminary CY 2012 Passenger Boarding and All-Cargo Data*. July 8. Available at http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/.
- Frawley, W. E., J. D. Borowiec, A. A. Protopapa, C. A. Morgan, and J. E. Warner. 2011. *Landside Freight Access to Airports: Findings and Case Studies*. College Station, Texas: Texas Transportation Institute, The Texas A&M University System, Report 0-6265-1, May.
- Port San Antonio. 2013. *Port San Antonio: Who We Are and What We Do*. March 20. Available at <http://www.portsanantonio.us/StoreImages/collateral/who%20we%20are.pdf>.
- Port San Antonio. No date. *Port San Antonio*. Available at <http://www.portsanantonio.us/>
- Prozzi, J., R. Henk, J. McCray, and R. Harrison. 2002. *Inland Ports: Planning Successful Developments*. Austin, Texas: Center for Transportation Research at the University of Texas at Austin, Report 0-4083-2, October.
- Weeks, C., and J. Meyer. 2012. *Alliance Foreign-Trade Zone Ranks as Top General Purpose Foreign-Trade Zone in the U.S.* February 28. Available at <http://www.hillwood.com/story.aspx?ID=3918>.

