



Tools for Port Authority Transportation Reinvestment Zones (TRZ) and TRZs for Multimodal Applications

Technical Report 0-6890-1

Cooperative Research Program

TEXAS A&M TRANSPORTATION INSTITUTE
COLLEGE STATION, TEXAS

in cooperation with the
Federal Highway Administration and the
Texas Department of Transportation
<http://tti.tamu.edu/documents/0-6890-1.pdf>

1. Report No. FHWA/TX-17/0-6890-1		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle TOOLS FOR PORT AUTHORITY TRANSPORTATION REINVESTMENT ZONES (TRZ) AND TRZS FOR MULTIMODAL APPLICATIONS				5. Report Date Published: March 2017	
				6. Performing Organization Code	
7. Author(s) Rafael M. Aldrete, Sharada Vadali, Carl James Kruse, David Salgado, Abhisek Mudgal, Juan Carlos Villa, Lorenzo Cornejo, and Deog Sang Bae				8. Performing Organization Report No. Report 0-6890-1	
9. Performing Organization Name and Address Texas A&M Transportation Institute The Texas A&M University System College Station, Texas 77843-3135				10. Work Unit No. (TRAVIS)	
				11. Contract or Grant No. Project 0-6890	
12. Sponsoring Agency Name and Address Texas Department of Transportation Research and Technology Implementation Office 125 E. 11 th Street Austin, Texas 78701-2483				13. Type of Report and Period Covered Technical Report: September 2015–November 2016	
				14. Sponsoring Agency Code	
15. Supplementary Notes Project performed in cooperation with the Texas Department of Transportation and the Federal Highway Administration. Project Title: Tools for Port TRZs and TRZs for Multimodal Applications URL: http://tti.tamu.edu/documents/0-6890-1.pdf					
16. Abstract In 2007, the Texas legislature created an innovative transportation funding mechanism called the transportation reinvestment zone (TRZ) that allows municipal and county governments to set aside local match contributions for the transportation projects most critical to their communities. TRZs are relatively new tools for infrastructure finance that allow governmental entities with taxing authority to set aside local match contributions for transportation projects and capture the land value increases that result from the transportation projects. In 2013, lawmakers made TRZs available to port authorities and navigation districts, the governmental entities that operate Texas ports. The main goal of this research project was to assist Texas Department of Transportation staff, Texas port authorities, and local government stakeholders in understanding port authority TRZs—how they work and how they might be of benefit to a port authority, its surrounding community, and the U.S. and Texas State Highway Systems. More specifically, this research aimed to: (a) document the processes for establishing Port Authority TRZs, (b) identify the TRZs that have been established to date, (c) develop a more systematic understanding of the types of projects that are TRZ eligible in the context of port authority TRZs and the interactions of TRZ funding in the context of port funding/finance and how that may vary across port types in Texas, (d) develop an understanding of land development in port jurisdictions, and (e) develop tools and guidance to facilitate the implementation process of port TRZs. The findings of this research are summarized in this report.					
17. Key Words Ports, Transportation Finance, Transportation Funding, Port Funding, TRZ, Port Authority, Tax Increment Financing, Value Capture, Land Development			18. Distribution Statement No restrictions. This document is available to the public through NTIS: National Technical Information Service Alexandria, Virginia http://www.ntis.gov		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 92	22. Price

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Report 0-6890-1
Project 0-6890
Project Title: Tools for Port TRZs and TRZs for Multimodal Applications

Performed in cooperation with the
Texas Department of Transportation

Published: March 2017

TEXAS A&M TRANSPORTATION INSTITUTE
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ACKNOWLEDGMENTS

This project was conducted in cooperation with the Texas Department of Transportation and Federal Highway Administration. The authors thank Chris Glancy, Julie DeHoyos-Rabeux, Roger Schiller, Sarah Bagwell, and Stephanie Cribbs, for their invaluable support and contribution to this research effort.

The authors would also like to thank the following port authorities for contributing information that was critical to the conduct of the research:

- Calhoun Port Authority.
- Port Freeport.
- Port of Beaumont.
- Port of Brownsville.
- Port of Corpus Christi.
- Port of Orange.
- Port of Port Arthur.
- Port of Port Isabel.
- Port of Victoria.
- Sabine-Neches Navigation District.

Special thanks are also due to the Grant Programs Directorate at the Federal Emergency Management Administration.

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CHAPTER 1. INTRODUCTION

In 2007, the Texas legislature created an innovative transportation funding mechanism called the transportation reinvestment zone (TRZ) that allows local governments to set aside local match contributions for the transportation projects most critical to their communities. TRZs are relatively new tools for infrastructure finance that allow governmental entities with taxing authority to set aside local match contributions for transportation projects and capture the land value increases that result from the transportation projects. TRZs of Texas are increasingly important funding sources for the expansion and improvement of economically critical links in the U.S. Interstate and Texas State Highway Systems.

TRZs create transportation project funding by capturing and leveraging the increase in real estate/land development value resulting from a transportation project. Development and expansion of transportation projects often spur land development in areas around the project. A TRZ is the legal instrument that allows a local jurisdiction to designate an area around a project as an impact zone in order to capture some or all of the increment in local property and sales tax revenues resulting from the growth in the zone's tax base. That incremental tax revenue is used to support funding and financing of the project. Thus, the land development attributable to the project is used to finance the project.

In 2013, lawmakers made TRZs available to port authorities and navigation districts, the governmental entities that operate Texas ports. The objectives of this research include the following: (a) document the processes for establishing port authority and navigation district TRZs, (b) identify the TRZs that have been established to date, (c) develop a more systematic understanding of the types of projects that are TRZ eligible in the context of port authority TRZs and the interactions of TRZ funding in the context of port funding/finance and how that may vary across ports types in Texas, (d) develop an understanding of land development in port jurisdictions, and (e) develop tools and guidance to facilitate the implementation process of port TRZs.¹

This report is organized into six chapters, including this introductory chapter. Chapter 2 describes the legal framework of TRZs and its legislative evolution from its inception through the creation of the port authority TRZ mechanism. Chapter 3 describes the potential role that TRZs can play in port funding and financing. Chapter 4 describes the processes involved in the planning and implementation of port authority TRZs. Chapter 5 presents the port authority TRZ

¹ Port authorities in Texas can assume several legal forms. The port authorities referred to in this research report are exclusively navigation districts with taxing authority that handle cargo shipments at their facilities or facilitate cargo-handling activities. The Port of Galveston, which is a municipal agency, and the Port of Texas City, which is a privately owned facility and not a port authority, are not included; neither are shallow-draft ports that are used for commercial fishing and recreational purposes and that do not handle commercial cargoes.

tax increment capture assessment tool along with the results of preliminary analyses for two case studies: The Port of Beaumont and Port of Brownsville TRZs. Finally, Chapter 6 summarizes the conclusions of this research.

CHAPTER 2. LEGAL FRAMEWORK OF PORT AUTHORITY TRANSPORTATION REINVESTMENT ZONES

EVOLUTION OF THE TRZ LEGAL FRAMEWORK

The creation of the TRZ concept dates to Texas legislation first enacted by Senate Bill 1266 (SB 1266) during the 80th legislative session in 2007. TRZs are innovative tools that allow local governments to raise funds to help pay for transportation improvements using all or part of the incremental growth in property and sales taxes from a designated area around the project. SB 1266 amended Chapter 222 of the Transportation Code, and the TRZ provisions appear in §§ 222.105–107. SB 1266 laid the foundation for the development of two types of TRZs—municipal TRZs and county TRZs (*I*). Since SB 1266 was first enacted, a number of municipal and county TRZs have been established in different communities throughout the state.

After 2007, the TRZ legal framework evolved in subsequent legislative sessions as a response to first implementers and their experiences with technical issues that were present in the legislation as originally conceived in SB 1266. The bills approved by the legislature since then have modified or expanded the use and types of TRZs or simply clarified the process or requirements to establish one. During the 83rd legislative session in 2013, the legislature filed and enacted three bills into law that extended the TRZ concept to other types of projects and/or jurisdictions:

- Senate Bill 1747—County Energy TRZs.
- House Bill 2300—County Energy TRZs.
- Senate Bill 971—Port Authority TRZs.

The first two of these bills, Senate Bill 1747 and House Bill 2300, dealt with the creation of a new type of county TRZ called a county energy transportation reinvestment zone (CETRZ). CETRZs aim to help counties in shale energy regions alleviate pavement deterioration to roads, bridges, and other infrastructure caused by oil and gas exploration.^{2,3} This legislation also created a grant-based fund administered by the Texas Department of Transportation (TxDOT) for transportation infrastructure projects located in these areas, which counties that have created a CETRZ can access.

On the other hand, Senate Bill 971 (SB 971) expanded the TRZ concept to all modes of transportation by enabling port authorities and navigation districts to establish port authority TRZs.⁴ This expansion is an important development because, compared to land transportation modes, there are few federal or state loan or grant programs that are dedicated specifically to the

² Senate Bill 1747. Texas Legislature Online. <http://www.legis.state.tx.us/tlodocs/83R/billtext/html/SB01747F.htm>.

³ House Bill 2300. Texas Legislature Online. <http://www.legis.state.tx.us/tlodocs/83R/billtext/html/HB02300I.HTM>.

⁴ Senate Bill 971. Texas Legislature Online. <http://www.capitol.state.tx.us/tlodocs/83R/billtext/html/SB00971F.htm>.

marine mode. In fact, there is currently no source of direct state investment in deep or shallow-draft ports in Texas. In response to this need for new and creative approaches to funding port-related infrastructure, SB 971 added the port authority TRZs tool as another method to fund infrastructure in these multimodal facilities.

PORT AUTHORITY TRZ STATUTORY FRAMEWORK

Although SB 971 only amended the Texas Transportation Code, there are a number of already existing statutes that affect the planning, implementation, and financing of port authority TRZs, such as the state’s water, local government, and tax codes. These different laws, statutes, and regulations provide the legal framework of port authority TRZs.

SB 971 amended the Texas Transportation Code by adding Section 222.1075 (Subchapter E, Chapter 222), which authorized port authorities and navigation districts to form a TRZ after finding that (a) the area within the TRZ is unproductive and underdeveloped and (b) that forming the TRZ would “improve the security, movement, and intermodal transportation of cargo or passengers in commerce and trade” (2). This change expanded the TRZ concept to all modes of transportation. The bill also amended Section 222.108, subsection (d) to modify the definition of transportation project to include the transportation projects described in Transportation Code Section 370.003 as well as the port security, transportation, or facility projects described by Section 55.001(5) (3, 4). As a result of this change, port authority TRZs are applicable to both port security projects and transportation projects. SB 971 enables port authorities to (a) designate TRZs for port projects, (b) issue bonds, and (c) authorize an assessment.⁵

PORT AUTHORITY TRZ DEFINITIONS

There are a number of important legal definitions that must be kept in mind when dealing with port authority TRZs in particular and with all types of TRZs in general. Most of these definitions are found in Transportation Code Section 222.1075, Section 370.003, and Section 55.001(5).

For those definitions applicable only to port authority TRZs, SB 971 introduced definitions for port authority, port commission, and port project:

- **Port authority** means a port authority or navigation district created or operating under either one of the following articles of the Texas Constitution (5):
 - Section 52, Article III (*Counties, Cities, or Other Political Corporations or Subdivisions*) authorizes counties, cities, and other political corporations or subdivisions to issue bonds and levy taxes for the purposes of improving rivers,

⁵ Despite the fact that port-owned property within a navigation district is property tax exempt, and as such, does not contribute to TRZ revenue, it remains fully eligible to be considered part of the TRZ footprint. This eligibility is particularly important in cases where the port project for which a TRZ is being created is within port-owned property since the TRZ revenue can only be used to pay for projects within the zone.

bays, creeks, streams, and canals to prevent overflow, to provide irrigation, and to permit navigation (6). As per the Texas Water Code, navigation districts can be created and can operate under this article of the Texas Constitution (i.e., Section 52, Article III) (7).

- Section 59, Article XVI (*Conservation and Development of Natural Resources and Parks and Recreational Facilities; Conservation and Reclamation Districts*) authorizes the creation of conservation and reclamation districts for the purpose of conserving and developing natural resources, including the improvement, preservation, and conservation of inland and coastal water for navigation, and controlling storm water and floodwater of rivers and streams in aid of navigation. This section authorizes these districts to issue bonds and levy taxes for those purposes (6). The Texas Water Code, in its Chapter 62, provides the statutory framework for navigation districts created under Section 59 of the Constitution (8).
- **Port commission** is the governing body of a port authority or navigation district.
- **Port project** is defined as a project “that is necessary or convenient for the proper operation of a maritime port or waterway and that will improve the security, movement, and intermodal transportation of cargo or passengers in commerce and trade, including dredging, disposal, and other projects.” Other projects are further defined by Section 370.003 and Section 55.001(5) of the Transportation Code as follows:
 - *Section 370.003* includes, among others, port security, transportation, and facility projects eligible for funding under the code’s Section 55.002 (Port Development Funding), such as:
 - Construction or improvement of transportation facilities within the jurisdiction of a maritime port.
 - Dredging or deepening of channels, turning basins, or harbors.
 - Construction or improvement of wharves, docks, structures, jetties, piers, storage facilities, cruise terminals, or any facilities necessary or useful in connection with maritime port transportation or economic development.
 - Construction or improvement of facilities necessary or useful in providing maritime port security.
 - Acquisition of container cranes or other mechanized equipment used in the movement of cargo or passengers in international commerce.
 - Acquisition of land to be used for maritime port purposes.
 - Acquisition, improvement, enlargement, or extension of existing maritime port facilities.
 - Environmental protection projects.
 - *Section 55.001(5)* defines a port security, transportation, or facility project as a project that is necessary or convenient for the proper operation of a maritime port

and that will improve the security, movement, and intermodal transportation of cargo or passengers in commerce and trade (4).

On the other hand, Section 222.1075 also provides definitions that apply to all TRZs in general, but have been adapted to the port authority TRZ concept, such as (a) tax increment, (b) captured appraised value, and (c) tax increment base (2). These definitions are presented below and illustrated in Figure 1.

- **Annual tax increment.** The amount of a port authority's *tax increment* for any given year is defined as the amount of ad valorem taxes levied and collected by the port authority (or by the commissioners' court on behalf of the port authority) for that year on the *captured appraised value* of real property taxable by the port authority and located in a TRZ. This increment is illustrated by the red area in Figure 1(b).
- **Captured appraised value.** The captured appraised value of real property taxable by a port authority for a year is defined as the total appraised value of all real property taxable by the port authority and located in a TRZ for that year less the *tax increment base* of the port authority. This value is illustrated by the red area in Figure 1(a).
- **Tax increment base.** The tax increment base of a port authority is defined as the total appraised value of all real property taxable by the port authority and located in a TRZ for the year in which the zone was designated (the base year). This base is illustrated by the area below the blue dashed line in the top chart of Figure 1(a).

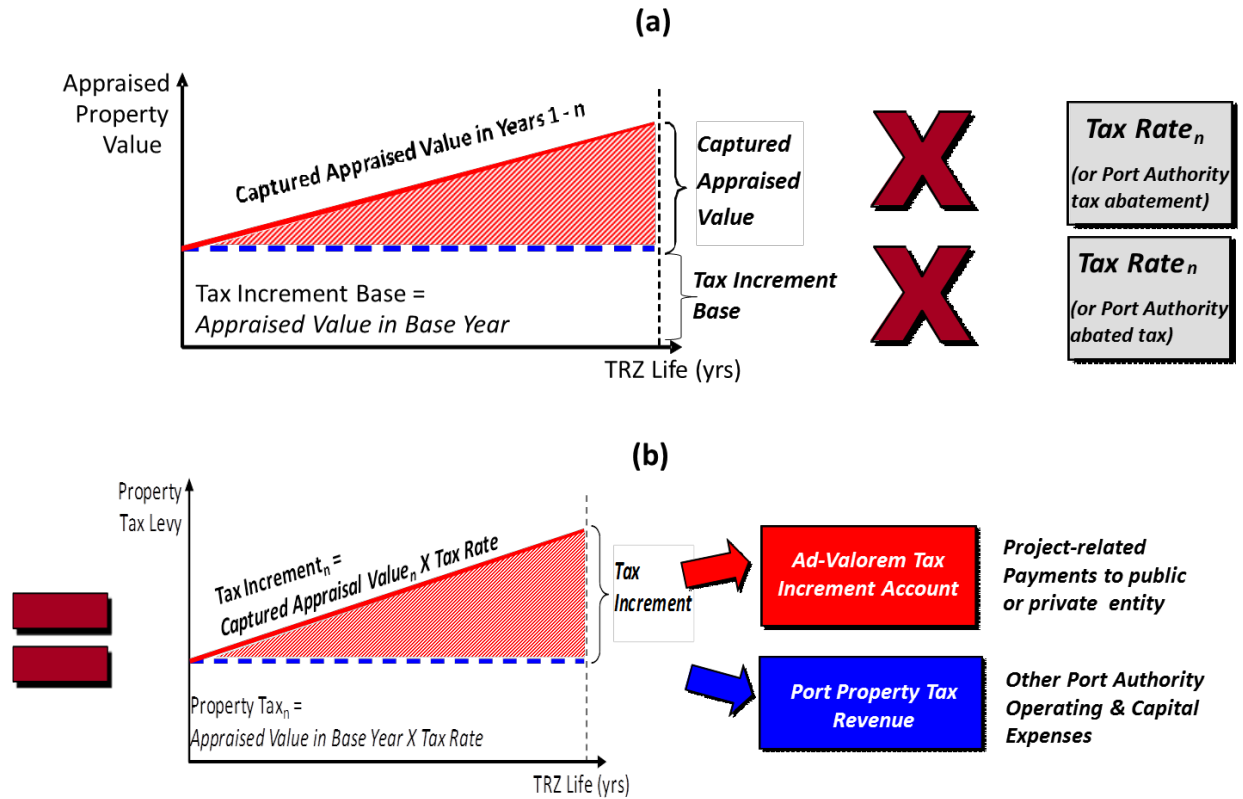


Figure 1. Port Authority TRZ Definitions (Adapted from (9)).

ESTABLISHED PORT AUTHORITY TRZS

There are currently four navigation districts in Texas that have created port authority TRZs, all established in December 2013. The first three (Port of Beaumont, Port of Port Arthur, Sabine-Neches Navigation District) are located in Jefferson County, and all have the stated purpose of providing part of the local match required for the federal government to improve the Sabine-Neches Waterway. The fourth, the Port of Brownsville, has not declared a stated intention for its TRZ. Of significance is that, in all four cases, TRZ boundaries are the same as navigation district boundaries, and navigation district boundaries far exceed the boundaries of the port facilities. Appendix A presents more detailed information on each of the port authority TRZs, including some of the basic statistics for each one of them (e.g., number of parcels, appraised value, and total acres) and the footprint of their boundaries.

CHAPTER 3. ROLE OF PORT AUTHORITY TRZS IN PORT FUNDING AND FINANCING

The objective of this chapter is to put port authority TRZ funding in the context of current funding and financing practices of Texas ports and to explore how this new mechanism might fit into a port authority's funding and financing portfolio. The first section of this chapter reviews the funding mechanisms and financing methods currently used by port authorities.⁶ Since the ability of the TRZ mechanism to generate revenue depends on land development and value trends within it, the second section describes the different ways in which port authorities are able to influence such development within their jurisdictions. Finally, the third and last section of this chapter describes the role that port authority TRZs may play in the funding of improvements to enhance the connectivity of ports to rail corridors and the U.S. Interstate and Texas State Highway Systems.

FUNDING MECHANISMS AND FINANCING METHODS OF TEXAS PORTS

The terms funding and financing are often used interchangeably, but they are indeed different. While funding refers to where the financial resources to ultimately pay for the cost of the infrastructure will come from, financing refers to how the capital needed to pay for it is acquired. This section reviews the funding mechanisms and financing methods currently used by port authorities in Texas, and it is divided into three parts. The first part describes the Texas ports that are included in the review. The second part discusses funding sources available at the state, federal, and local level for port authorities to pay for their investment and operational needs. The third part describes the financing methods that Texas port authorities typically use to leverage their funding sources and secure the capital needed for infrastructure investment. The discussion in this section is based on the annual financial statements for the navigation districts between 2004 and 2014.⁷

Navigation Districts Reviewed

In 2014, Texas ranked second in the nation in total waterborne tonnage transported, with 507 million tons (or 17 percent of the total U.S. maritime freight tonnage transported on both deep- and shallow-draft waterways). The state has 12 navigation districts with taxing authority

⁶ As noted in the previous chapter, port authorities in Texas can assume several legal forms. All of the port authorities that are discussed in this chapter are navigation districts with taxing authority that handle cargo shipments at their facilities or facilitate cargo handling activities. The Port of Galveston, which is a municipal agency, and the Port of Texas City, which is a privately owned facility and not a port authority, are not included; shallow-draft ports that are used for commercial fishing and recreational purposes and do not handle commercial cargoes are also not included.

⁷ Except for Port Arthur, which are based on FY 2013 financials. The port authority staff indicated that the FY 2014 financials were not available.

that handle cargo shipments at their facilities or facilitate cargo-handling activities. These districts include:

- Port of Houston.
- Port of Harlingen.
- Sabine-Neches Navigation District.
- Port of Corpus Christi.
- Port of Port Isabel.
- Port of Victoria.
- Port of Beaumont.
- Port of Brownsville.
- Calhoun Port Authority.
- Port Freeport.
- Port of Orange.
- Port of Port Arthur.

For the purpose of this review, based on the potential applicability of the port authority TRZ mechanism, the two navigation districts below were excluded from the analysis:

- **The Port of Houston Authority (POHA)** does not have taxing authority, but is instead dependent on a) the Harris County Commissioners Court to levy taxes on behalf of the port authority and b) the office of the Harris County Tax Assessor-Collector to collect those taxes on behalf of the authority. The taxes that are levied are used to cover the debt service for general obligations bonds that have been approved by the voters of Harris County (see the discussion of general obligation bonds below). Since POHA does not have the power to levy or collect taxes on its own, it does not have the ability to take advantage of the port authority TRZ mechanism to support projects in its capital investment plans and was therefore not considered in this study.
- **The Port of Harlingen's** situation is very similar to that of the Port of Houston in that it must go through the Cameron County Commissioners Court to levy and collect taxes. The port has only invoked its taxing authority in two distinct time periods—the 1940s and the 1980s. Since the Port of Harlingen does not have the power to levy or collect taxes on its own, it also does not have the ability to take advantage of the port authority TRZ mechanism and was not considered for further analysis.

The remaining 10 navigation districts in the list are the subject of this review of funding and financing practices. There are three navigation districts that stand out from this group:

- Sabine-Neches Navigation District (SNND).
- Port of Corpus Christi.
- Port of Port Isabel.

The **Sabine-Neches Navigation District** is a unique organization among the state's navigation districts. It was created to serve as the non-federal sponsor for dredging activities on the Sabine-Neches Waterway, which serves the Ports of Orange, Beaumont, and Port Arthur. The U.S. Army Corps of Engineers (USACE) is responsible for maintaining the waterway, but any improvements to the authorized dimensions of the waterway must be cost-shared with a non-

federal sponsor. Typically, the non-federal sponsor bears approximately 50 percent of the cost of constructing an improved waterway. As a non-federal sponsor, SNND is also responsible for providing adequate dredged material placement areas for both maintenance and new construction activities. Because its focus is on the waterway that serves three ports and it is technically eligible to create a port authority TRZ, it is included in the discussion, even though it does not have any cargo-handling facilities.

On the other hand, **Corpus Christi and Port Isabel** stand out because they have never levied taxes and do not currently have any property tax income. However, they are still authorized to create a port authority TRZ if they choose to initiate a tax levy.

Funding Mechanisms

The five main local, state, and federal funding mechanisms available to Texas ports are as follows: (a) direct and indirect funding tools provided by the state legislature; (b) transportation investment generating economic recovery (TIGER) grants; (c) fostering advancements in shipping and transportation for the long-term achievement of national efficiencies (FASTLANE) program grants; (d) port security grants; and (e) property taxes. The paragraphs that follow describe each of these mechanisms.

Direct and Indirect Funding Tools Made Available by Texas Legislature

As noted earlier, there is currently no source of direct state funding options for ports in Texas (10). The 77th Texas Legislature created one direct funding vehicle—the Port Access Account Fund—in 2001 to provide funds for ports. However, HB 3088 abolished and consolidated fund accounts. Any fund not specifically exempted by the bill was abolished. The Port Access Account Fund was not specifically exempted and was therefore never actually created. In terms of indirect funding tools, the state legislature recently created the TRZ and port authority TRZ mechanisms described in Chapter 2.

Transportation Investment Generating Economic Recovery Discretionary Grants

TIGER grants are awarded through a competitive selection process that has allocated \$4.1 billion nationally since 2009 for projects that “promise to achieve critical national objectives” and “have a significant impact on the nation, a region, or a metropolitan area” (11). Awarded projects are also expected to have a state or local match. The program is currently in its seventh round (TIGER 2015) and has been funded at \$500 million.

The eligibility requirements of TIGER allow project sponsors at the state and local levels to obtain funding for multimodal, multijurisdictional projects that are more difficult to support through traditional DOT programs. TIGER can fund port and freight rail projects that have limited sources of traditional federal funds. There have been three port-related TIGER grants awarded to Texas ports over the life of the program (see Box 1).

Box 1: TIGER Grants Awarded to Texas Ports

- **Port of Brownsville:** In 2012, \$12,000,000 was awarded for the construction of a 600-foot cargo dock to expand marine highway container operations. The grant covered 45 percent of the estimated total project cost. An additional \$10,000,000 was raised through the issuance of revenue bonds. According to the port's 2014 annual report, the balance of the project (\$4,000,000) was paid for out of "other operational funds." Although the container service for which the improvements were constructed was discontinued, the facility is still used extensively for general and break-bulk cargoes.
- **Port of Corpus Christi:** In 2012, \$10,000,000 was awarded to build a rail siding along the Nueces River. The grant covered 56 percent of the estimated total project cost. The port provided the remainder (which came to \$9 million) out of cash reserves. Half of this amount will be recovered from the railroads through a special surcharge.
- **Port of Houston:** In 2013, \$10,000,000 was awarded to the Port of Houston to extend the Bayport Terminal wharf from 3,300 feet in length to 4,000 feet in length. The grant covered 21 percent of the estimated total project cost.

Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies Program Grants

The Fixing America's Surface Transportation Act established the Nationally Significant Freight and Highway Projects (NSFHP) program to provide federal financial assistance to projects of national or regional significance and authorized the program at \$4.5 billion for fiscal years (FY) 2016 through 2020, including \$800 million for FY 2016 to be awarded by the Secretary of Transportation. The grants from the NSFHP program are referred to as FASTLANE grants. The program provides dedicated, discretionary funding for projects that address critical freight issues facing our nation's highways and bridges and for the first time in the U.S. Department of Transportation's (USDOT's) 50-year history, establishes broad, multiyear eligibilities for freight infrastructure.

The grants are awarded by USDOT on a competitive basis to projects of national or regional significance that meet statutory requirements (ports are included). NSFHP grants may be used for the construction, reconstruction, rehabilitation, acquisition of property (including land related to the project and improvements to the land), environmental mitigation, construction contingencies, equipment acquisition, and operational improvements directly related to system performance. NSFHP grants may also fund developmental phase activities, including planning, feasibility analysis, revenue forecasting, environmental review, preliminary engineering, design, and other preconstruction activities, provided the project meets statutory requirements.

FASTLANE grants may be used for up to 60 percent of future eligible project costs. Other federal assistance may satisfy the non-federal share requirement for an NSFHP grant, but total federal assistance for a project receiving an NSFHP grant may not exceed 80 percent of the future eligible project costs.

Eligible projects for NSFHP grants include the following: highway freight projects carried out on the National Highway Freight Network (23 U.S.C. 167); highway or bridge projects carried out

on the National Highway System, including projects that add capacity on the interstate system to improve mobility or projects in a national scenic area; railway-highway grade crossing or grade separation projects; or a freight project that is (a) an intermodal or rail project or (b) within the boundaries of a public or private freight rail, water (including ports), or intermodal facility. A project within the boundaries of a freight rail, water (including ports), or intermodal facility must be a surface transportation infrastructure project necessary to facilitate direct intermodal interchange, transfer, or access into or out of the facility and must significantly improve freight movement on the National Highway Freight Network. For a freight project within the boundaries of a freight rail, water (including ports), or intermodal facility, federal funds can only support project elements that provide public benefits.

To date, no FASTLANE funds have been awarded to a Texas entity.

In addition to the FASTLANE grants, the act allows states to obligate up to 10 percent of their total freight apportionment for intermodal or freight rail projects, which specifically includes ports.

Port Security Grants

The purpose and permitted uses of port security grant funds have evolved over time. In fiscal year (FY) 2005, Congress appropriated funds specifically to address physical security enhancements for critical national seaports. The allowable uses of the funds have been modified on multiple occasions since then, and the funds are no longer used solely for the purchase of physical assets. According to the latest (FY 2015) guidance published by the Federal Emergency Management Administration, port security grant funds are intended to improve port-wide maritime security risk management, enhance maritime domain awareness, support maritime security training and exercises, and maintain or reestablish maritime security mitigation protocols that support port recovery and resiliency capabilities. These investments must address vulnerabilities in port security identified by the U.S. Coast Guard and support the prevention, detection, response, and/or recovery from attacks involving improvised explosive devices and other non-conventional weapons.

Because of the evolving nature of the purpose and permitted uses, it is difficult to determine how much of port security grant funding has been used for physical enhancements and how much has been used for items such as training and exercises. Nonetheless, this source of funding has been significant and has had a direct effect on security-related asset growth in Texas ports, which have collectively received over \$100 million in Port Security Grant Awards between 2005 and 2014. Appendix B includes a table that lists the amount received by each of the nine cargo-handling port authorities in this analysis.

These grants are very limited in scope and do not directly address infrastructure that would enhance cargo throughput capacity or promote economic development. They do, however,

provide funds that allow ports to divert fewer of their infrastructure dollars away from cargo-related projects to projects that are required to meet federal security mandates.

Taxable Property Values

The ability to raise funds via the issuance of general obligation bonds is directly proportional to the total appraised value of property within the port’s taxing jurisdiction (i.e., its property tax base) and the applicable tax rate. Within the Texas port system, there is a vast range of total appraised values within each port’s taxing jurisdiction. These disparities in total appraised taxable property value make it much more difficult for ports with smaller tax bases to raise funds than for ports with larger tax bases. To put it in perspective, these values range from \$2.4 billion to \$10.5 billion for cargo-handling ports, and up to \$22.6 billion for SNND, which does not have its own cargo facilities. This disparity means that the same hypothetical tax rate at the most property-rich cargo port (\$10.5 billion) will generate 4.4 times as much income as it will at the lowest value port (\$2.4 billion). The appraised taxable property values for each navigation district are included in a table in Appendix B.

Financing Mechanisms

Aside from cash flow financing (including both fees and taxes), the four primary financing mechanisms used by Texas ports are general obligation bonds, revenue bonds, notes payable, and capital leases. Table 1 shows which of these mechanisms each port has used during the 10-year analysis period between 2004 and 2014.

Table 1. Financing Mechanisms Used by Each Port.

Port	GO Bonds	Revenue Bonds	Notes Payable	Capital Lease
Port of Beaumont	X	X		
Port of Brownsville	X	X	X	X
Calhoun Port Authority		X		
Port of Corpus Christi		X		X
Port Freeport	X	X	X	X
Port of Orange				
Port of Port Arthur*	X	X		
Port of Port Isabel				
Sabine-Neches Navigation District		X		
Port of Victoria	X			

* Port Arthur’s entries in this and the following two tables are based on FY 2013 financials. The port authority staff indicated that the FY 2014 financials were not available.

Sources: (12–19).

General Obligation Bonds

A general obligation bond is a bond that is secured by the taxing and borrowing power of the entity issuing it. Voters must approve such bonds (and the authority to levy ad valorem property taxes to cover debt service) before such bonds may be issued. An analysis of the outstanding

balance for general obligation bonds by port authorities between the years 2004 and 2014 shows no discernible trend (see Appendix B).

The data show that for the system as a whole, there has been a marked decrease in the overall outstanding balance of general obligation bonds. The total outstanding balance for all ports in 2014 was about \$68.7 million, which represents a decrease of almost \$30 million since 2004. Three ports reduced their balance, while two ports issued new bonds. The use of general obligation bonds is typically driven by local conditions, primarily (a) the expectation (or lack thereof) of improved business activity that will generate increased economic activity at the port and (b) the willingness of the local population to tax itself.

Revenue Bonds

Revenue bonds are debt securities, which have a defined source of anticipated funds to pay both the principal and the interest. These funds may come from an activity, project, or revenue source that is not related to the capacity to levy taxes. From an investor's perspective, these bonds are riskier than general obligation bonds. For this reason, these revenue bonds often carry a requirement for the ratio of net revenues to revenue bond debt service to be a certain amount or greater. Typically, this ratio is in the range of 1.25 to 1.5. Not all of the ports have revenue bonds outstanding, and of those that do, not all report their ratios. In 2014, three ports reported their ratio: Freeport—2.25:1, Beaumont—4.92:1, and Brownsville—28.09:1. These ratios indicate that the ports are generating more than enough cash flow from operations to satisfy bond indenture requirements. An analysis of the port authorities' outstanding balance of revenue bonds between 2004 and 2014 shows an overall growth of \$33 million over the 10-year period. Of the balances that have increased, Freeport accounts for 60 percent, Beaumont accounts for 25 percent, and SNND accounts for about 14 percent. Given that their balance sheet shows that their assets have grown by almost \$660 million in the same time period, this trend suggests a modest growth rate for revenue bonds (15).

Notes Payable

Only one port, Freeport, reported notes payable as a financing tool in the 2014 financials (Brownsville paid off a note that was reported in 2004). Notes payable are simply a loan from a bank or other lending institution that is typically collateralized with the asset being financed.⁸

Capital Lease

A capital lease is a lease agreement in which the lessor agrees to transfer the ownership rights to the lessee after the completion of the lease period. A capital lease is considered to have the economic characteristics of asset ownership, and is considered as a purchased asset for

⁸ In the case of Freeport, the port authority entered into a note payable arrangement to refinance the purchase of two cranes. The balance on the note was \$14.1 million at the end of FY 2014.

accounting purposes. Only one port had a capital lease on the books as of 2014—the Port of Corpus Christi. Two other ports reported capital lease agreements that ended during the 10-year period—Brownsville and Freeport.⁹

INFLUENCE OF PORT AUTHORITIES ON LAND-USE DECISIONS

Because the ability of the TRZ mechanism to generate revenue depends on land development, value trends, and patterns within its boundaries, it is critical to understand if and how port authorities are able to influence such development. TRZs generally cover large swaths of land, as evidenced by all four port authority TRZs that have been established to date. As noted earlier, the boundaries of these port authority TRZs (Port of Beaumont, Port of Port Arthur, SNND, and Port of Brownsville) are the same as the boundaries of their corresponding navigation districts (i.e., taxing jurisdiction). In turn, the navigation district boundaries far exceed the boundaries of their port facilities. Additionally, major cities are included within the navigation district boundaries, meaning that land uses within their TRZs are not limited to commercial and industrial uses. Most properties, in fact, are residential or agricultural.

It is therefore important to understand not only to what extent port authorities influence land development patterns within property they own, but more importantly, how they influence it within their overall taxing jurisdictions. The next section reviews the tools that Texas port authorities have available to influence land development within property they own and elsewhere within their taxing jurisdiction. The first part reviews land development influence within port-owned property, while the second part discusses the tools ports use to influence development outside port-owned property.

Land Development within Port-Owned Property

Port-owned property is property tax exempt and therefore does not contribute directly to TRZ revenue. However, the development dynamics within port property do influence the development of tax-paying land surrounding it and are important to understand. Ports need to invest in expanding and renewing their facilities on an ongoing basis to keep up with competition from other ports and to cater to their customers and cargo demands. These investments (by the ports or businesses located in port regions) create demand for land, spur economic activity, and impact tax collections. Land development within port-owned property is generally planned and controlled by the port authority, is responsive to the authority's expectations of future port

⁹ Brownsville entered into a 10-year lease that started in 2001 to finance the purchase of a mobile harbor crane valued at \$2.65 million. Freeport leased four trailers under two capital leases that expired in 2004 and 2006. The cost of these assets was \$204,409. In the case of Corpus Christi, the authority entered into a lease agreement with Gulf Compress. Under the terms of the lease, Gulf Compress constructed 550,000 square feet of cotton warehouses on property owned by the port. On January 21, 2005, the warehouses were completed and ownership was transferred to the authority in consideration of a 30-year prepaid lease.

economic activity, and is reflected in a master plan. Port authorities have two direct influences on land use for the property they own:

- **Facility usage fees:** Each port authority (except SNND) has public docks, warehouses, and storage spaces for which fees are charged based on the level of activity. Dockage is charged for the right to moor at a public berth and is typically based on the size of the vessel and the length of stay. Wharfage is a charge that is typically assessed per unit of cargo (e.g., ton or barrel) that moves across the dock. Storage is charged for cargoes that remain in a warehouse or in a storage area beyond a stipulated length of time.
- **Long-term leases:** Ports lease portions of their property to businesses on a long-term basis. These leases usually stipulate the allowable uses of the property and any operating requirements that the port authority feels may be important to impose.

All of the port authorities, with the exception of SNND, generate significant income from leasing real estate and/or terminals owned by the port authority. The SNND uses its land for placement area purposes and does not have a policy to lease land for other purposes. Several navigation districts publish information about their leasing policies and practices (see Appendix B). The leasing policies and practices of navigation districts illustrate the factors or criteria that port authorities consider in developing and leasing port-owned property to new tenants, which include the following:

- Generation of waterborne cargo (sometimes with minimum annual throughput requirements).
- Encouragement to use other port facilities and multimodal links.
- Improvement of navigation.
- Job creation and synergies with existing port tenants.

In addition to economic activity generated by the port and port tenants, other factors such as highway and railroad accessibility increase demand for industrial and commercial land in seaport areas. It is for this reason that the port master plans for Port of Brownsville, Port of Port Arthur, and Port of Beaumont provide detailed information regarding accessibility to highways and railroads. Moreover, these plans also identify future highway and railroad improvements that will serve expected port traffic demand.

Land Development within Taxing Jurisdiction

The revenue of a port authority TRZ is generated by the development of land within the navigation district's taxing jurisdiction and outside port-owned property. Although port authorities are not able to directly influence development of land within their jurisdiction that lies outside port property, there are a range of tools that allow them to indirectly do it. These tools include tax abatements, foreign-trade zones, enterprise zones, and special development initiatives.

Tax Abatements

Tax abatements are tools used by counties, cities, and special districts to promote economic activity through property tax exemptions or reductions (20). In essence, a tax abatement in the context of a navigation district would be an agreement between the district and a taxpayer that exempts all or part of the increase in the value of the real property and/or tangible personal property from taxation for a period not to exceed 10 years (21). In order for the board (or commission) of a navigation district to consider a request for a tax abatement, Chapter 312 of the Tax Code requires that the Board of Commissioners adopt guidelines and criteria establishing eligibility to qualify for a tax abatement. The code also specifies a number of terms and conditions that must be included in a tax abatement agreement.

Navigation districts with abatement agreements include Beaumont, Port Arthur, and the SNND. SNND has a formal written policy governing how it will consider and approve or disapprove requests for tax abatements. Calhoun has its own tax abatement program and participates in county tax abatements. Freeport participates in the Brazos Harbor Industrial Development Corporation tax abatement district, but it does not appear to have active abatement agreements in place. The Port of Brownsville is the only navigation district that does not consider tax abatements.

Foreign-Trade Zones

Foreign-trade zones (FTZ) are another tool available to port authorities to use to influence development outside port property. According to U.S. Customs and Border Protection (CBP), FTZ are secure areas under CBP supervision that are generally considered outside the customs territory of the U.S. (also referred to as CBP territory) upon activation (22). FTZs are located in or near CBP ports of entry and are considered the U.S. version of what are internationally known as free trade zones or free economic zones. Under FTZ procedures, the usual formal CBP entry procedures for foreign merchandise and payments of duties are not required unless and until it enters CBP territory for domestic consumption. Upon entry, the importer generally has the choice of paying duties at the rate of either the original foreign merchandise or the finished product. A zone user (e.g., a manufacturer) is able to avoid ad valorem taxes on all merchandise in the zone that is of foreign origin or that is destined for export. This arrangement has a number of benefits to businesses located in the FTZ.

FTZs are sponsored by qualified public or public-type corporations (also called grantees), which may themselves operate the facilities or contract for their operations with public or private firms (also called operators). A typical general-purpose FTZ provides leasable storage/distribution space to users in warehouse-type buildings with access to different modes of transportation, such as ports. Other zones include an industrial park site with lots on which zone users can build their own facilities. Free trade subzones are normally private plant sites authorized by the U.S. FTZ Board (part of the U.S. International Trade Administration) and sponsored by a grantee for

operations that usually cannot be accommodated within an existing general-purpose zone. There are a number of Texas port authorities that participate as FTZ grantees and/or operators (see Table 2). Participation in a FTZ arrangement allows port authorities to influence land development by providing incentives for businesses to locate in or near the port area.

Table 2. FTZ Administered by Texas Port Authorities (23).

Zone	Grantee/Operator
FTZ No. 62 Brownsville	Brownsville Navigation District (Grantee/Operator)
FTZ No. 115 Beaumont	Foreign-Trade Zone of Southeast Texas Inc. (Grantee) Port of Beaumont (Operator)
FTZ No. 116 Port Arthur	Foreign-Trade Zone of Southeast Texas Inc. (Grantee) Port of Beaumont (Operator)
FTZ No. 117 Orange	Foreign-Trade Zone of Southeast Texas Inc. (Grantee) Port of Beaumont (Operator)
FTZ No. 122 Corpus Christi	Port of Corpus Christi Authority (Grantee/Operator)
FTZ No. 149 Freeport	Port Freeport (Grantee/Operator)
FTZ No. 155 Calhoun/Victoria Counties	Calhoun-Victoria Foreign-Trade Zone Inc. (Grantee) Calhoun Port Authority (Operator)

Enterprise Zones

Enterprise zones (EZs) are geographic areas in which businesses can be eligible for subsidies. According to the Texas Comptroller of Public Accounts, an EZ is an economic development tool that allows communities to partner with the state to offer a package of local and state tax and regulatory benefits to new or expanding businesses in economically distressed areas (24). More specifically, an EZ is a geographic area nominated by a city or county or a combination of cities and/or counties through an application to the Texas Department of Economic Development. The area must meet at least one of two possible primary distress criteria (high unemployment or population loss) and one of seven secondary distress criteria that are currently considered. The area must have a continuous boundary and be at least 1 square mile in size, but not larger than 10 square miles or 5 percent of the governing body's/bodies' jurisdiction (up to 20 square miles), whichever is larger. The designation period for a zone is seven years.

EZ subsidies often include a variety of corporate income tax credits, property tax abatements, and other tax exemptions and incentives. Zones range in size from hundreds to several thousand acres. The law requires local communities to nominate a company as an enterprise project to be eligible to participate in the EZ Program. Allocations of enterprise projects to the state and local communities are limited per biennium. Texas port authorities that have EZs in or adjacent to port property include Brownsville, Corpus Christi, Freeport, Beaumont, Orange, Port Arthur, and Victoria.¹⁰

¹⁰ <http://www.texassitesearch.com/>.

Special Development Initiatives

Several Texas ports reported undertaking special, targeted initiatives to develop property in and around the port.

- **Beaumont:** The port owns approximately 828 acres of property in Orange County on the east side of the Neches River. This property is not located within the jurisdiction of the Port of Beaumont Navigation District. Approximately 240 acres has been leased for 50 years for the development of a crude-by-rail terminal that began operations in December, 2013. Another 453 acres of the Orange County property has been leased to the same tenant under a development agreement. In addition, about 135 acres is under a long-term easement granted to SNND to be used as a dredge material disposal area.
- **Brownsville:** The Port of Brownsville's new franchise agreement with the Broe Group/OmniTrax to develop an industrial park with an incubator site is intended to open up new areas within the port-owned property for development. Further, the port is in the process of staffing a newly created marketing department to market the port to potential customers for industrial development as well as for increasing cargo tonnages.
- **Port Arthur:** There have been limited efforts for redevelopment and/or gentrification in areas near the port. Most efforts are tied to various federal or local grant-funded programs, such as the Economic Development Administration or the Community Development Block Grant, or to local economic development corporations. A number of publically funded studies and consultant recommendations exist for revitalization of the central business district and other areas outside the port. The studies typically recommend residential and mixed commercial redevelopment. Some public grant funding has funded studies and made modest improvements. There has been very limited private investment to date. In the past year, efforts have been undertaken to establish a TRZ in downtown Port Arthur.

POTENTIAL BENEFIT OF PORT TRZ

This section explores the potential role that port authority TRZs could play in the funding of improvements to enhance the connectivity of ports to rail corridors and the U.S. Interstate and Texas State Highway Systems. It also discusses how these TRZs may effectively enhance a port authority's funding/financing portfolio. The first part of the section provides context by describing some of the limitations of the traditional funding tools available to port authorities. The second part discusses the potential roles that port authority TRZ financing may play. The third part identifies some practical limitations to the use of the tool.

Limitations of Traditional Port Funding Tools

The existing funding tools available to port authorities and navigation districts are all focused on the development of infrastructure on property owned by them. Port authority TRZs can enable

ports to develop port infrastructure on property they do not own by providing financial resources above and beyond operating income and regular tax revenues. The need to develop infrastructure on non-port property was the primary motivation for the creation of the three TRZs in Jefferson County—specifically, the need to provide local match funds for the widening and deepening of the Sabine-Neches Waterway.¹¹

Port authorities already use a variety of mechanisms to influence development near the port. Mechanisms like FTZs, tax abatements, and special purpose districts influence business operating costs (for businesses located at ports) by altering taxes but are not directly geared towards the specific development of port infrastructure. Indirectly, however, the growth of these businesses adds value and revenues to ports, which have traditionally been used to finance port investments via bonding. What is missing is a mechanism for port authorities to develop infrastructure in areas adjacent to the port that will have a direct influence on the port’s operating capacity and efficiency, such as improved access to and mobility around the port.

Potential Roles of Port Authority TRZs

The port authority TRZ mechanism could significantly help port authorities address infrastructure needs in areas adjacent to port property that can improve the port’s efficiency or security. This tool could allow navigation districts to address last-mile connectivity issues and capacity constraints without placing an undue burden on the districts’ financial condition.

Port authority TRZs make it possible for port authorities to team with counties and/or cities that also have TRZs to construct projects that will benefit all parties. When it is politically and economically expedient to do so, multiple entities can all dedicate their TRZ resources to one project or set of projects that will enhance the transportation infrastructure within the overlapping TRZ designated area and promote economic development.

Although unrelated to ports, a recent example in the El Paso metropolitan area illustrates how this mutual teamwork could be done. In this example, the County of El Paso TRZ, the City of Socorro TRZ, and the City of Horizon TRZ all combined resources to develop a project that was in the common interest. This project consisted of the improvement of eight roadways located in three different jurisdictions within the County of El Paso. These jurisdictions include the county itself, as well as the cities of Socorro and Horizon. The proposed improvements are expected to mitigate increasing congestion on the existing roads and expedite development of the area. The project had an estimated cost of \$90 million, and the three jurisdictions were interested in jointly funding it by using the TRZ mechanism in each one of their jurisdictions to generate the funds to pay for the improvements. Figure 2 shows the location of the projects within the three jurisdictions involved. The two city TRZs overlap with the county TRZ.

¹¹ The Port of Port Arthur commission specifically noted a variety of on-port and off-port projects they might consider pursuing, but the waterway project was an important driver.

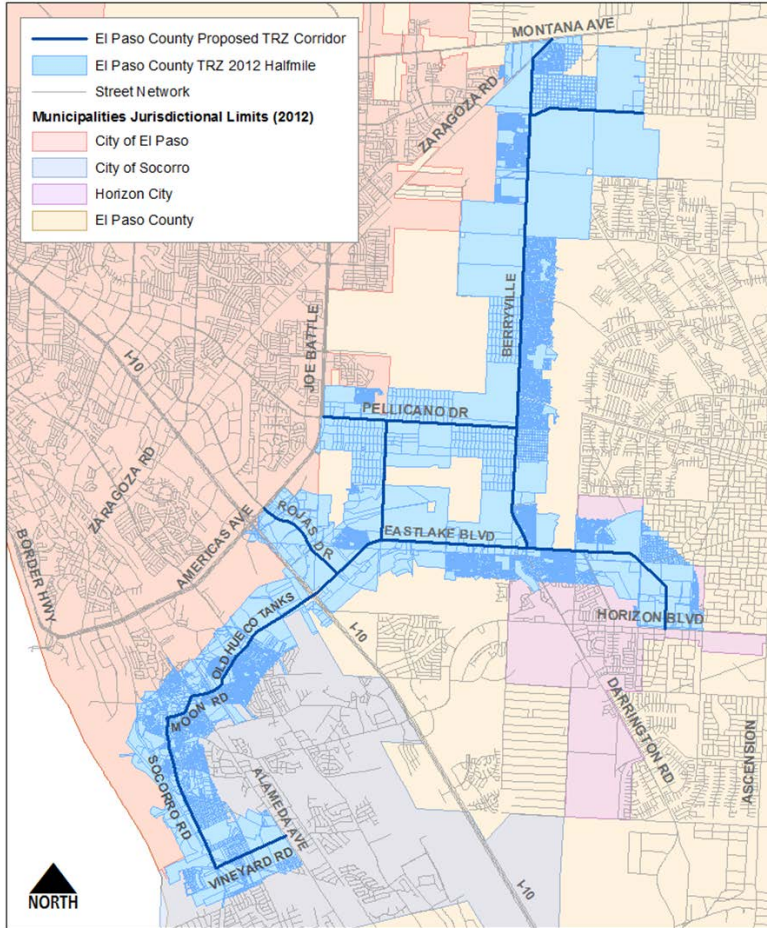


Figure 2. County of El Paso TRZ, City of Socorro TRZ, and City of Horizon TRZ.

The three jurisdictions signed a memorandum of understanding that spelled out the agreement to jointly fund the project, including the decision to have the Camino Real Regional Mobility Authority (CRRMA) be the agency that would serve as the project developer (i.e., contract out the work). Each of the three jurisdictions signed an agreement with the CRRMA to pledge their TRZ revenue, which the CRRMA would then use to secure a state infrastructure bank loan to pay for the project. However, a few months later, a Texas attorney general opinion made it clear that the use of a county’s TRZ revenue to secure debt for a transportation project could be constitutionally challenged. In light of this challenge, the County of El Paso decided to instead use revenue from its newly established optional vehicle registration fee to meet its pledge to the CRRMA. There are several examples of multijurisdictional projects across the country where funds from a variety of sources are pooled together (public/private partnerships are a classic example).

If the county TRZ constitutionality issue had not been a problem, this arrangement would have worked out as far as an overlapping TRZ funding pledge. A parallel to a port authority situation could be easily created by substituting the county figure in the El Paso case for a navigation

district that overlaps boundaries with a city or has property in an unincorporated area of a county. In such a situation, the joint TRZ funding agreement would be a viable mechanism.

Practical Limitations

There is one practical limitation to port authority TRZs when it comes to targeting infrastructure that is specifically port related. Several TRZs around the state have used their tax increment funds to acquire funding from the state infrastructure bank (SIB). However, because the bank's funding comes from the federal and state government's highway programs, the SIB cannot currently be used to finance port projects because port property is not considered part of the state highway system.¹² In such cases, it would be technically possible to go to the bond market or other lenders, but to date the cost of such financing has been prohibitive. On the other hand, if a port project is located within the state highway system (e.g., an improvement on a state highway that links a port), it would be technically feasible to use a SIB loan.

¹² As per federal regulations, projects must be eligible for funding under the existing federal highway rules (Title 23, United States Code) to comply with SIB requirements. This usually requires a project to be on a state's highway system and included in the statewide transportation improvement plan (<http://www.txdot.gov/inside-txdot/division/debt/sib.html>). As a result, SIB funds cannot be used for port projects within port property or for multimodal rail or channel deepening projects located outside port property.

CHAPTER 4. PLANNING AND IMPLEMENTATION OF PORT AUTHORITY TRZS

This chapter discusses the various stages in the process of planning and implementing a port authority TRZ. As noted earlier, the process to establish a port authority TRZ is essentially the same as the process followed to establish a municipal TRZ. This process can be summarized in five stages and is illustrated in Figure 3. The following sections explain in detail each stage and have been adapted to the port authority TRZ concept from TxDOT's Transportation Reinvestment Zone Handbook by Vadali et al. (25).

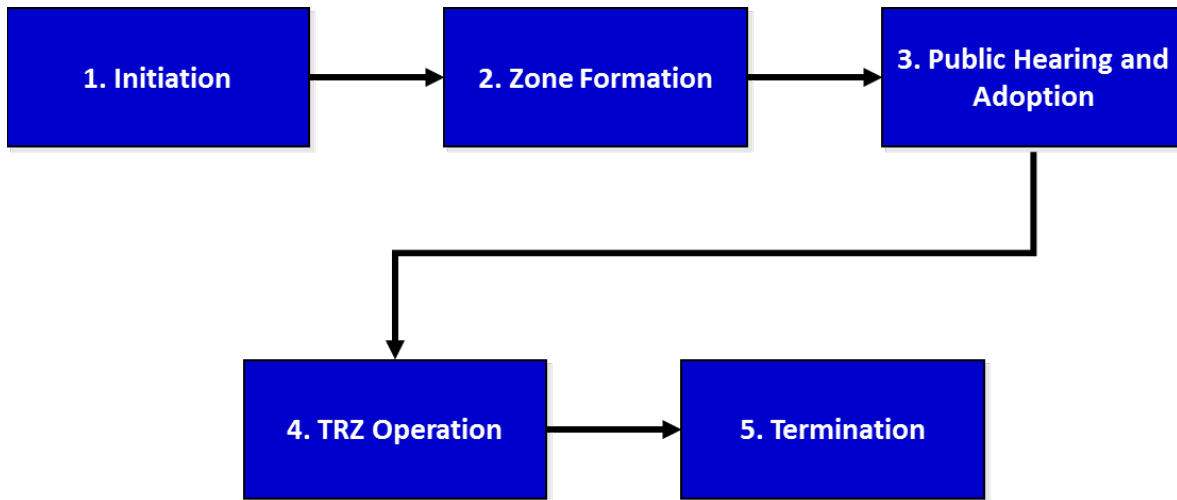


Figure 3. Implementation Stages for Port TRZs.

STAGE 1. INITIATION

The process of implementing a port authority TRZ starts with the initiation stage. This stage consists of selecting an eligible target area for TRZ funding that is unproductive or underdeveloped, as required by SB 971. The funds generated by the TRZ should be used for a project that is necessary or convenient for the proper operation of a maritime port or waterway and that will improve security, movement, and intermodal transportation of cargo or passengers in commerce and trade, as described by Texas Transportation Code Section 222.1075 (a)-(3).

The key requirement under the legislation for designating a TRZ is to demonstrate the eligibility of the area as undeveloped or underdeveloped. In order to meet this requirement, port authorities can benefit from developing one or more of the following:

- An economic impact analysis (EIA) study of the proposed project and the economic value it can create. For instance, port projects must demonstrate not only potential maritime trade benefits but also how these trade benefits would ultimately encourage economic development in the TRZ area. There are many tools available to help with parts of such an analysis, but none of them is comprehensive enough to cover the entire range

of impacts, and analysts often have to rely on subjective measures. The state-of-the-art analysis must improve in this regard. It is equally important to realize that not all projects are TRZ worthy.

- A preliminary increment capture analysis to assess port authority TRZ revenue. As per Section 222.1075 (j), a port authority may assess all or part of the cost of the project against property within the TRZ. This assessment relies on appraisal data, real properties' pace of development and land-use dynamics, and forecasts for real property values.
- A demonstration of unproductive or underdeveloped land in the corridor.

Some of the data sources that will need to be tapped into to secure the data needed for these types of analyses include TxDOT, the county appraisal districts, the Texas Comptroller of Public Accounts, and various other economic resources and sites. The types of data include:

- Project-related information (costs, tentative limits, and project type).
- Parcel layers from appraisal districts and other sources.
- Appraisal data.
- Land-use information.
- Any other supporting information to develop the EIA study, such as demographics.

The results of these preliminary assessments could be used to initiate a dialogue with stakeholders, such as navigation district board commissioners, county commissioners, TxDOT, metropolitan planning organizations, and other stakeholders to build support. The identification of a TRZ champion facilitates this process since it requires a significant amount of interagency collaboration.

STAGE 2. ZONE FORMATION

This second stage of the TRZ implementation process involves three sub-steps: (a) determination of zone boundaries, (b) provision of a 60-day notice, and (c) refinement of the TRZ increment capture analysis conducted in Stage 1.

Determination of Zone Boundaries

The first step is to define zone boundaries and identify the parcels that will be within the port authority TRZ. The port authority determines zone boundaries by designating a contiguous geographic area within its jurisdiction as a TRZ under Section 222.1075 (c). The zone should have its boundaries defined with sufficient definiteness to identify them with ordinary and reasonable certainty (Section 222.1075 (f)-(1)). In addition, the parcels within the TRZ boundaries should be identified and listed. This identification requires that a zone map showing all the affected parcels and areas must be developed as a TRZ, and the zone must be assigned a number (example, TRZ # 1). Following that step, a benchmark year for tax increment collection

(i.e., the base year when the TRZ is established) has to be established as a basis for tax increment calculation.

Additionally, when establishing zone boundaries, agencies must keep in mind the following:

- Zone boundaries are limited to a maximum footprint of the entire navigation district.
- Although actual zone boundaries are usually established around the project, it is possible to establish zone boundaries prior to knowing exact project limits, as long as the project remains within zone boundaries.
- Preexisting navigation district revenue commitments within the TRZ boundaries (e.g., tax abatements or other tax incentives) must be clearly identified since these incentives will take precedence and therefore reduce the amount of TRZ revenue collected (see Box 2).

The law allows, with some limitations, port authorities to amend TRZ boundaries once they are established. Zone boundaries can be expanded, but not reduced (i.e., parcels can be added but not dropped). Therefore, there is a need for rigorous diligence in this stage to avoid future conflicts that would prevent the port authority from granting other desired property tax incentives targeted to specific parcels for economic development purposes.

Box 2: Preexisting Agreements and Abatements

Consistent with the requirements for municipal and county TRZs, SB 971 establishes that any previous property tax relief and abatement agreements authorized by the port authority (including those under Chapter 312 of the Tax Code) are to be excluded (deducted) from the annual tax increment paid into the tax increment account. In other words, property tax increment revenues related to real property that in any given tax year benefits from an abatement agreement that precedes the creation of the port authority TRZ have to be excluded from the amounts deposited into the tax increment account. Upon the expiration of the preexisting agreement or abatement, if the TRZ remains in place, such annual property tax increments would become payable into the tax increment account until termination of the TRZ. Examples of such agreements applicable to port and navigation districts include tax abatements that may be granted by a port authority in coordination and agreement with city and/or county reinvestment zones, as well as EZs created under Chapter 2303 of the state's Government Code.^{13,14}

Provision of 60-Day Notice

There is a 60-day notice period that needs to take place before the TRZ is designated. The legislation specifies that the port commission hold a public hearing on the creation of the zone not later than the 30th day before the date when the TRZ is expected to be designated. In

¹³ Under the State's Tax Code (Chapter 312), designation of an area as an enterprise zone under Chapter 2303 of the Government Code constitutes the designation of an area as a reinvestment zone. Navigation districts may choose to provide temporary property tax abatements to real property located within the district and inside an enterprise zone. *Tax Code:* <http://www.statutes.legis.state.tx.us/Docs/TX/htm/TX.312.htm>. *Government Code:* <http://www.statutes.legis.state.tx.us/Docs/GV/htm/GV.2303.htm>.

¹⁴ For an example of a navigation district tax abatement policy that includes incentives in coordination with enterprise zones, see the Sabine-Neches Navigation District Uniform Tax Abatement Policy (March 2014): <http://www.navigationdistrict.org/wp-content/uploads/2014/08/2014AbatementPolicy.pdf>.

addition, notice of the public hearing must be given at least seven days prior to the date of the hearing, and the intent to create the zone must be published in a newspaper having general circulation in the county where the zone is located.

Refine TRZ Increment Capture Analysis

During this 60-day period, the preliminary increment capture analysis conducted in the initiation stage should be refined to ensure that the revenue will be sufficient to meet the expected TRZ-related financial commitments (e.g., debt service) entered into by the navigation district. This refining process includes generating the highest possible cadastral (parcel) data and refining assumptions related to pace of development and property values. The refined increment capture analysis should estimate the potential tax increment revenue potential within the proposed TRZ boundaries. In general terms, the logic of such an estimation exercise would follow the steps below:

1. **Establish base year and base year appraised value.** The port authority must designate the base year for the purpose of establishing a tax increment base and estimate the base year appraised value of the TRZ tax increment base:
 - o The base year is the year the TRZ is established.
 - o The base year appraised value, or tax increment base, is the total appraised value of all real property taxable in the TRZ (as per the local county appraisal district's certified roll for the base year).

2. **Establish a proposed TRZ duration or analysis period.** There is no legal requirement for TRZ duration. Municipal and county TRZs typically use periods of 30 to 35 years after the base year.

3. **Estimate captured annual appraised value increments.** For each year in the analysis period after the base year, estimate the appraised value increment (captured appraised value):

$$\text{Total appraised value in TRZ} - \text{Tax increment base} = \text{Captured Appraised Value.}$$

4. **Determine total annual tax increments.** This is the amount of ad valorem taxes levied and collected by the navigation district for each year within the TRZ. It is critical to use the appropriate tax rates, that is, use only the navigation district portion of the property tax rate for each year in the analysis period after the base year:

$$\text{Captured Appraised Value} \times \text{Nav. District Tax Rate} = \text{Annual Tax Increment.}$$

5. **Determine portion of tax increment to be set aside for TRZ purposes.** Based on the port authority's plans to abate all or a portion of the property tax within the TRZ,

estimate how much of the annual tax increment will be set aside:¹⁵

$$\text{Annual Tax Increment} \times \% \text{ of tax abated} = \text{Gross Annual TRZ Revenue.}$$

- 6. Recognize preexisting property tax revenue commitments or incentives.** Reduce the gross annual TRZ revenue that would be foregone to preexisting active property tax incentives within the TRZ boundary:

$$\begin{aligned} & \text{Gross Annual TRZ Revenue} - \text{Preexisting Commitments} \\ & = \text{Net Annual TRZ Revenue.} \end{aligned}$$

STAGE 3. PUBLIC HEARING AND ADOPTION

After setting up initiation and zone formation, a public hearing notice should take place before the TRZ is designated. The public hearing should be held no later than the 30th day of the proposal day on the creation and benefits of the zone. A notice must be published in a newspaper no later than the seventh day preceding the hearing day, as described in Section 222.1075 (e).

Once the TRZ is designated, the port authority establishes or designates the TRZ by order or resolution. The navigation district's order or resolution designating the port authority TRZ is required to satisfy the following conditions for adoption:

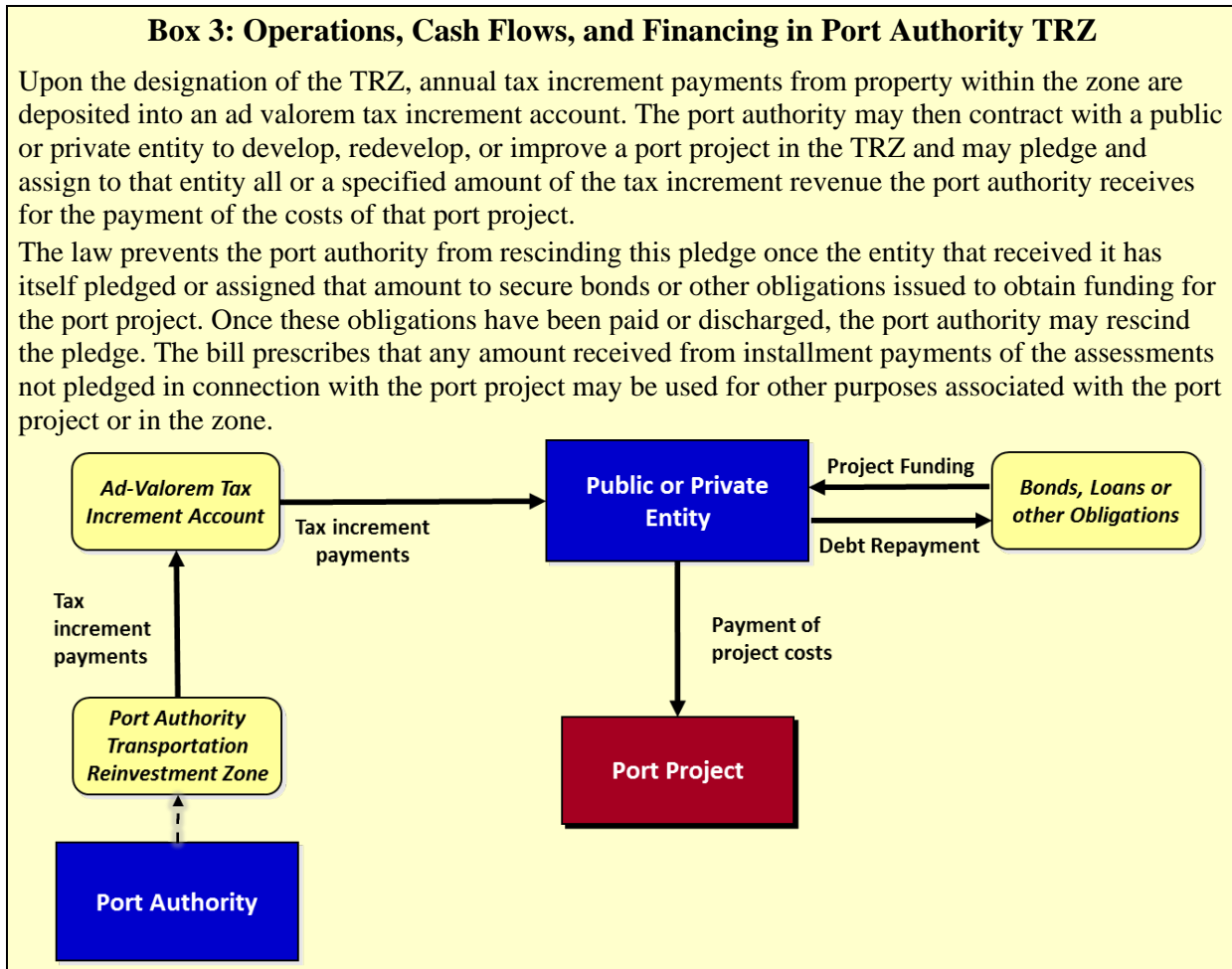
- Describe the boundaries of the TRZ with sufficient definiteness to identify with ordinary and reasonable certainty the territory included in the TRZ.
- Provide that the TRZ takes effect immediately upon adoption of the resolution or order and that the base year shall be the year of passage of the order or resolution or some year in the future.
- Assign a name to the TRZ for identification purposes, with the first TRZ created by a port authority named "Transportation Reinvestment Zone Number One, Port of _____," and subsequent TRZs named and numbered accordingly.
- Establish a TRZ ad valorem tax increment account.
- Provide the expected outcomes of the project, as defined in Section 222.1075 (f).

STAGE 4. TRZ OPERATION

Every subsequent year after the port authority TRZ base year, the annual TRZ tax increment will be transferred into the navigation district's TRZ tax increment account, as described in Section 222.1075 (h)-(1) and illustrated in Box 3. The annual tax increment may be used for repaying

¹⁵ Under this scenario, the port authority abates ad-valorem property taxes on real property within the TRZ in an amount not to exceed the annual tax increment. The port authority then assesses all or part of the cost of the port project through an assessment against real property within the zone that is levied in installments. These installments represent the annual TRZ revenue. Thus, the percent of tax abated in the formula represents the portion of the property tax increment that the port authority plans to dedicate to the TRZ.

any loan or other debt incurred to finance a port project in the zone, as defined in Section 222.1075 (h)-(2).



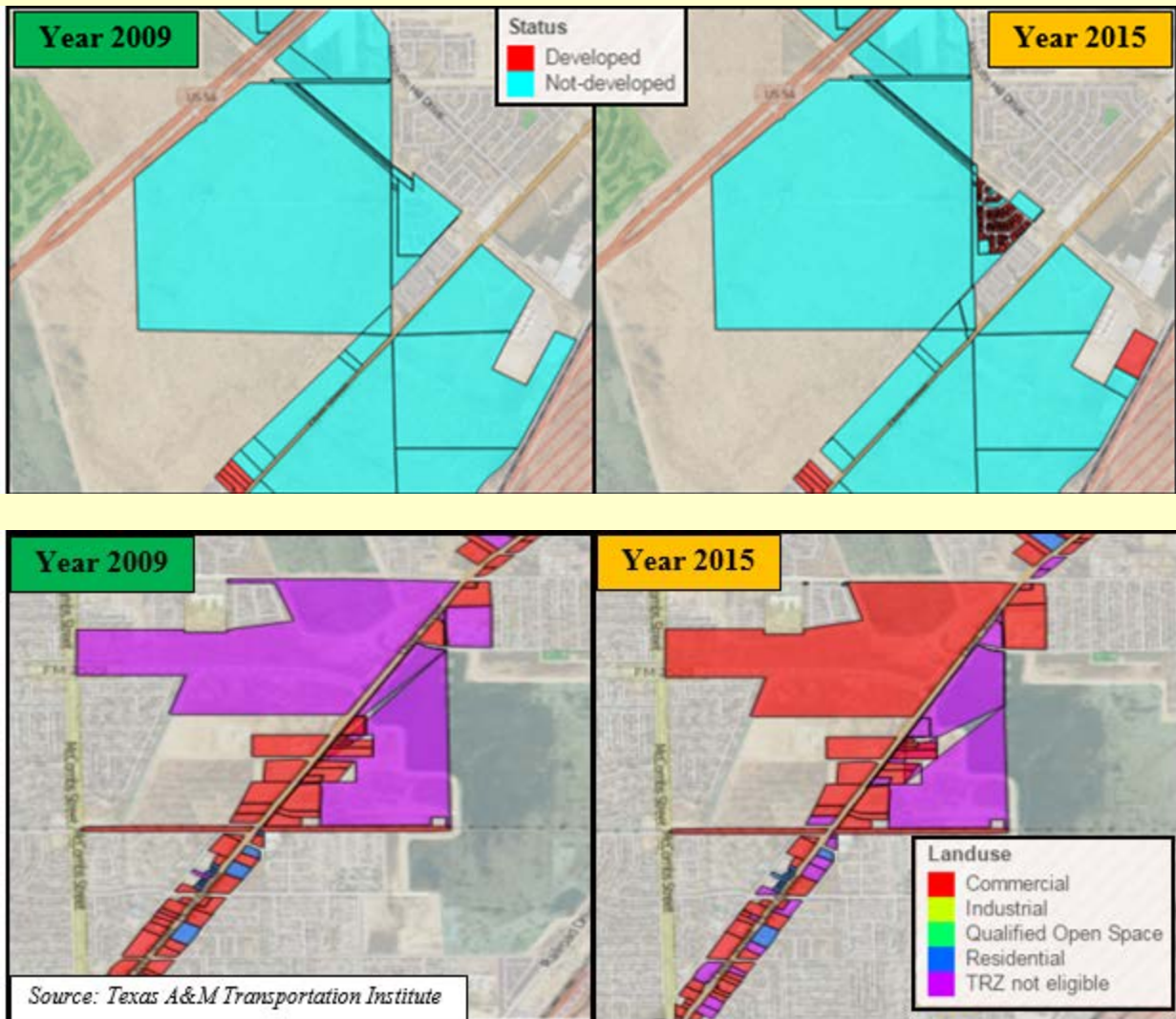
Once TRZs are established, monitoring and evaluation are critical steps. Although not required by the law, port authorities will find it in their interest to establish monitoring and evaluation of TRZ revenues so as to optimize revenue and payment streams. This information may be used for multiple purposes. For example, when revenue from new development may be lower than expected, the established monitoring and evaluation processes enable a port administration to develop insights in order to activate a contingency plan. This activation will be helpful in bringing the revenues to the expected levels. Box 4 illustrates the type of TRZ information that could be generated in the monitoring process.

As an alternative to the contingency plans, changes in the limits of the project for which a port TRZ was designated can be allowed at any time, but with certain limitations (2). Property may not be removed from a designated zone if any part of the assessment has been assigned or pledged directly by the port authority (or another entity) to secure bonds or other obligations in connection with the project (Section 222.1075 [k]). On the other hand, property may not be

added to a zone unless the port authority complies with the requirements to designate the area as a TRZ (including conducting public hearings and issuing an order or resolution designating it as such, as required under sections 222.1075 [e] and [f]).

Box 4: TRZ Monitoring and Evaluation

Information developed in the monitoring process helps assess how far projections were from actual realizations. Trends in taxable appraised values, land use, and development status of the real properties within a TRZ offer valuable insight into the dynamics of transportation infrastructure and land development. The figures show development and land-use changes that took place on parcels located within the City of El Paso TRZ No.3 between the base year (2009) and 2015. A number of properties adjacent to the roadway changed from vacant to developed and/or were up-zoned from open space to residential and commercial uses.



STAGE 5. TERMINATION

According to SB 971, a port authority TRZ terminates on December 31 of the year in which the port authority completes any contractual requirement that included the pledge of TRZ revenue. Also, a port authority TRZ terminates on December 31 of the 10th year after the year the zone was designated, if before that date the port authority has not used the zone for the purpose for which it was designated.

CHAPTER 5. PORT AUTHORITY TRZ TAX INCREMENT CAPTURE ASSESSMENT TOOL

This chapter presents the port authority TRZ tax increment capture assessment tool developed in this project. The tool has the capability of modeling land-use dynamics, growth in real property appraisal values, and estimating port authority TRZ annual cash flows. The chapter consists of three sections. The first section describes key factors influencing and driving port authority TRZ tax increment capture or TRZ revenue and describes how real property appraisal values, which are forecasted by the tool, grow within the TRZ. The second section presents the preliminary assessment process that estimates TRZ annual cash flows using the port authority TRZ tax increment capture assessment tool. Two case studies (Port of Beaumont and Port of Brownsville TRZs) are included. Finally, the third section describes the web-based interface developed to visualize and analyze the results of the case studies.

KEY FACTORS INFLUENCING AND DRIVING PORT AUTHORITY TRZ REVENUE

The growth in real property appraisal values is the main factor that affects TRZ revenue. This growth is determined by marginal growth in value of real properties and by new developed real properties. All real properties are subjected to marginal growth regardless of land use or development status. However, only certain real properties are subjected to a development process introducing new developed real properties to the market.

Figure 4 shows two examples in which real properties are subjected to marginal growth. After n years since the TRZ was established, the increase in appraisal value attributable to marginal growth is \$5,000 and \$1,000, respectively. Consequently, the contribution of these properties to growth in real property appraisal values within the TRZ is relatively small. This growth is limited to the impact of inflation and local conditions of supply and demand. In some instances, real properties are subjected to processes of speculation, and marginal growth can fluctuate significantly.

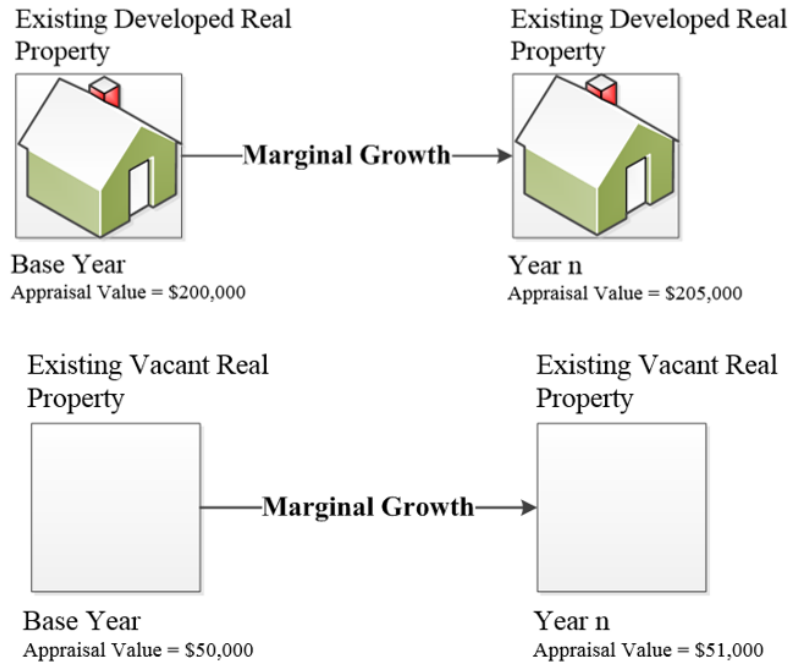


Figure 4. Real Property Marginal Growth.

Figure 5 shows an example in which the real property is subjected to a development process. Consequently, a new developed real property is introduced to the market. The real property has an appraisal value of \$120,000 in the base year. After the development takes place while the TRZ is active, the new developed real property has an appraisal value of \$250,000. That is an increase of \$130,000, which is a substantial contribution to the growth in real property appraisal values within the TRZ. New developed real properties are the ones that contribute the most to TRZ revenues. These properties are also subjected to marginal growth in the same manner as the rest of the real properties within the TRZ.

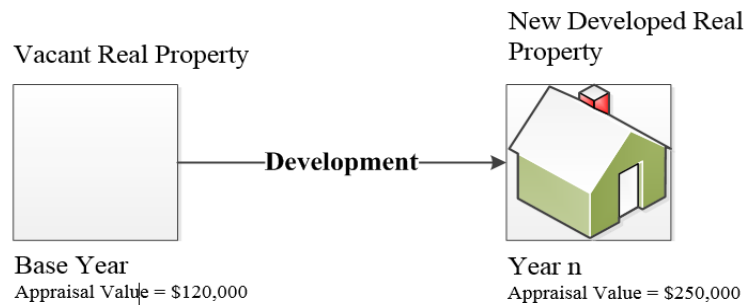


Figure 5. Real Property Development Process.

Growth in Real Property Appraisal Values

Growth in real property appraisal values determines TRZ revenue. At the same time, this growth is driven by supply and demand factors in a larger economy, such as net migration and employment, which in the case of port communities is determined to an extent by port economic

activity and port accessibility. Consequently, port economic activity and port accessibility are the key factors influencing and driving port authority TRZ revenue.

Port Economic Activity

Port economic activity increases the demand for industrial and commercial real properties in the seaport area due to the limited amount of land within the port property (26). Port economic activities entail, among others, cargo-handling and transfer operations, cargo storage and warehousing, break bulk and consolidation, and trucks and chassis areas. In addition to this, different industrial plants are frequently established near port areas in order to have direct access to raw materials that will be transformed in their facilities.

An increase in port economic activity encourages employers to hire more workers in trade-related industries, and this increase will be eventually reflected onto the entire regional economy. Port economic activity demands a significant amount of labor and services, thus increasing the demand for residential land in the seaport areas (27). The area in which port economic activity significantly affects the demand for industrial and commercial land can be geographically defined by a 15-mile radius from the port (28).

Port Accessibility

The presence of infrastructure elements will influence land use and land development to some degree. Highways and rail lines will influence to a certain extent where businesses and residential properties are likely to develop. Port infrastructure investments generate economic benefits. Most of the world's major cities are port cities, even if in many cases port activity now plays a rather small role in the general economic framework of their regions. Ports expand the market opportunity of both national and international firms. By expanding the market areas of firms, ports increase competition, resulting in lower prices for the consumers of the port traffic. These involve all sectors of economic activity, including manufacturing firms, heavy industries, resource extraction industries, and retailers.

Port accessibility to rail and highway networks are critical in realizing the full potential of a seaport as an engine of industrial development (29). Highway and railroad accessibility increase port activity, and consequently increase the demand for industrial, commercial, and residential real properties in seaport areas. For example, industrial users prefer sites that are strategically located with access to highway and rail infrastructure, as well as other local port roadway networks.

Accessibility of rail networks to ports is the major transportation component in Texas. For the logistics of raw materials such as fossil fuels and lumbers, the connection between port and rail corridors serves a vital role for regional as well as national economies. Port terminal railroads ensure that trains are interchanged efficiently between terminals and Class I railroads.

Improved roadway access to ports can provide opportunities for land development and local economic development if they provide access to land that was previously inaccessible to the port. For example, the recently constructed SH 550 in Cameron County provides access to undeveloped land owned by Port Brownsville that can be used for future development opportunities (30).

Key Factors

Port economic activity and port accessibility have the capacity to influence net employment and migration in port communities. Figure 6 shows how port economic activity and port accessibility (in green) drive and influence port authority TRZ revenue. First, in the context of growth in port economic activity and port accessibility, new industrial and commercial companies would establish their activities in the seaport area. Second, the increase in industrial and commercial activities would generate new employment and immigration flows to the port community. Third, the demand for commercial and industrial land would grow to make possible the establishment of new commercial and industrial activities. Similarly, the demand for residential land would also increase because of immigration. Consequently, industrial, commercial, and residential real properties would be subjected to marginal growth due to the high demand, and new developed real properties would be introduced in the market. Third, the marginal growth in value of real properties and the new developed real properties would result in the growth in real property appraisal values. Fourth, the growth in real property appraisal values would determine the port authority TRZ revenue.

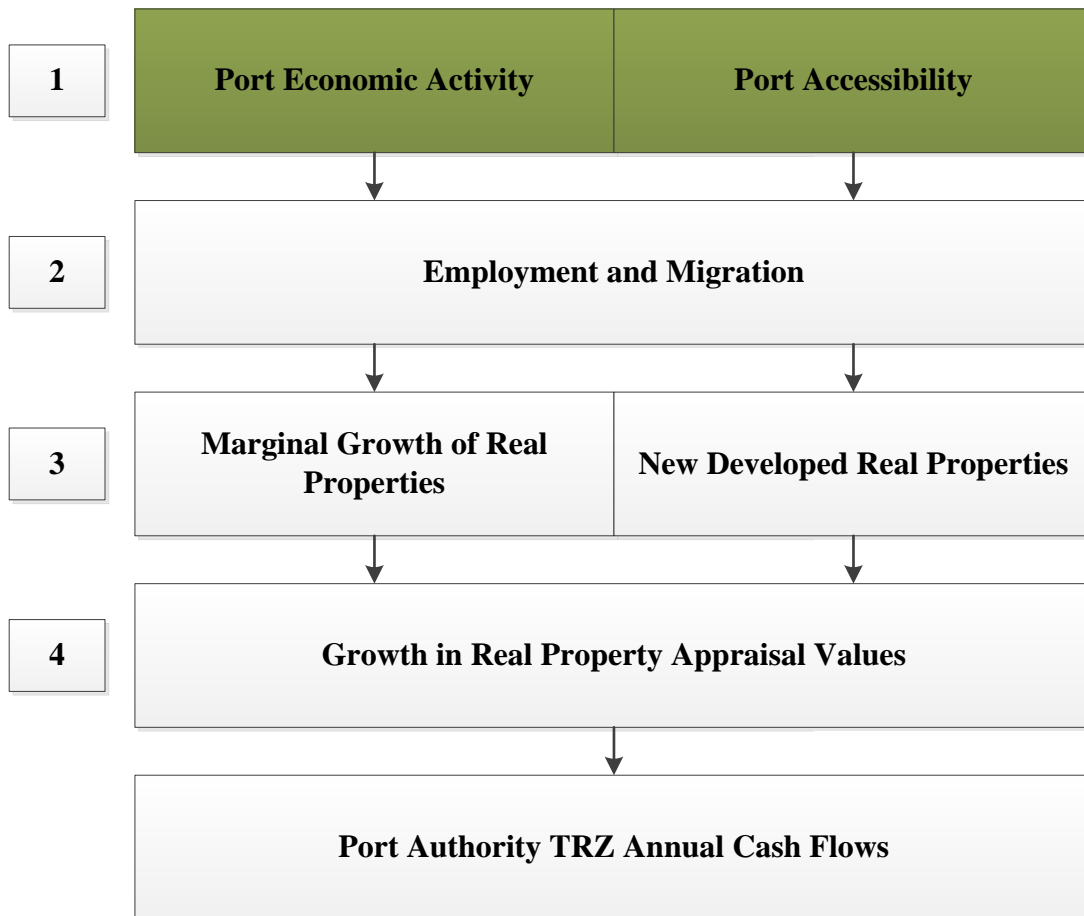


Figure 6. Key Factors Influencing and Driving Port Authority TRZ Revenue.

Key factors need to be taken into consideration in the preliminary assessment of port authority TRZ revenue. To do so, it is recommended that the immediate port influence area (IPIA) and non-immediate port influence area (NPIA) are identified for every port. Appendix C provides guidance for identifying IPIA and NPIA. Additionally, Appendix C presents the resulting IPIA and NPIA for the Port of Beaumont and the Port of Brownsville.

**PORT AUTHORITY TRZ TAX INCREMENT CAPTURE ASSESSMENT TOOL:
PROCESS AND CASE STUDIES**

This section illustrates the process of performing the preliminary assessment of property tax increment by using the port authority TRZ tax increment assessment tool. In order to provide practical guidance, the process is described by applying it to two case studies. The following paragraphs provide a detailed description of each step of the process and the results generated for the two case studies. The final result of the process entails a set of cash flows and a risk analysis that describes the uncertainty associated to them.

As mentioned earlier, it is recommended to perform the preliminary assessment of property tax increment during Step 1 (Initiation) of the implementation process, followed by a refinement and

reassessment before starting Step 3 (Public Hearing and Adoption). This preliminary assessment helps port authorities to evaluate if the cash flows will be sufficient to service the debt that they are committing to the specific project. The assessment is similar to the one performed for other types of TRZs.

The preliminary assessment of property tax increment requires a significant amount of data. Therefore, developing solid stakeholder relations and identifying champions among them is critical to facilitate data collection. Socioeconomic data and real property data are the two datasets that are required for performing a preliminary assessment (see Figure 7). The result of the assessment will be a set of annual cash flows, along with the total revenue generated by the TRZ during its entire period of operation.

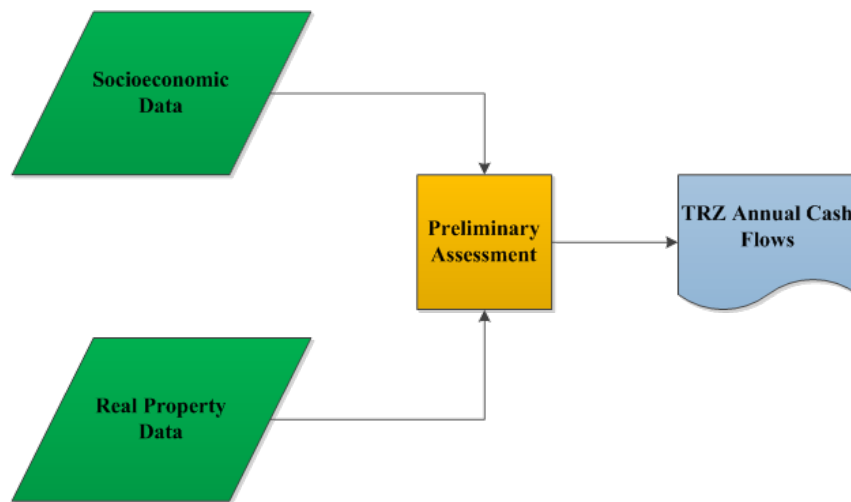


Figure 7. Preliminary Assessment of Property Tax Increment.

Socioeconomic Data

Port facilities are one of the main drivers of the economy in port communities. However, the impact of the port is not equally distributed within the navigation district. Therefore, it is important to differentiate the IPIA and NPIA (see Appendix C). Socioeconomic data need to be collected and processed for both areas individually because of the higher impact of port activity in real properties located within the IPIA.

Specifically, socioeconomic data required to perform the TRZ revenue assessment are historical population and employment values. Historical population values and forecasts can be obtained from ESRI Business Analyst[®], a tool that is able to provide historical values as well as forecasted values of different socioeconomic variables for any given area of study. Similarly, the U.S. Census Bureau tool named OnTheMap¹⁶ is able to provide historical employment values and their location. Based on these data, population and employment forecasts can be estimated for

¹⁶ <http://onthemap.ces.census.gov/>.

both the IPIA and the NPIA areas. Future population and employment trends for Port of Beaumont and Brownsville TRZ are shown in Figure 8 and Figure 9, respectively.

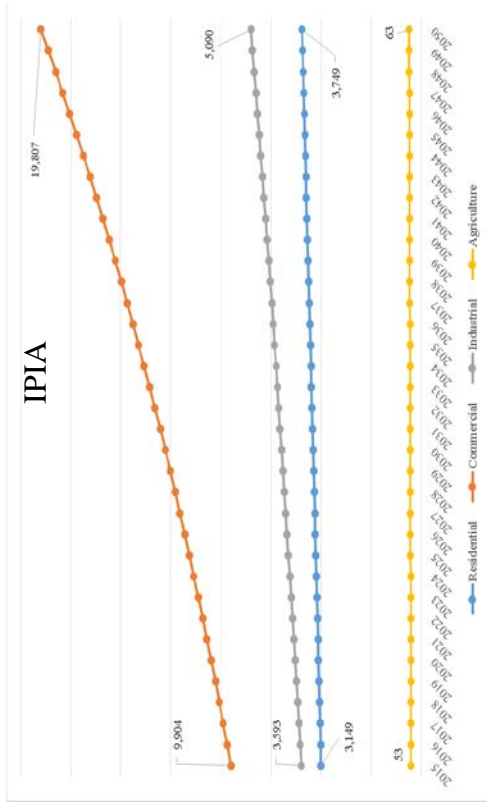


Figure 8. Population and Employment Future Trends for Port of Beaumont.

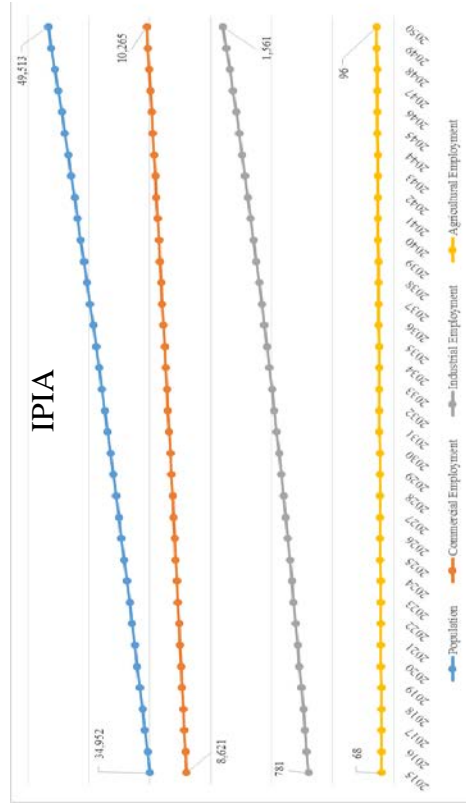


Figure 9. Population and Employment Future Trends for Port of Brownsville.

Real Property Cadastral Data

Real property cadastral data are provided by county Central Appraisal Districts (CAD) and is structured in two datasets: appraisal data and geographic data. Appraisal data contains real property appraisal value, land use, development status, and acreage. Geographic data contain information that identifies real property location. Both datasets need to be joined together so that parcels within the TRZ can be selected and analyzed using a Geographic Information System (GIS) tool. Once appraisal data and geographic data are joined in a single dataset, real properties located within the IPIA and NPIA can be selected for further analysis. The parameters that need to be calculated to perform the preliminary assessment of property tax increment include:

- Property value growth rates per land use. This parameter is calculated based on historical appraisal data of the TRZ. It defines marginal growth of real properties based on their land use. Figure 10 and Figure 11 show property value growth rates per land use for Port of Beaumont and Port of Brownsville.
- Price per acre. This parameter is calculated based on the number of acres for a certain land use and its price in the base year. It defines the price (expressed in USD) that a real property will acquire after it is fully developed. For instance, a vacant property that becomes developed with a commercial land use will acquire the price per acre calculated in the base year plus the marginal growth. Table 3 shows price per acre for Port of Beaumont and Port of Brownsville.
- Population density. This parameter is calculated based on the number of residential developed acres and the population in the base year. It determines the number of residential acres that need to be developed in future years to accommodate the predicted population. Table 4 shows population density for Port of Beaumont and Port of Brownsville.
- Employment density. These parameters are calculated based on the number of commercial, industrial, and agricultural developed acres and the employment in the base years. It determines the number of commercial, industrial, and agricultural acres that need to be developed in future years to accommodate the predicted employment. Table 4 shows employment density for Port of Beaumont and Port of Brownsville.

Table 3. Port of Beaumont and Port Brownsville TRZ Price per Developed Acre.

Land Use	Port of Beaumont		Port of Brownsville	
	Price per Acre (IPIA)	Price per Acre (NPIA)	Price per Acre (IPIA)	Price per Acre (NPIA)
Residential	\$234,407	\$340,081	\$215,302	\$223,777
Commercial	\$297,798	\$244,319	\$170,545	\$194,232
Industrial	\$176,402	\$71,656	\$158,392	\$135,795
Agricultural	\$48,528	\$7,938	\$14,151	\$7,628

Table 4. Port Brownsville TRZ Population and Employment Density.

Land Use	Population Density (IPIA)	Population Density (NPIA)	Employment Density (IPIA)	Employment Density (NPIA)
Port of Beaumont				
Residential	18.20	12.09	—	—
Commercial	—	—	30.38	10.45
Industrial	—	—	112.28	34.80
Agricultural	—	—	0.35	0.11
Port of Brownsville				
Residential	20.38	14.02	—	—
Commercial	—	—	13.95	13.01
Industrial	—	—	11.65	13.15
Agricultural	—	—	0.16	0.018

Note: — denotes that the variable in question was not an input to the model.

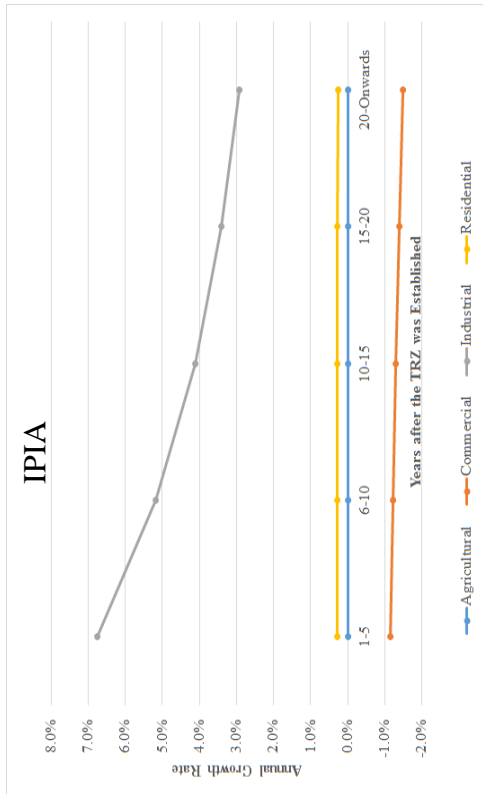


Figure 10. Property Value Growth Rates for Port of Beaumont.

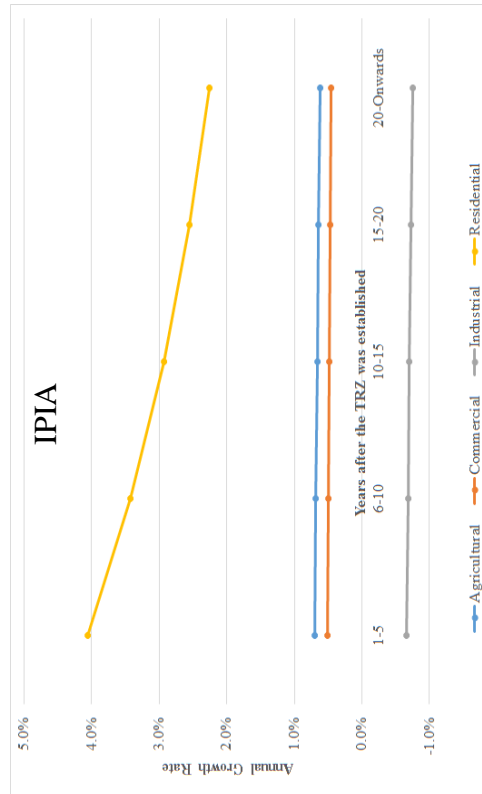
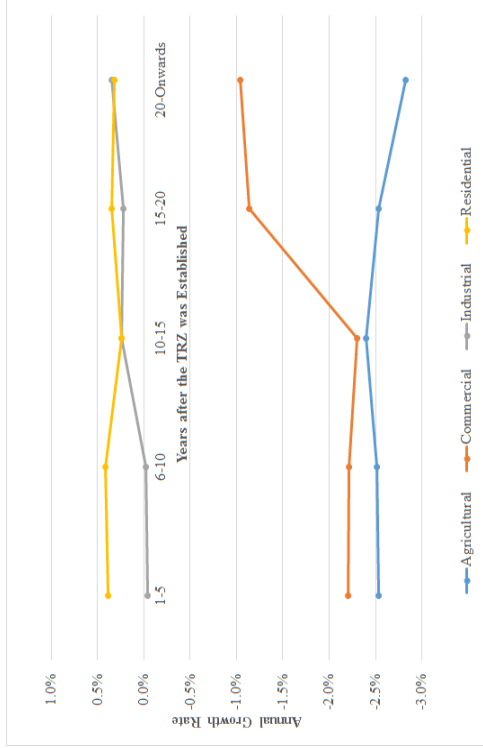


Figure 11. Property Value Growth Rates for Port of Brownsville.



Preliminary Assessment

The preliminary assessment of property tax increment is summarized in Figure 12. Population and employment trends estimated during the data collection process forms inputs for the port authority TRZ tax increment capture assessment tool. These datasets drive the number of acres that will be developed and their land use. The tool uses the growth in population and/or employment, as well as the population and employment parameters calculated for the base year, to forecast the number of acres to be developed every year. The new developments will acquire the price per acre for each land use calculated in the base year plus the marginal growth. This marginal growth is determined by the property value growth rates per land use estimated. The final output of the port authority TRZ tax increment capture assessment tool is the total appraised value for a certain year (year n). This value will result from adding the new development appraisal value to the existing development appraisal value for year n . Total appraised value for year n will be subjected to the TRZ revenue estimation process presented in Figure 12(a) and Figure 12(b). The definitions used in Figure 12(a) and (b) are explained below:

- **Tax Increment Base.** The tax increment base of a port authority is defined as the total appraised value of all real property taxable by the port authority and located in a TRZ for the year in which the zone was designated (the base year). This is illustrated by the area below the blue dashed line in the top chart of Figure 12(a).
- **Captured Appraised Value.** The captured appraised value of real property taxable by a port authority for a year is defined as the total appraised value of all real property taxable by the port authority and located in a TRZ for that year less the tax increment base of the port authority. This is illustrated by the red area in Figure 12(a).
- **Annual Tax Increment.** The amount of a port authority's tax increment for any given year is defined as the amount of ad valorem taxes levied and collected by the port authority (or by the commissioners' court on behalf of the port authority) for that year on the captured appraised value of real property taxable by the port authority and located in a TRZ. This is illustrated by the red area in Figure 12(b).

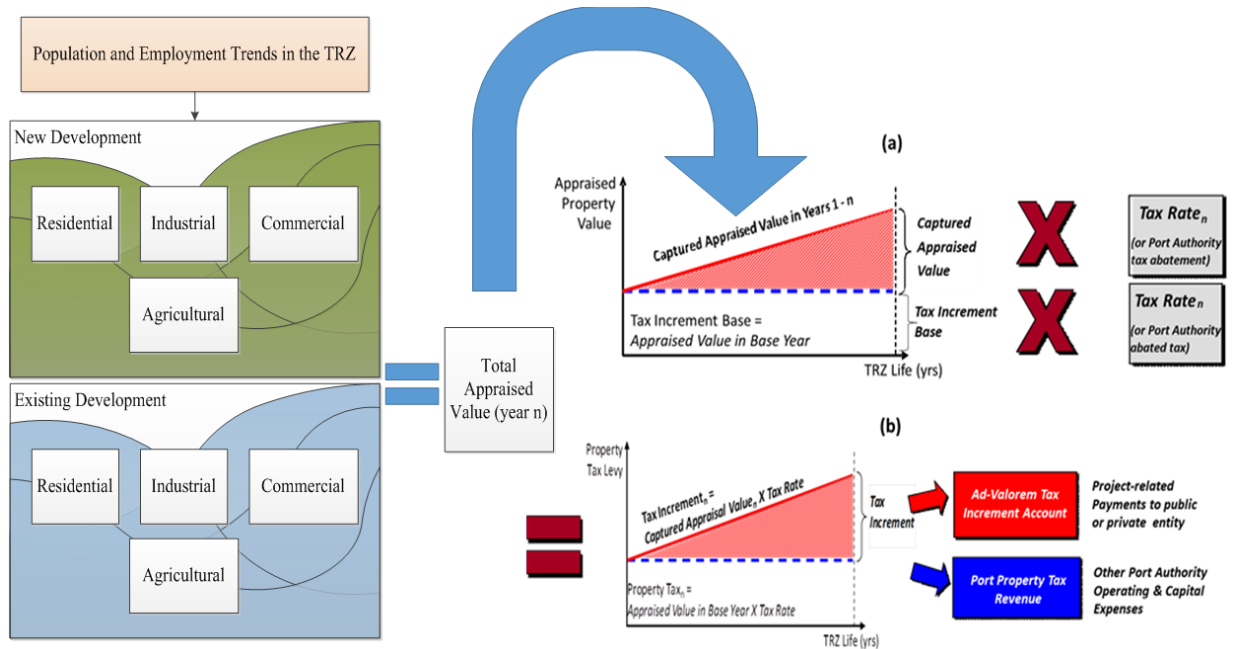


Figure 12. Preliminary Assessment.

Port of Beaumont and Port of Brownsville TRZ Revenues

Figure 13 and Figure 14 show the results of the preliminary assessment of TRZ No. 1 (Port of Beaumont) and TRZ No. 1 (Port of Brownsville), respectively. Both these port authority TRZs were established in 2013. However, neither Jefferson County CAD nor Cameron County CAD keeps historical real property geographic information. Therefore, they were only able to provide this information for the current year (i.e., 2015). Under these circumstances, year 2015 was assumed as the base year in the preliminary assessment.

Figure 13 and Figure 14 present nominal and discounted annual revenues for both port authority TRZs. Nominal revenues reflect the dollar (USD) value of revenues in future years, and discounted revenues reflect the dollar value of revenues in 2015. In this assessment, the discount rate assumed was 5 percent. To complement the information presented in Figure 13 and Figure 14, Appendix D contains two tables depicting the exact nominal and discounted annual and total revenues. Total TRZ No. 1 (Port of Beaumont) discounted and nominal revenues are \$4,218,182 and \$12,970,675, respectively. Total TRZ No. 1 (Port of Brownsville) discounted and nominal revenues are \$19,068,182 and \$56,546,424, respectively.

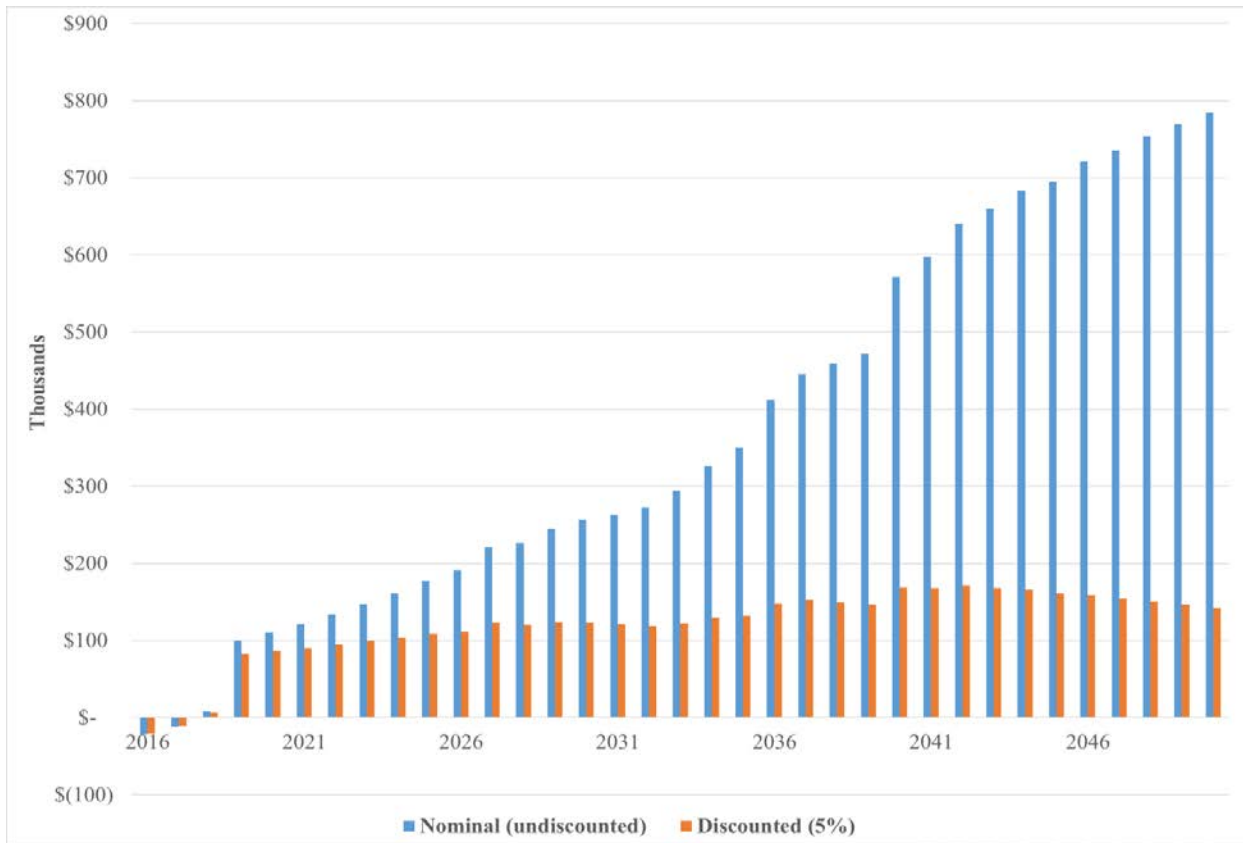


Figure 13. Transportation Reinvestment Zone No. 1 (Port of Beaumont) Annual Cash Flow.

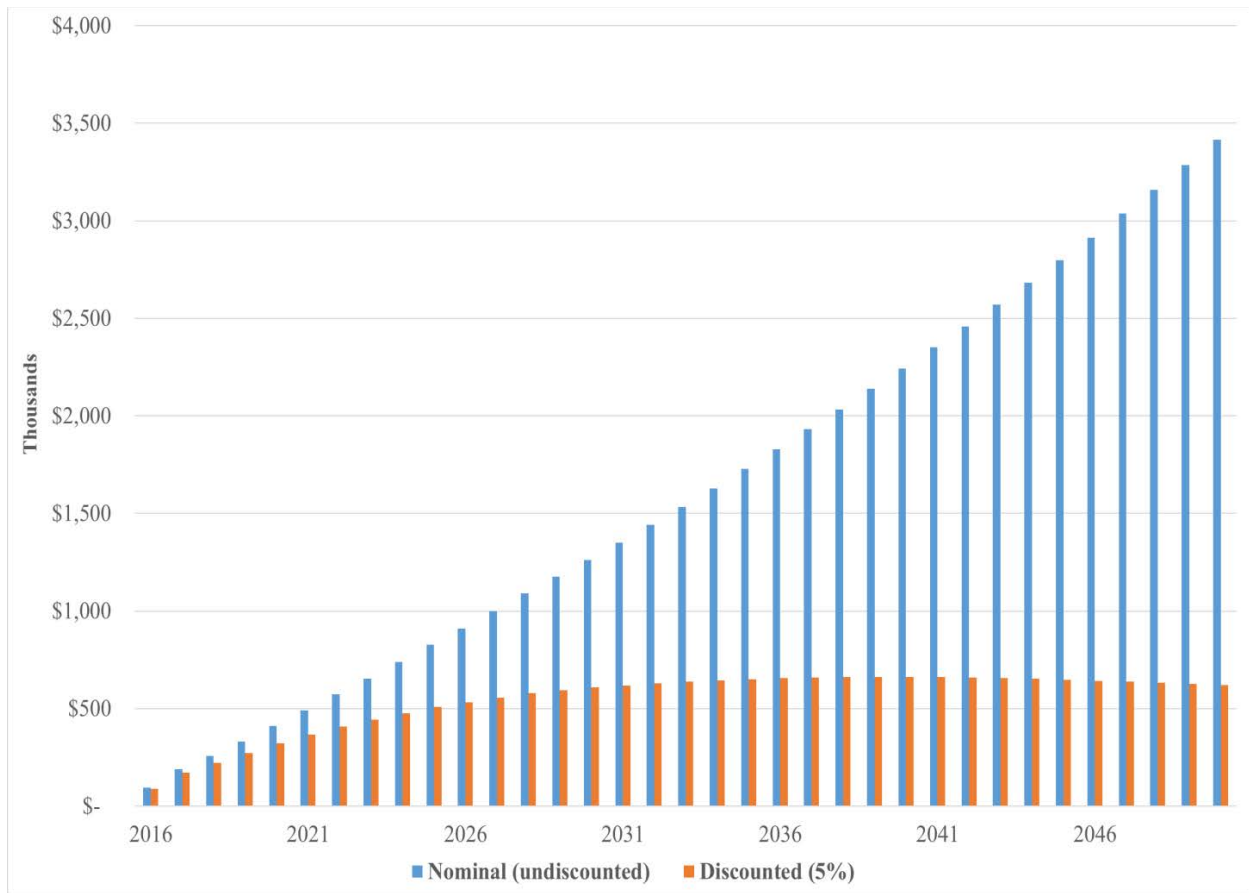


Figure 14. Transportation Reinvestment Zone No. 1 (Port of Brownsville) Annual Cash Flow.

The research team performed a TRZ revenue risk assessment in order to describe the uncertainty associated with annual cash flows generated by the port authority TRZ tax increment capture assessment tool. To account for uncertainty, property value growth rates per land use, which is an input to the tool, was subjected to Monte Carlo simulation. Figure 15 and Figure 16 show the 10th percentile, the median (or 50th percentile), and the 90th percentile of the undiscounted annual cash flows generated by the tool.

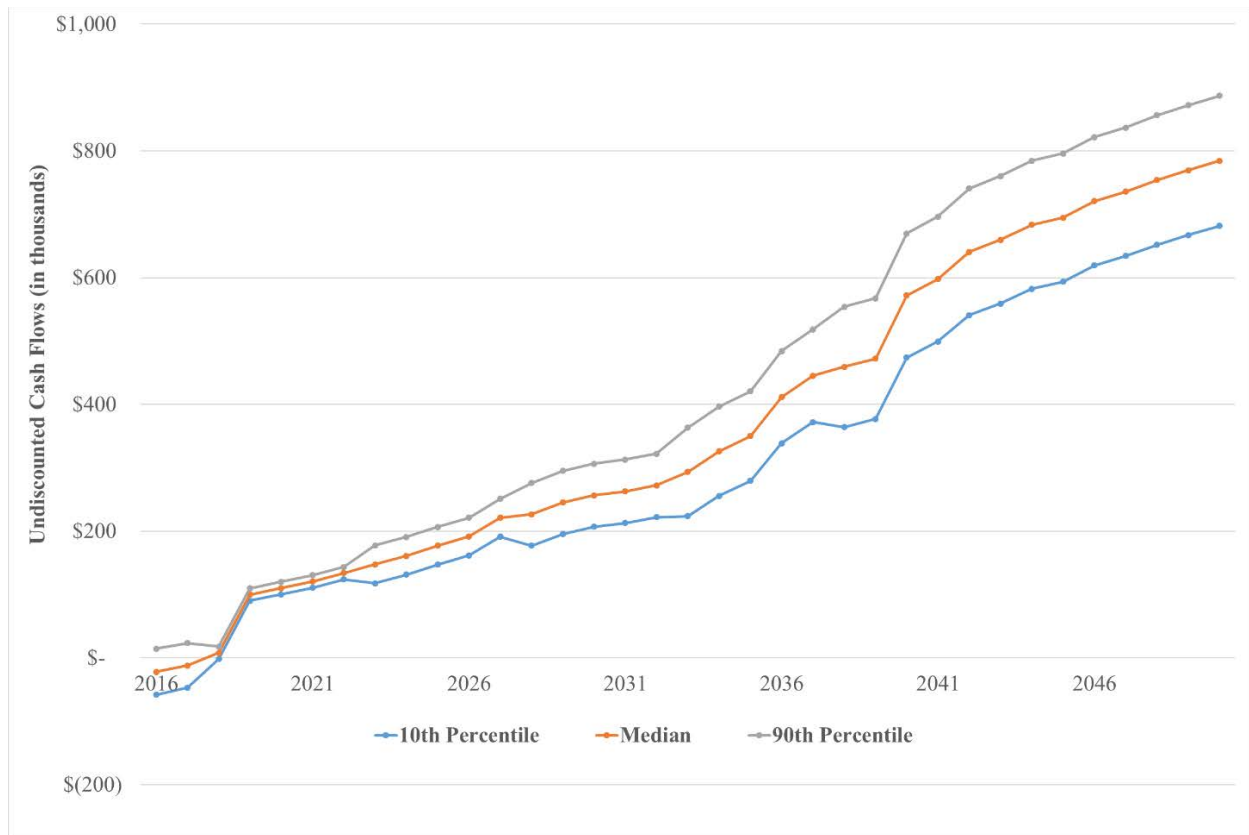


Figure 15. Port of Beaumont TRZ Revenue Risk Analysis.

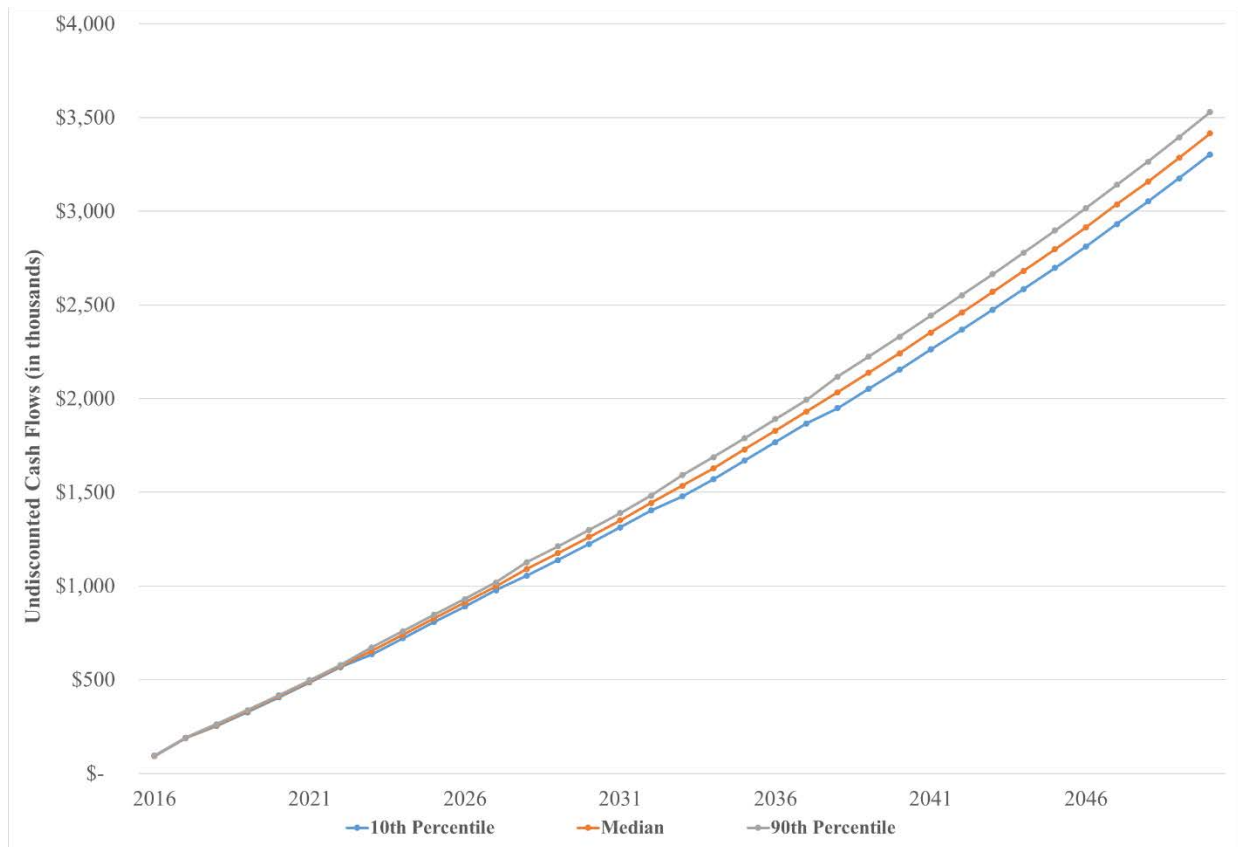


Figure 16. Port of Brownsville TRZ Revenue Risk Analysis.

WEB-BASED INTERACTIVE INTERFACE

This section presents the web-based interface specifically designed to visualize and analyze results generated by the port authority TRZ tax increment capture assessment tool. The web-based interface contains results for the two port authority TRZs subjected to analysis. The URL is <https://tti-tamu-edu.shinyapps.io/PortTRZ/>. It consists of a sidebar and a visualization area. Figure 17 shows the three sections of the visualization tool—sidebar, interactive map, and cash flow.

Sidebar

On the sidebar, a user can select the amount of data that can be displayed on the map using a radio button, select the port to be displayed/analyzed through a drop-down menu, click to download the cash flow table in comma separated values format, and reset the map's zoom level to the original zoom level.

Visualization Area

The visualization area consists of a map and a bar chart (see Figure 17). The interactive map displays real property data along with the year in which it is predicted to be developed. Upon

clicking a property, the user will be able to get details regarding the year of development and year in which the land use is expected to change according to the port authority TRZ tax increment capture assessment tool. The annual cash flow generated by port authority TRZ tax increment capture assessment tool is presented below the interactive map. It shows both nominal and 5 percent discounted cash flows. The data can be downloaded by clicking on the Click to Download button on the sidebar.

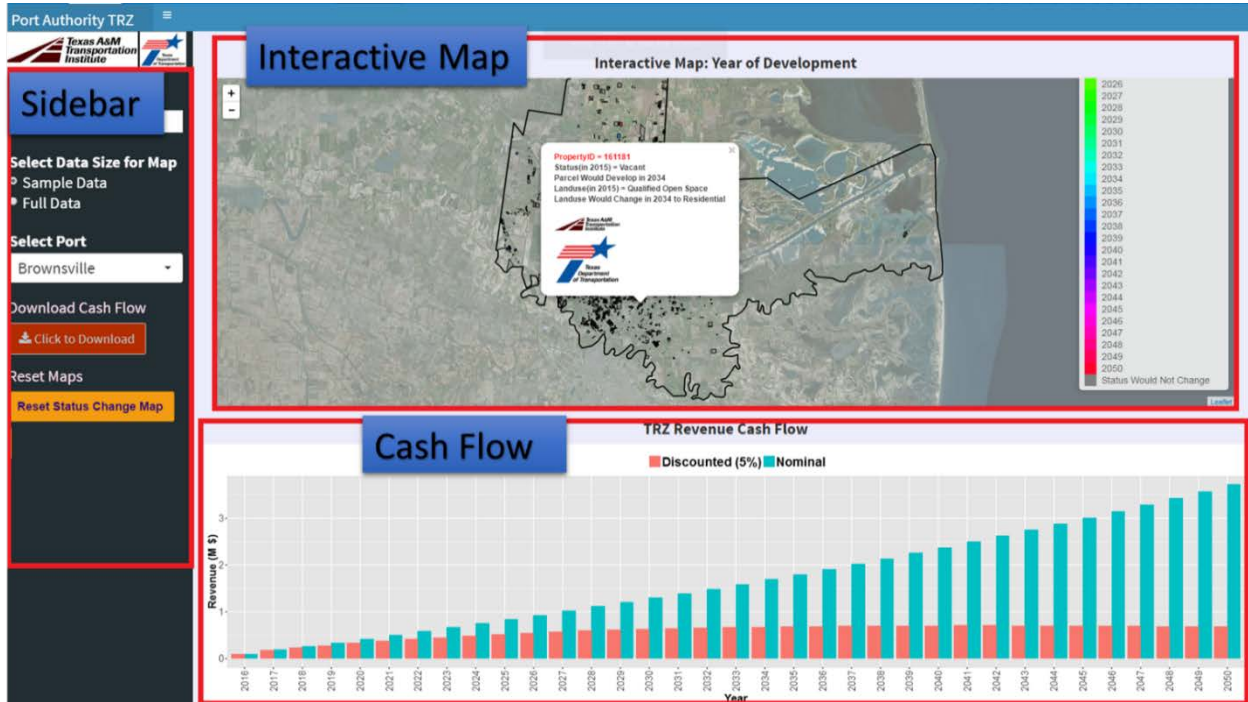


Figure 17. Web-Based Interactive Interface.

CHAPTER 6. CONCLUSIONS

TRZs of Texas are relatively new tools for infrastructure finance that allow governmental entities with taxing authority to set aside local match contributions for transportation projects and capture the land value increases that result from the transportation projects. TRZs are increasingly important funding sources for the expansion and improvement of economically critical links in the U.S. Interstate and Texas State Highway Systems. Changes to the law introduced by the Texas Legislature in 2013 made TRZs available to port authorities and navigation districts through the port authority TRZ mechanism.

Port authority TRZs could significantly help port authorities address infrastructure needs within port property and in areas adjacent to port property that are not owned or controlled by the port, but that can improve the port's efficiency or security. This research identified one practical limitation to port authority TRZs when it comes to targeting infrastructure that is specifically port related. Several municipal TRZs around the state have used their tax increment funds to acquire funding from the SIB. However, because the sources of the bank's funding are the federal and state government's highway programs, the SIB cannot currently be used to finance port projects because port property is not considered part of the state highway system. In such cases, it would be technically possible to go to the bond market or other lenders, but to date the cost of such financing has been prohibitive.

This research also identified four navigation districts that have created port authority TRZs, all established in December 2013. Three of the navigation districts, namely Port of Beaumont, Port of Port Arthur, and SNND, are located in Jefferson County and all have the stated purpose of providing part of the local match required for the federal government to improve the Sabine-Neches Waterway. On the other hand, the Port of Brownsville (located in Cameron County), the fourth navigation district, has not declared a stated intention for its TRZ. Of significance is the fact that, in all four cases, TRZ boundaries are the same as navigation district boundaries and navigation district boundaries far exceed the boundaries of the port facilities. Major cities are included within the navigation district boundaries, which means that land uses are not limited to commercial and industrial uses. Most properties, in fact, are residential or agricultural. Because the ability of the TRZ mechanism to generate revenue depends on land development, value trends, and patterns within its boundaries, it is critical to understand how port authorities are able to influence such development within their overall taxing jurisdictions.

Finally, port authority TRZs also make it possible for port authorities to team with counties and/or cities that also have TRZs to construct projects that will benefit all parties. For example, last-mile highway connectivity and capacity constraint issues can be addressed by funding improvements to nearby roadways not owned by the port but used to access it. This flexibility can help port authorities overcome some of the limitations of traditional port infrastructure funding sources and mechanisms.

The guidance and step-by-step implementation processes contained in this report is based on the current legal framework of port authority TRZs. The implementation experience of the first county and municipal TRZs during the first few years after enactment of the law that created them helped shape the evolution of the funding mechanism over time, and address implementation-specific issues in its legal framework. The port authority TRZ mechanism is relatively new, and the TRZs that have been set up to date are still in their early stages. It is very likely that as a result of these first implementation efforts, a number of lessons will be learned in the course of the next few years. These lessons learned should be incorporated into this guidance in the future to ensure it remains a useful reference for TxDOT, as well as port authorities and navigation districts throughout the state.

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APPENDIX A. ESTABLISHED PORT AUTHORITY TRZS

There are four Port Authority TRZs currently established in Texas. This appendix presents in Table 5 some of the basic statistics for each one of them, including the number of parcels, appraised value, and total acres for the year 2013 (base year). The pages that follow illustrate the footprint and describe some of the characteristics of each of the Port Authority TRZs.

Table 5. Port Authority TRZ 2013 Statistics.

Port Authority	Number of Parcels	Tax Base (Appraised Value 2013)	Total Acres
Port of Beaumont	0	\$2,013	0
Port Arthur	0	\$2,013	0
Sabine-Neches ND	0	\$4,026	0
Port of Brownsville	0	\$8,052	0

PORT OF BEAUMONT

The Port of Beaumont established the Port of Beaumont TRZ No. 1 in December 2013. To date, the Port of Beaumont has not defined the duration of the TRZ. Although the Port of Beaumont TRZ was established to fund improvements in the Sabine-Neches Waterway, the specific improvements have not been defined yet. Port of Beaumont TRZ has the same boundaries as the navigation district (see Figure 18).

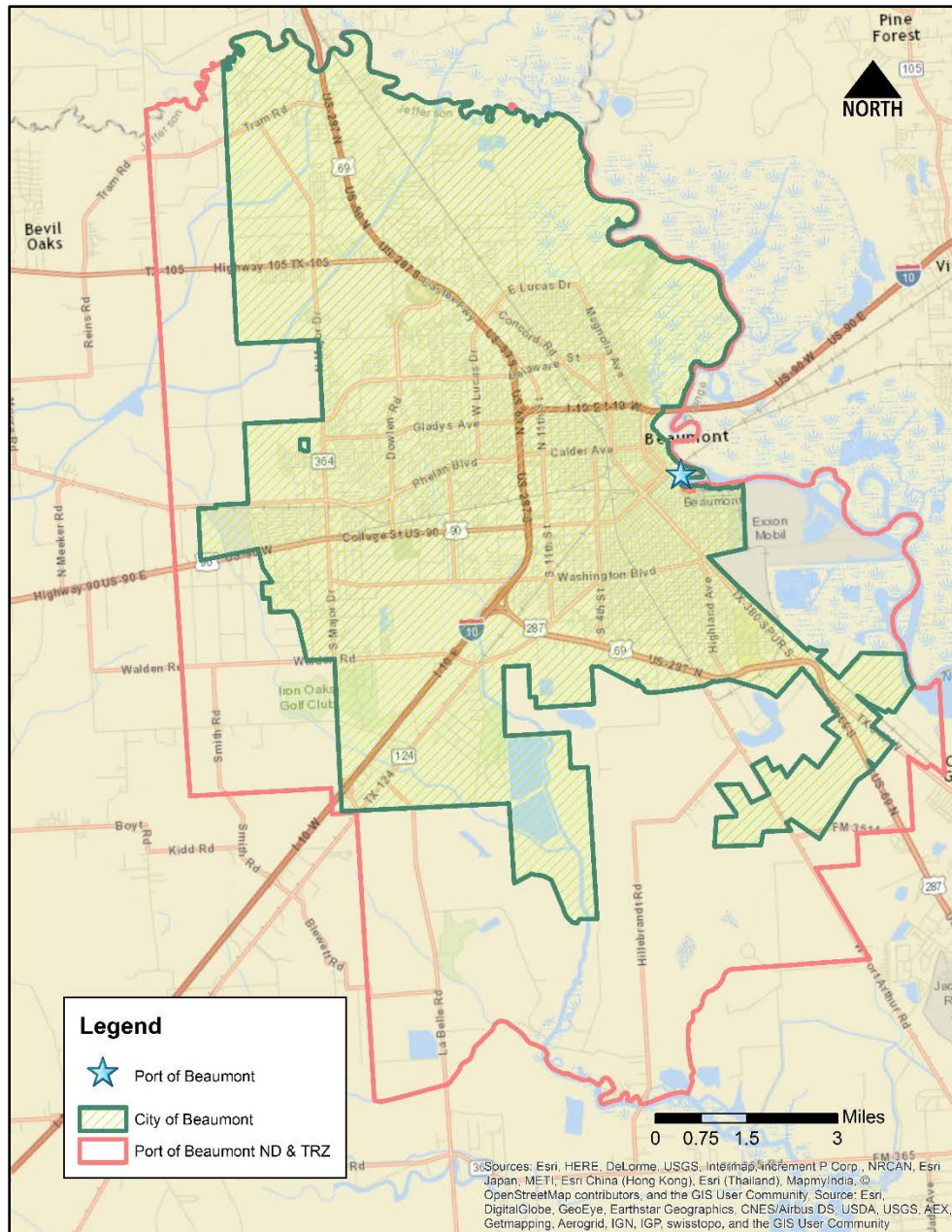


Figure 18. Port of Beaumont and TRZ Boundaries.

PORT ARTHUR

The Port of Port Arthur TRZ No. 1 was established in December 2013. To date, the port has not defined the duration of the TRZ. The port already identified some potential uses of the TRZ revenue, including but not limited to the Berth 6 expansion, Berths 1–5 modernization, and other potential multimodal transportation improvements. Additionally, TRZ revenue may be used to provide the required local match for deepening the Sabine-Neches Navigation Waterway from 40 feet to 48 feet, which is estimated to cost \$1.2 billion, of which approximately \$366 million must be paid from non-federal funds. The Port of Port Arthur TRZ has the same boundaries as the navigation district and is shown in Figure 19.

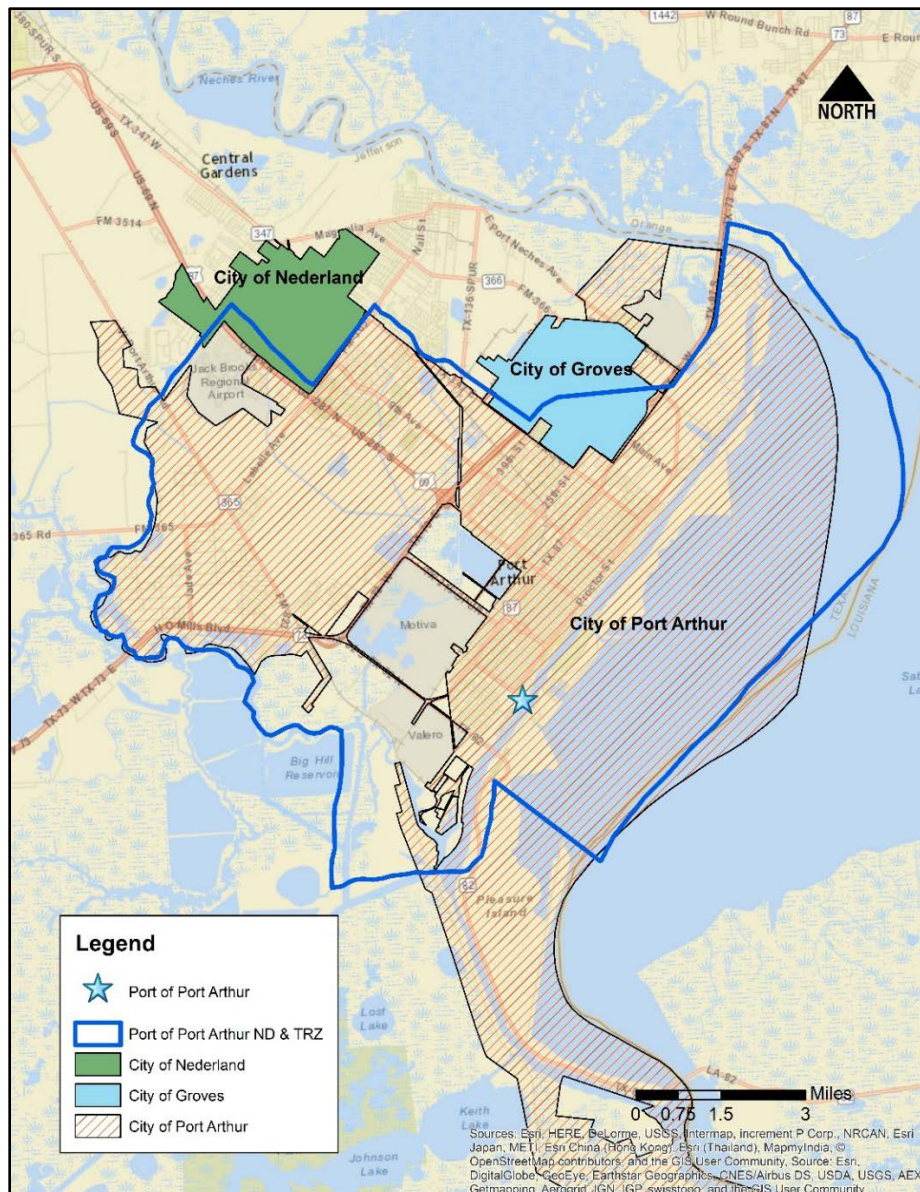


Figure 19. Port of Port Arthur and TRZ Boundaries.

SABINE-NECHES NAVIGATION DISTRICT

SNND established the SNND TRZ No. 1 in December 2013. To date, the navigation district has not defined the duration of the TRZ. TRZ revenue will be used to provide the required local match for deepening the Sabine-Neches Navigation Waterway from 40 feet to 48 feet, which is estimated to cost \$1.2 billion, of which approximately \$366 million must be paid by non-federal sponsors. SNND's TRZ has the same boundaries as Jefferson County, as shown in Figure 20.

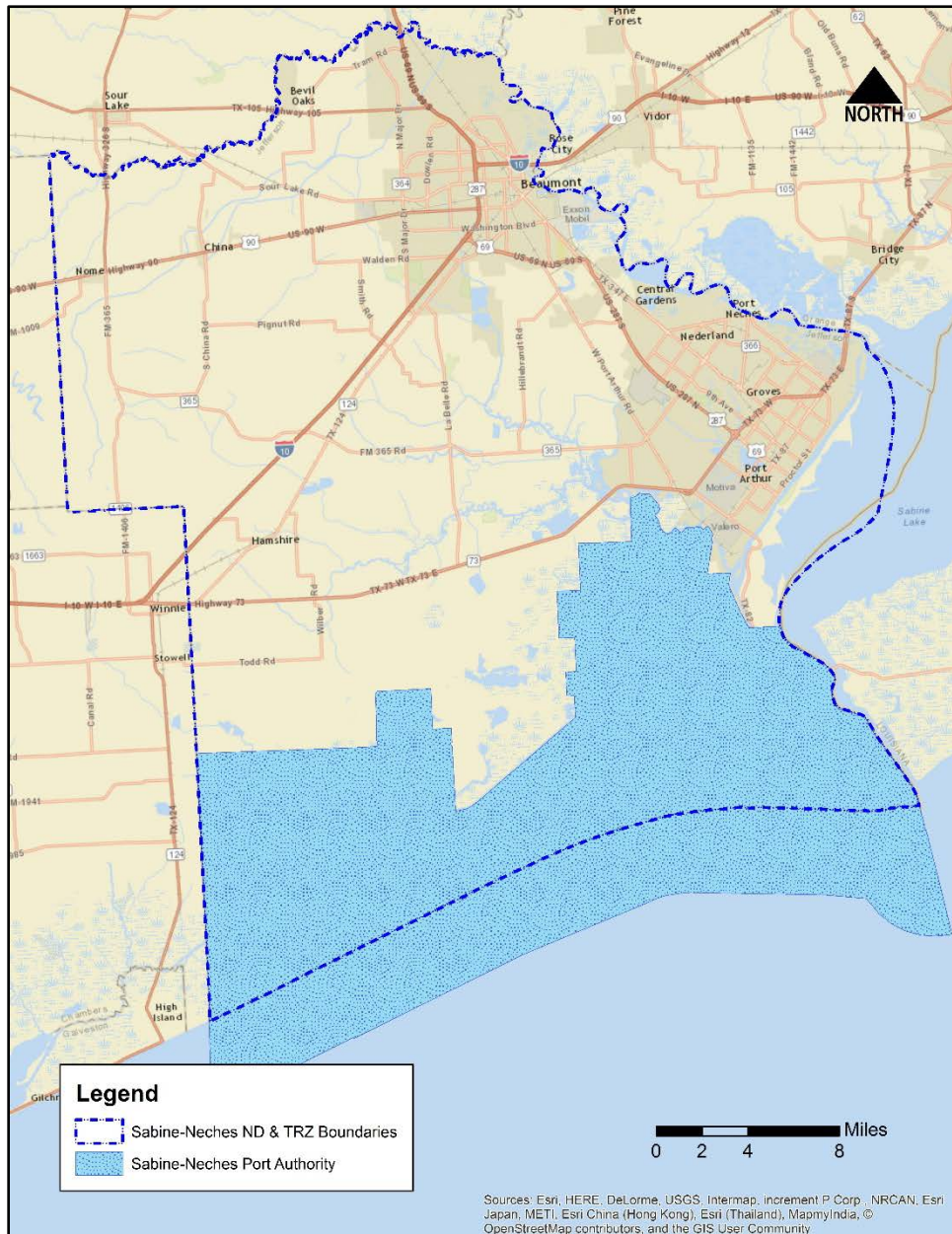


Figure 20. Sabine-Neches Navigation District and TRZ Boundaries.

PORT OF BROWNSVILLE

The Port of Brownsville established the Port of Brownsville TRZ No. 1 in December 2013. To date, the Port of Brownsville has not defined either the duration of the TRZ or the transportation project that is intended to be funded. The Port of Brownsville TRZ has the same boundaries as the navigation district (see Figure 21).

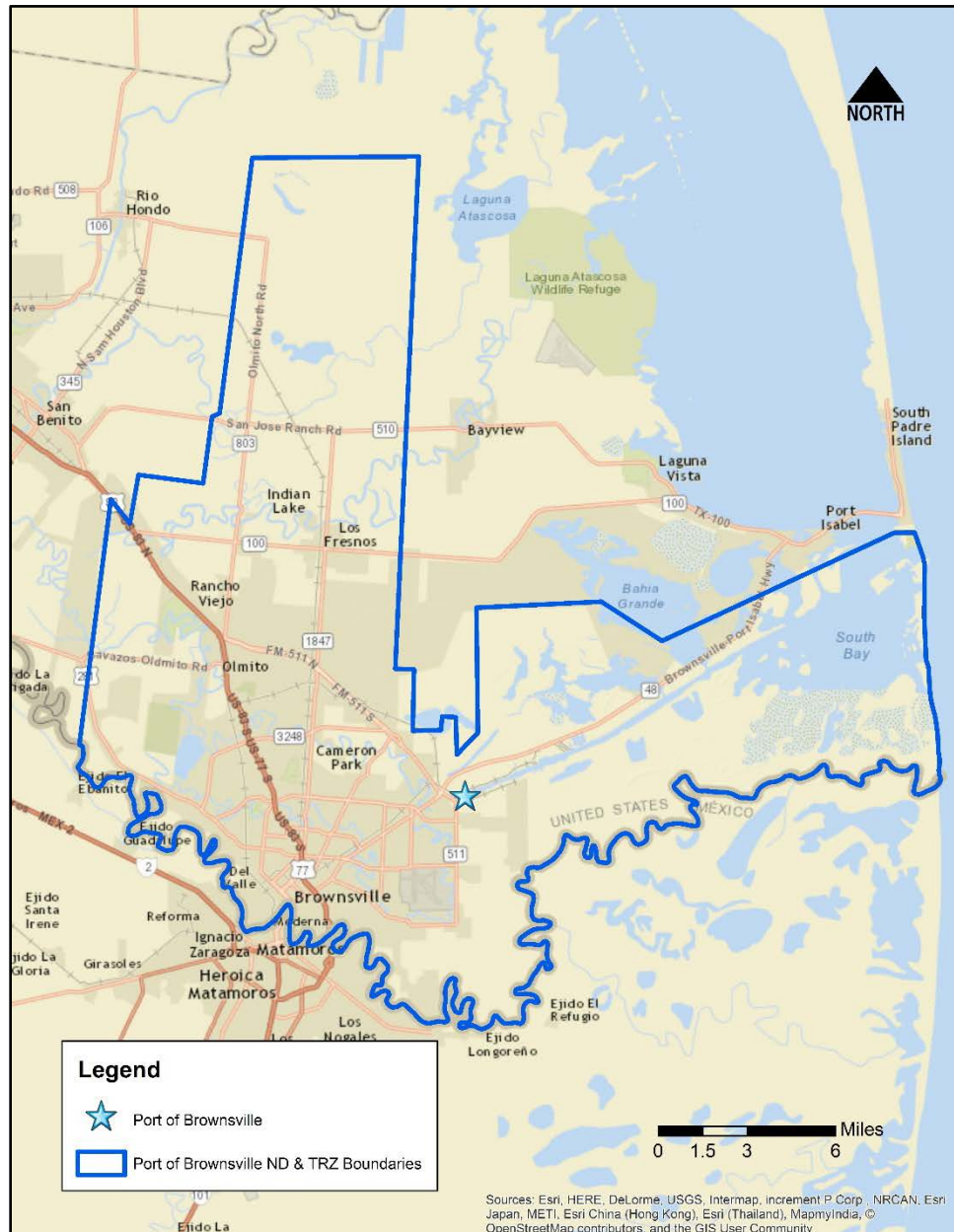


Figure 21. Port of Brownsville and TRZ Boundaries.

APPENDIX B. TEXAS PORTS' FUNDING, FINANCING, AND LAND DEVELOPMENT PRACTICES

This appendix is organized into three sections. The first section presents funding and financing practices of Texas ports. The second section describes the leasing and land development practices of these ports. The third and final section presents details on the free trade zones that are operated by Texas ports.

TEXAS PORTS FUNDING AND FINANCING DATA

This section contains information extracted from the 2004 and 2014 financial statements for each of the navigation districts (except for Port Arthur, which could only provide 2013 statements) and other data sources.

During the 10-year period ending in 2014, the ports included in this study added more than \$650 million in assets to their books. These assets are port-owned assets only without regard to private investment in the port facilities. Table 6 shows the growth in assets by port.

Table 6. Asset Additions by Port.

Port	Assets in 2004 (thousand \$, before depreciation)	Net Additions since 2004 (thousand \$)	Percent Increase
Port of Beaumont	\$111,991	\$87,612	78.2%
Port of Brownsville	\$152,458	\$45,936	30.1%
Calhoun Port Authority	\$95,306	\$67,089	70.4%
Port of Corpus Christi	\$263,889	\$222,857	84.5%
Port Freeport	\$121,554	\$135,462	111.4%
Port of Orange	\$18,610	\$20,999	112.8%
Port of Port Arthur*	\$88,298	\$13,838	15.7%
Port of Port Isabel	\$6,358	\$4,745	74.6%
Sabine-Neches Navigation District	\$4,980	\$32,567	654.0%
Port of Victoria	\$16,865	\$28,675	170.0%
Total	\$880,309	\$659,780	74.9%

* Port Arthur's entries in this and the following two tables are based on FY 2013 financials. The port authority staff indicated that the FY 2014 financials were not available.

Table 7 lists the amount of funding received by each of the nine cargo-handling port authorities in this analysis between 2004 and 2014 (the 10-year period analyzed for this research report)—keep in mind that not all of these funds have actually been spent yet.

Table 7. Port Security Grant Awards—FY2005–FY2014.

Port	Total Amount Awarded
Port of Beaumont	\$3,228,483
Port of Brownsville	\$10,614,777
Calhoun Port Authority	\$695,038
Port of Corpus Christi	\$28,269,959
Port Freeport	\$14,497,958
Port of Orange	\$586,633
Port of Port Arthur	\$5,844,939
Port of Port Isabel	-0-
Sabine-Neches Navigation District	-0-
Port of Victoria	-0-
<i>TOTAL</i>	\$100,376,975

Sources: (Jefferson County Appraisal District, 2014), (Brownsville Navigation District of Cameron County, Texas, 2014), (Hausmann, 2015), (Port Freeport, 2014), (Port of Orange, 2014), (Port of Port Arthur Navigation District, 2013), (Sabine-Neches Navigation District, 2014), (Stastny, 2015).

Table 8 shows the appraised taxable property values for each navigation district. As the table shows, the values range from \$2.4 billion to \$10.5 billion for cargo-handling ports, and up to \$22.6 billion for SNND, which does not have its own cargo facilities.

Table 8. Appraised Taxable Property Values by Port for FY 2014.

Port	Tax Base
Port of Beaumont	\$9,291,811,472
Port of Brownsville	\$7,539,555,606
Calhoun Port Authority	\$2,363,594,656
Port of Corpus Christi	Not Applicable
Port Freeport	\$10,504,125,000
Port of Orange	\$4,907,143,001
Port of Port Arthur	\$6,416,915,754
Port of Port Isabel	Not Applicable
Sabine-Neches Navigation District	\$22,577,433,460
Port of Victoria	\$6,851,322,666

Note: Corpus Christi and Port Isabel do not have a record of taxable property values because they do not levy taxes.

Sources: (Jefferson County Appraisal District, 2014), (Brownsville Navigation District of Cameron County, Texas, 2014), (Hausmann, 2015), (Port Freeport, 2014), (Port of Orange, 2014), (Port of Port Arthur Navigation District, 2013), (Sabine-Neches Navigation District, 2014), (Stastny, 2015).

Table 9 shows the balance outstanding per port authority for general obligation bonds, along with how much the balance has grown (or decreased) in the past 10 years. The table shows no discernible trend in the use of general obligation bonds. However, for the system as a whole, there has been a marked decrease in the overall outstanding balance of general obligation bonds.

Table 9. Outstanding General Obligation Bonds.

Port	Balance as of 2014 (thousand \$)	Increase (Decrease) Since 2004 (thousand \$)
Port of Beaumont	\$5,485	(\$24,490)
Port of Brownsville	\$10,570	(\$17,248)
Calhoun Port Authority	-0-	-0-
Port of Corpus Christi	-0-	-0-
Port Freeport	\$5,315	(\$7,720)
Port of Orange	-0-	-0-
Port of Port Arthur	\$33,040	\$8,437
Port of Port Isabel	-0-	-0-
Sabine-Neches Navigation District	-0-	-0-
Port of Victoria	\$14,325	\$11,465
<i>TOTAL</i>		(\$29,556)

Table 10 shows the outstanding balance of revenue bonds for the 10 navigation districts in 2014, along with the increase (or decrease) in the balance over the 10-year analysis period.

Table 10. Outstanding Revenue Bonds.

Port	Balance as of 2014 (thousand \$)	Increase (Decrease) Since 2004 (thousand \$)
Port of Beaumont	\$21,500	\$14,770
Port of Brownsville	\$14,670	(\$4,415)
Calhoun Port Authority	\$32,400	-0-
Port of Corpus Christi	-0-	(\$15,130)
Port Freeport	\$37,710	\$35,065
Port of Orange	-0-	-0-
Port of Port Arthur	-0-	(\$5,535)
Port of Port Isabel	-0-	-0-
Sabine-Neches Navigation District	\$12,740	\$8,305
Port of Victoria	-0-	-0-
<i>TOTAL</i>		\$33,060

PORT AUTHORITIES AND LAND DEVELOPMENT—SUPPLEMENTARY INFORMATION

Several port authorities publish information about the leasing activities for port-owned property. The paragraphs that follow provide a summary of this activity:

- **Beaumont:** As a general rule, the port does not sell property to prospective users, but will lease the property for a term of up to 50 years. Any leases, short or long-term, are usually only considered if they will directly result in generation of cargo over the port's wharves, or, in limited cases, will benefit the improvement of navigation on the Sabine-Neches Waterway. Currently, the port leases its grain elevator facilities to a private company under the terms of a lease agreement that will expire May 31, 2025. The lease provides for rentals to be paid based upon the volume of grain exported. The port also plans to lease its former rail interchange yard to the City of Beaumont for long-term public use (community development purposes).
- **Brownsville:** The port leases land and easements to others, grants easements for pipeline crossings of its property, and maintains areas for depositing dredged materials. The port owns and controls approximately 40,000 acres of land adjoining the Turning Basin and Ship Channel; approximately 18,000 acres of this land has been developed, with additional land available for development.
 - The port considers a number of factors in developing port-owned property. The primary goal is to generate revenues from the property and to encourage development that enhances the use of the waterfront facilities and/or the short-line rail. Job creation is a second factor in looking at property development, as well as the ability of the industry to fit well with the existing port tenants. Responsible use of the site with a minimal impact on the environment is also taken into consideration.
 - Port-owned land is valued for leasing purposes with the assistance of a real estate advisory committee. Changes in valuations are done on a port-wide basis rather than individually for each lease. Lease rental rates for land are set at 10 percent of the valuation on an annual basis; the rental rates for port-owned buildings are set at 15 percent of the valuation on an annual basis.
- **Calhoun:** While the port does not have a formal leasing policy, it attempts to lease property to business interests that will generate waterborne cargo activity at the port. It typically requires a guaranteed annual throughput of 500,000 short tons for property leased to move products through the port. Below are examples of its leasing activity:
 - The port has entered into a lease agreement with SN Midstream LLC for a 10-year period on 35.55 acres for \$888,750.00 per year with two additional 10-year period options. The lessee intends to construct a storage facility for crude oil and condensate to ship out of the port via deep draft vessels and barges. Although the port's stated goal for each lease is to require a guaranteed annual

throughput of 500,000 tons, this lease has a guaranteed annual throughput of 300,000 short tons.

- The port has entered into an option to lease land with Excelerate Energy LLC for 110 acres of land that are comprised of uplands and submerged properties for \$220,000 for approximately one year. Excelerate has extended its option for an additional one-year period at a rate of \$100,000, bringing the total lease amount to \$320,000. Excelerate intends to construct a floating regasification plant for exporting liquefied natural gas and locate it on the 110 acres.
- The port also has an option-to-lease agreement with Gulf Mark Energy on approximately 10 acres for \$49,450 for six months for development of a condensate/crude storage and shipping facility for deep draft vessels and barges.
- **Corpus Christi:** In its response to Texas A&M Transportation Institute's (TTI's) request for information, the port stated that it is guided by the following basic principles: The port will (a) protect and enhance the port's existing industrial base; (b) conduct affairs in a positive and cooperative manner; (c) operate in a fiscally responsible manner; (d) be a positive and proactive force in the protection of the region's marine and water-related resources; and (e) be committed to serving the port's customers, present and future.
 - The port owns a grain elevator and cotton warehouses that are leased to third parties. In addition, the port leases land, buildings, and improvements and maintains areas for the placement of dredged materials. In mid-2013, the port secured a key tenant on a major portion of the La Quinta property site with the signing of a lease agreement with Austrian steelmaker, Voestalpine Texas Holding LLC, for approximately 470 acres.
- **Freeport:** The port's current policy is to earn a minimum of 8 percent return on capital investments that will include a provision for the undeveloped land value. There are four types of leases: ground leases, grazing leases, warehouse leases, and office space leases, all of which are accounted for as operating leases and are included in current operating income.
- **Port Arthur:** The port reports terminal (space) lease revenues but does not appear to lease any property off the waterfront. The use of developable port-owned land has typically taken the form of a ground lease and leasehold improvements.
- **Sabine-Neches Navigation District:** The district uses its land for placement area purposes. There is no policy for leasing land for other purposes.

FREE TRADE ZONES OPERATED BY TEXAS PORTS

Table 11 below lists the FTZs and subzones currently administered by Texas Port Authorities.

Table 11. FTZ and Subzones Administered by Texas Port Authorities.

Zone	Subzones
FTZ No. 62 Brownsville Grantee/Operator: Brownsville Navigation District	
FTZ No. 115 Beaumont Grantee: Foreign-Trade Zone of Southeast Texas Inc. (Operated by Port of Beaumont)	115A BASF Corporation 115B Exxon Mobil
FTZ No. 116 Port Arthur Grantee: Foreign-Trade Zone of Southeast Texas Inc. (Operated by Port of Beaumont)	116A Motiva Enterprises 116B Total Petrochemicals & Refining USA Inc. 116C Premcor Refining Group 116D US DoE Strategic Petroleum Reserve
FTZ No. 117 Orange Grantee: Foreign-Trade Zone of Southeast Texas Inc. (Operated by Port of Beaumont)	
FTZ No. 122 Corpus Christi Grantee/Operator: Port of Corpus Christi Authority	122C BTB Refining LLC 122D Gulf Marine Fabricators 122E Bay Ltd. 122H TOR Minerals Intl 122I CITGO Refining & Chemicals 122J Valero Refining Co. 122K Sherwin Alumina Co. 122L Flint Hills Resources LP 220 International Resistive Company 122P Kiewit Offshore Services 122Q Baker Hughes Inc. 122R Halliburton Energy Services Inc.
No. 149 Freeport Grantee: Port Freeport	149A BASF 149B DSM Nutritional Products Inc. 149C Phillips 66 Company 149G Dow Chemical
FTZ No. 155 Calhoun/Victoria Counties Grantee: Calhoun-Victoria Foreign-Trade Zone Inc. (Operated by Calhoun Port Authority)	155C Alcoa 155D Tenaris Bay City Inc.

APPENDIX C. IDENTIFICATION OF IPIA AND NPIA IN PORT AREAS

This appendix provides guidance in the identification of immediate port influence area (IPIA) and non-immediate port influence area (NPIA) and the resulting IPIA and NPIA for the Port of Beaumont and the Port of Brownsville. Figure 22 shows the entire process of IPIA and NPIA identification. The process can be performed by using any of the GIS tools available in the market. The two key factors driving and influencing Port Authority TRZ revenues (in green), are defined by four geographic datasets. Port Accessibility is defined by state highway network and rail network geographic datasets, which can be directly downloaded from the U.S. Census Bureau TIGERweb.¹⁷ Similarly, port economic activity is defined by Commercial Activity Clusters and Industrial Activity Clusters located around the port. These datasets can be obtained from the U.S. Census Bureau tool named OnTheMap,¹⁸ which is able to provide historical employment values and their location. These datasets need to be complemented with aerial imagery (available in GIS tools) in order to be able to identify all docking facilities in the port.

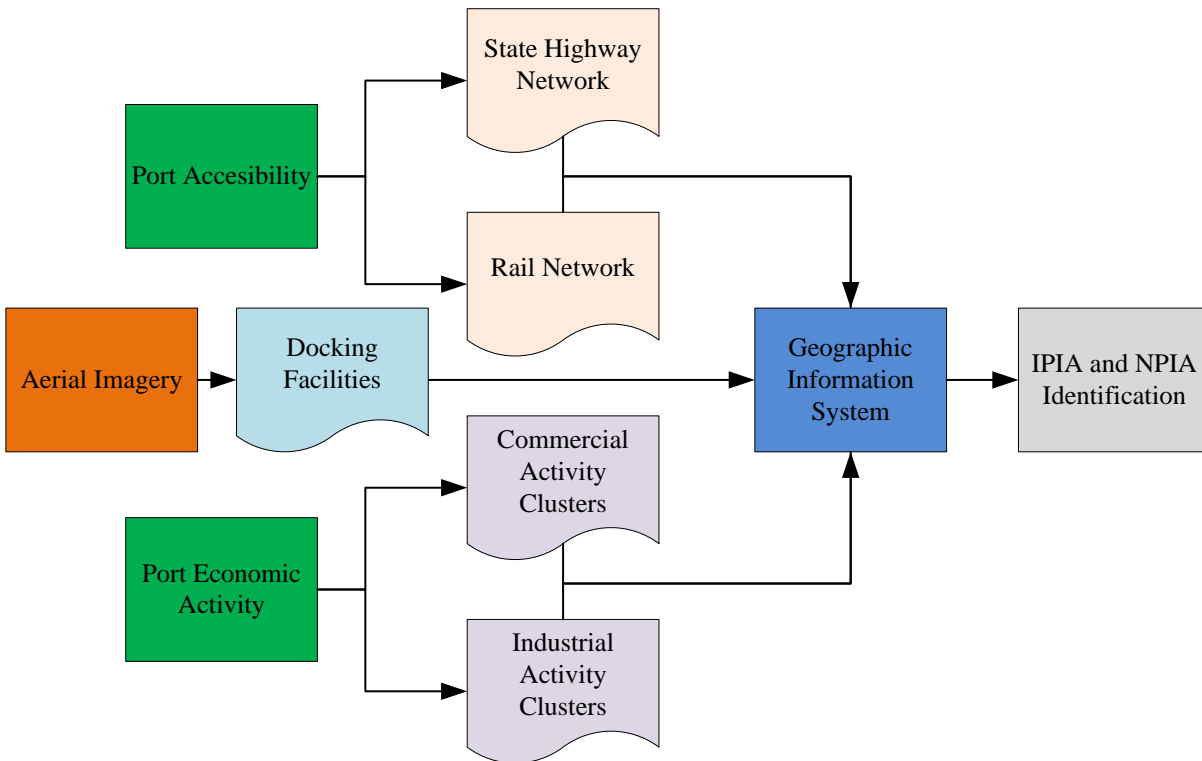


Figure 22. IPIA and NPIA Identification Process.

The IPIA needs to include the main commercial and industrial activity clusters around the port. At the same time, it also needs to include all port terminal railroads. Finally, the IPIA needs to include all port docking facilities. Using the state highway network is recommended for defining

¹⁷ https://tigerweb.geo.census.gov/tigerwebmain/TIGERweb_main.html.

¹⁸ <http://onthemap.ces.census.gov/>.

IPIA boundaries. Once the IPIA is identified, the rest of the navigation district is identified as the NPIA.

PORT OF BEAUMONT IPIA AND NPIA

Aerial Imagery

The research team used the satellite image processing methods for identifying the locations of port docking facilities. In the case of Port of Beaumont, 13 docking facilities were identified, and all of them are located along the inland channel (see Figure 23).



Figure 23. Port of Beaumont Aerial Imagery.

State Highway Network Geographic Dataset

Port of Beaumont has access to four roads that belong to the Texas State Highway System (see Figure 24). The first is I-10, which is a major route that connects southern states. It surrounds the northwestern boundary of its city area. The second is US-380, which provides

direct access for the oil facility located in the southeastern area of the port to I-10. The third is US-90, which is directly connected to the port area. It passes through the middle of downtown and provides an access to I-10 at the end of the downtown area. The last is US-96. It is a corridor between Port Arthur and the Port of Beaumont, and is overlaid with I-10 at the west downtown boundary.

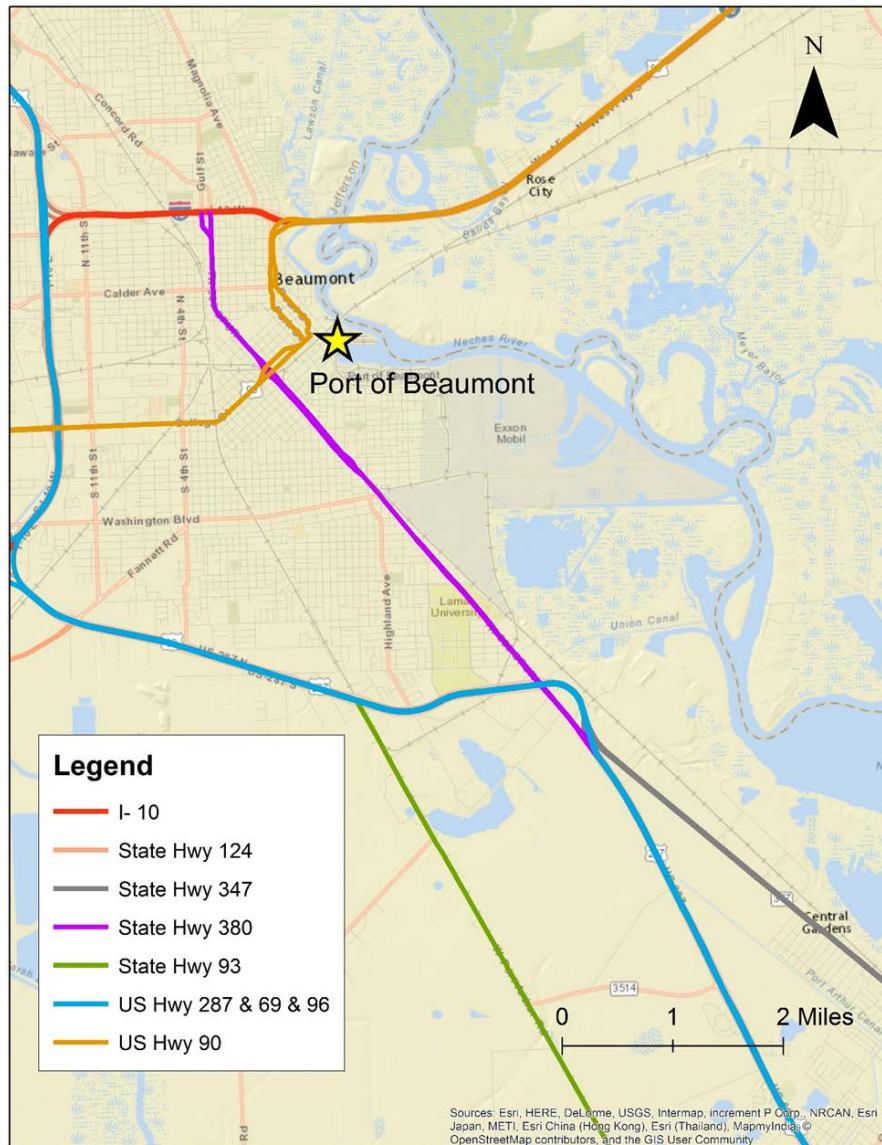


Figure 24. Port of Beaumont State Highway Network.

Rail Network Geographic Dataset

Port of Beaumont has access to three major railroads (see Figure 25). The first is Burlington Northern Santa Fe, which manages one route located on the western side of the city. The second is Union Pacific, which manages one route located on the eastern side of the city. The last is

Kansas City Southern, which manages one route that connects the port southeast industrial area and the city of Vidor in Texas, which is located northeast of Port of Beaumont.

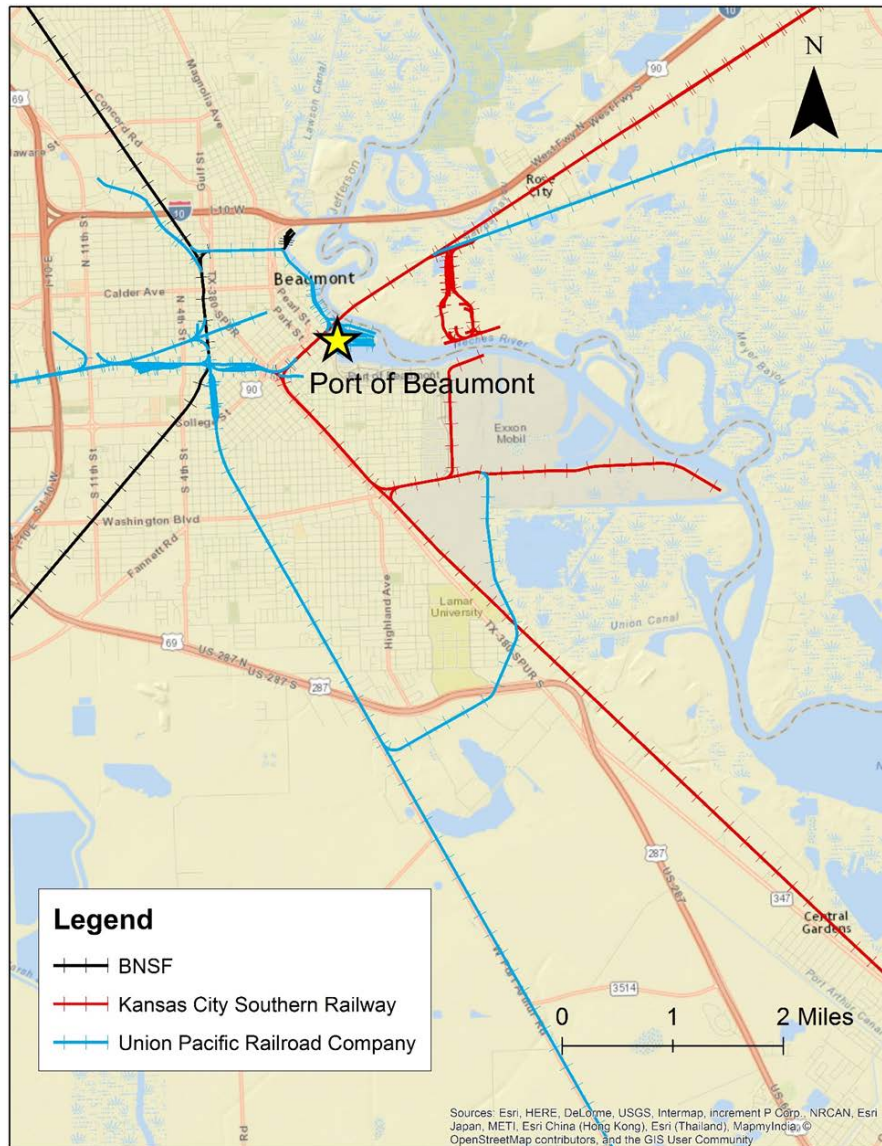


Figure 25. Port of Beaumont Rail Network.

Commercial and Industrial Activity Geographic Datasets

Figure 26 shows the spots with highest commercial and industrial activities in the Port of Beaumont area. Industrial areas are mainly located along the inland channel where oil shipping docks and refinery facilities are located. In the case of commercial activities, the densest commercial cluster is located near downtown. The second largest commercial cluster is located near the intersection of US-287 and I-10.

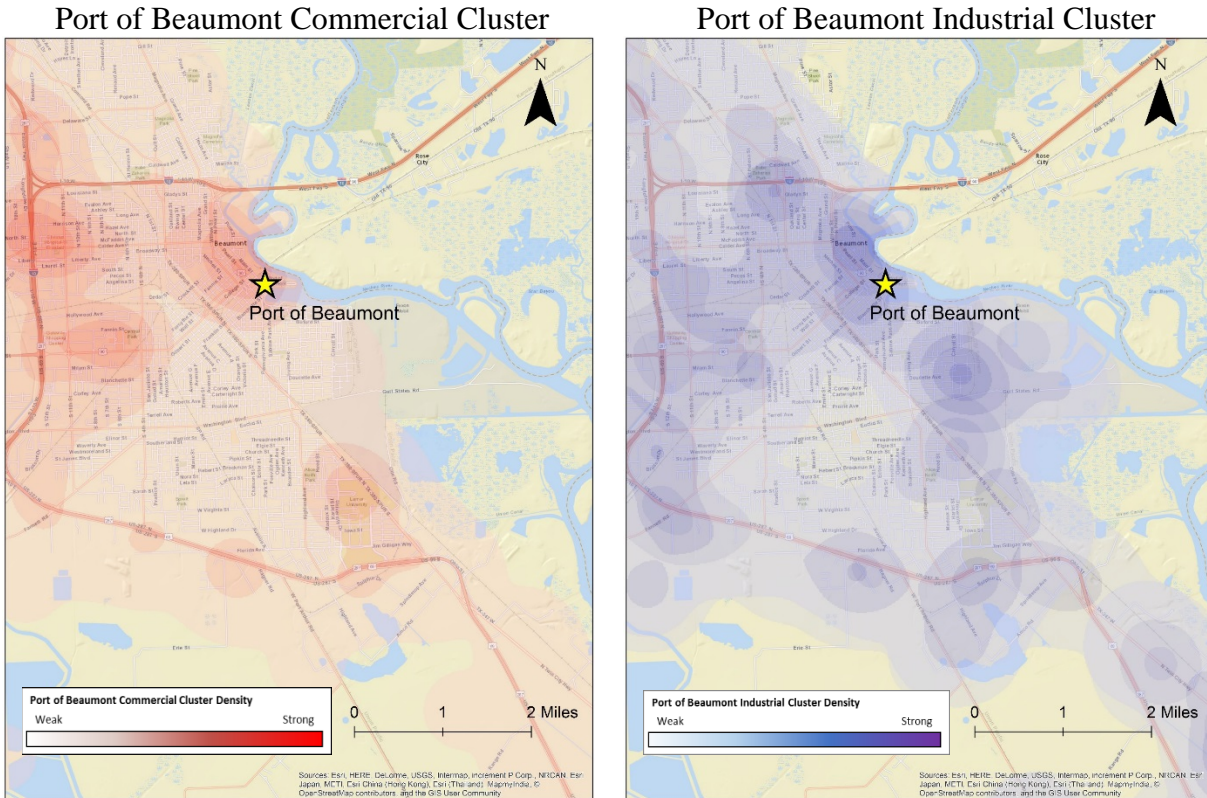


Figure 26. Port of Beaumont Commercial and Industrial Clusters.

Port of Beaumont IPIA and NPIA

Figure 27 shows the final Port of Beaumont IPIA; the rest of the Port of Beaumont Navigation District is considered as NPIA for TRZ revenue analysis.

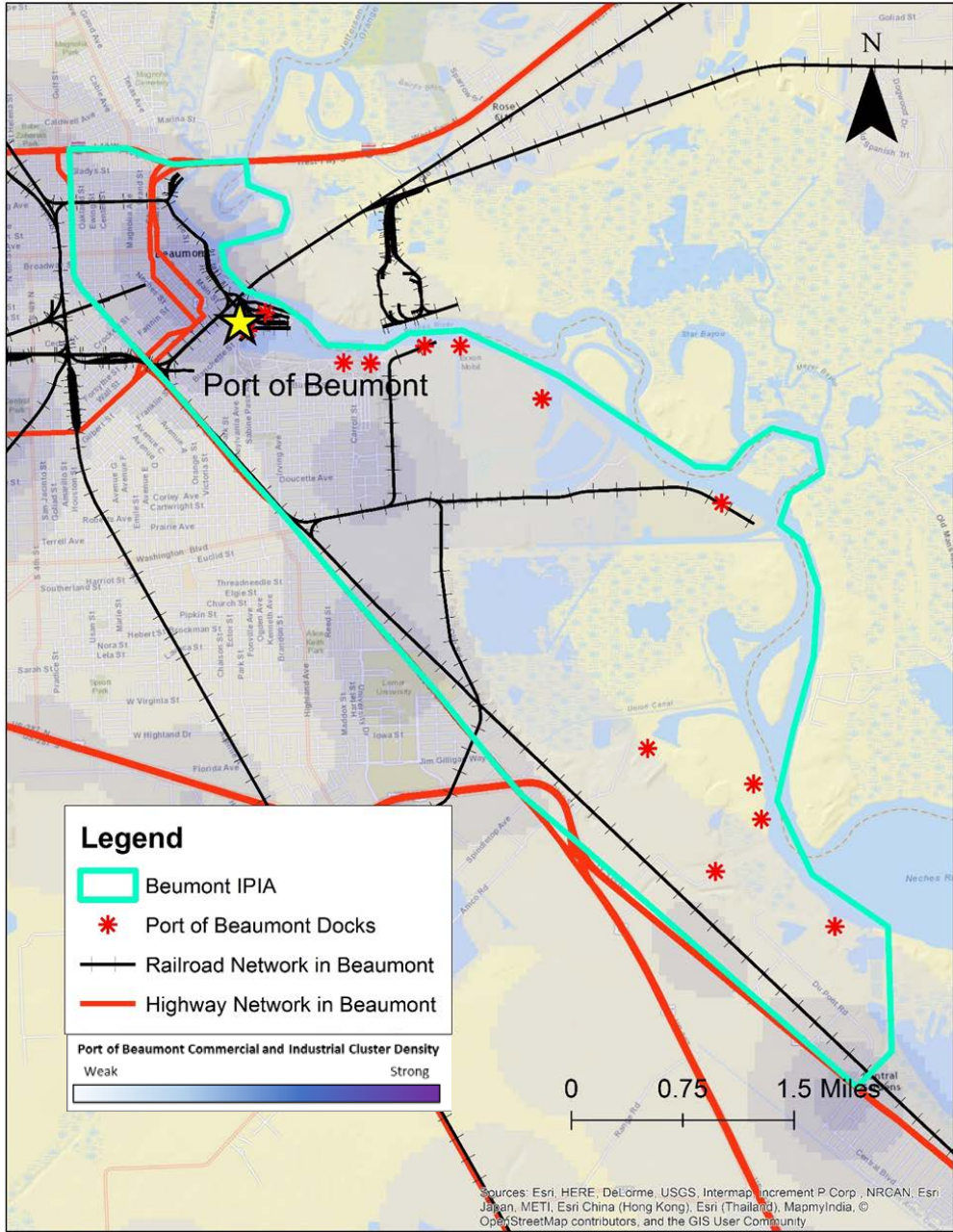


Figure 27. Port of Beaumont IPIA and NPJA.

PORT OF BROWNSVILLE IPIA AND NPPIA

Aerial Imagery

The research team used the satellite image processing methods for identifying the locations of port docking facilities. In the case of Port of Brownsville, 10 docking facilities are observed; all of them are located along the inland channel, as shown in Figure 28.

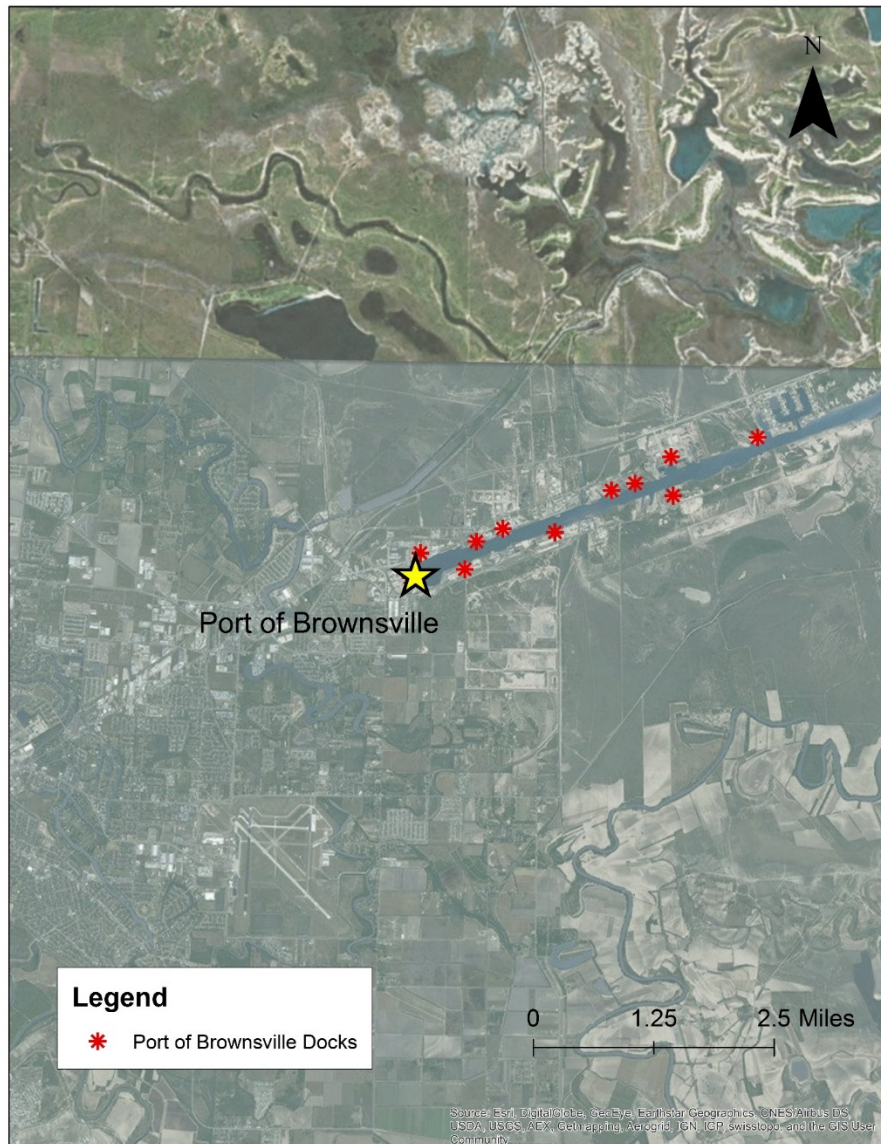


Figure 28. Port of Brownsville Aerial Imagery.

State Highway Network Geographic Dataset

Port of Brownsville has direct access to three major roads (see Figure 29). The first is SH-4, which connects the south side of the inland channel of the port with US-69E. The second is SH-48, which connects the City of Port Isabel with the City of Brownsville. It is located on the

north side of the waterway and reaches to US-69E in the southwestern city limit. The third is I-69E, which connects Brownsville and Mexico.

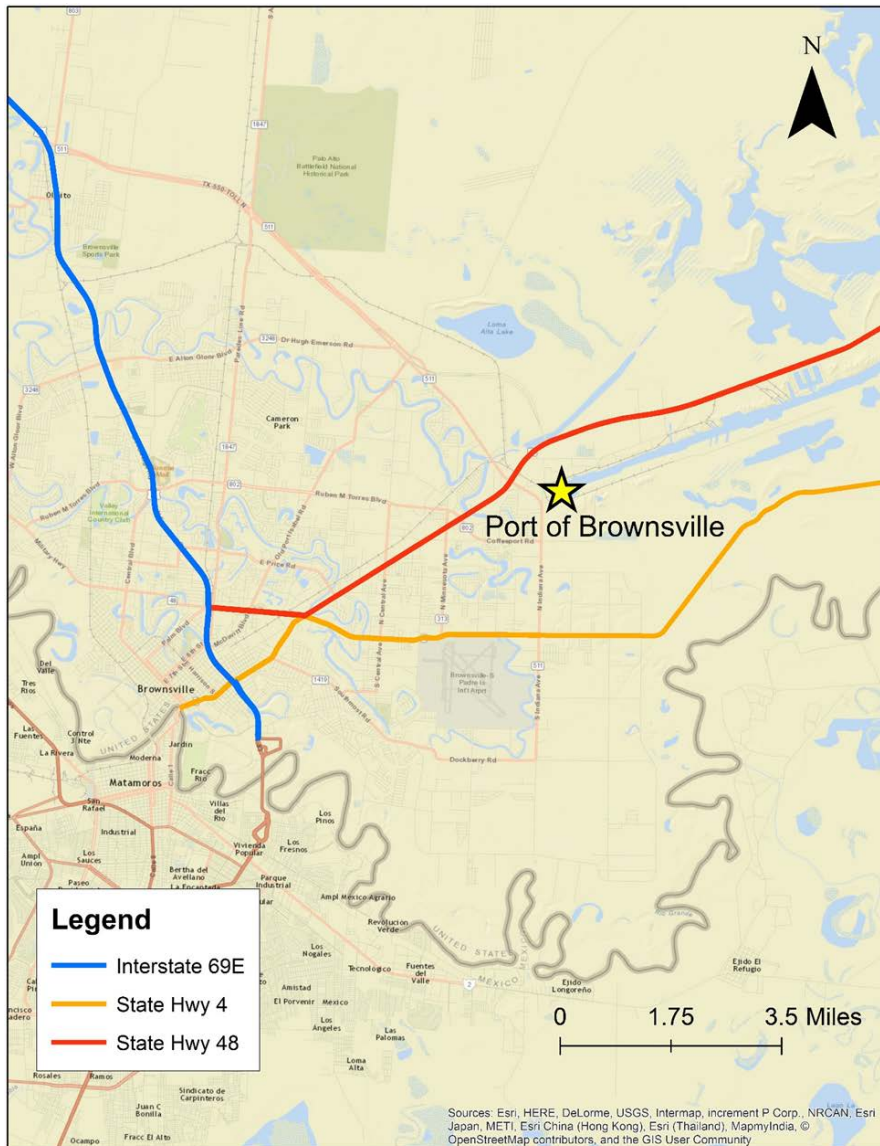


Figure 29. Port of Brownsville State Highway Network.

Rail Network Geographic Dataset

Port of Brownsville has direct access to three rail systems (Figure 30). Union Pacific manages two northbound rail systems, and Kansas City Southern manages one southbound rail system that connects with Mexico (not shown in Figure 30). Brownsville & Rio Grande International Railway manages the internal rail system that connects port docking facilities with the three rail systems mentioned earlier.

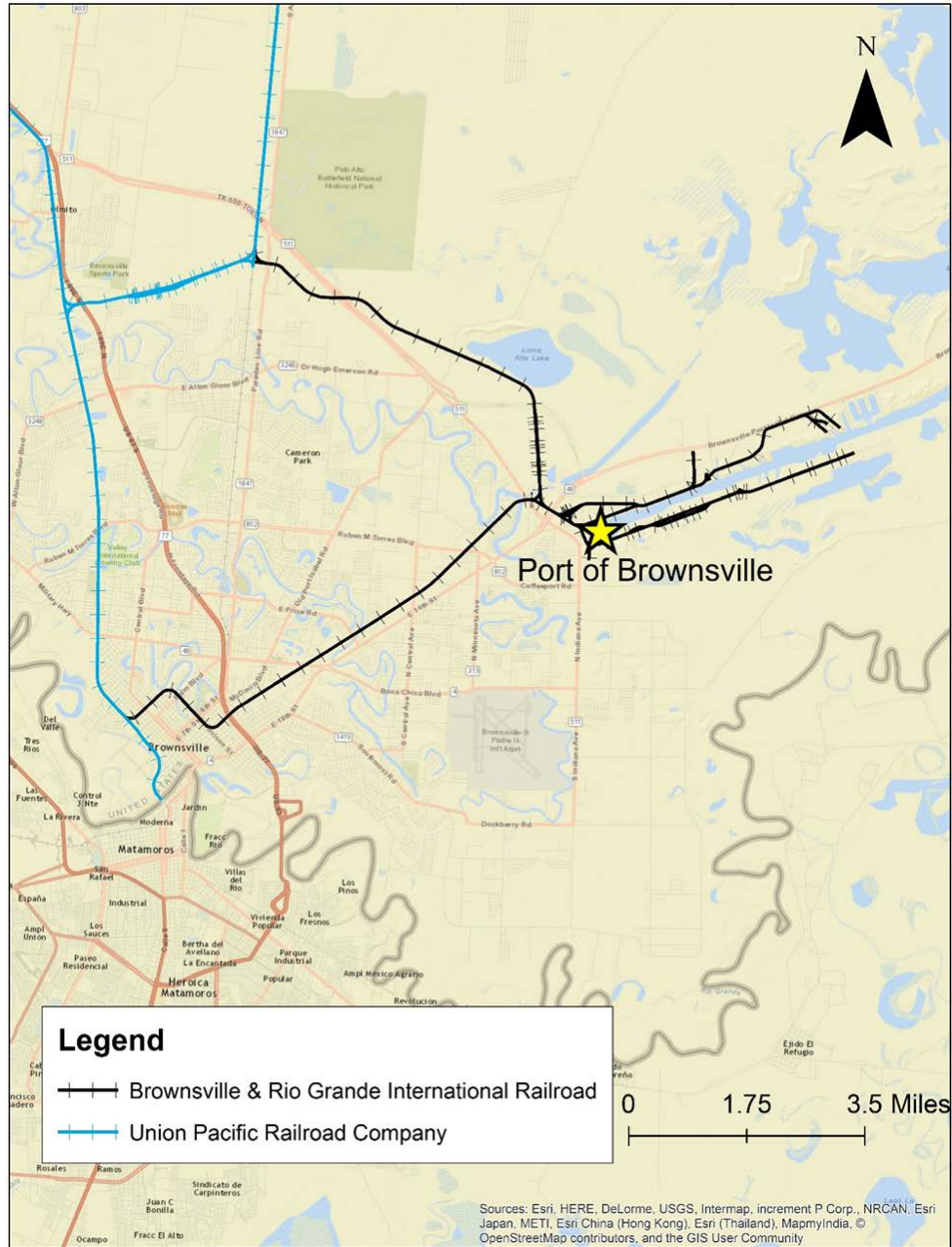
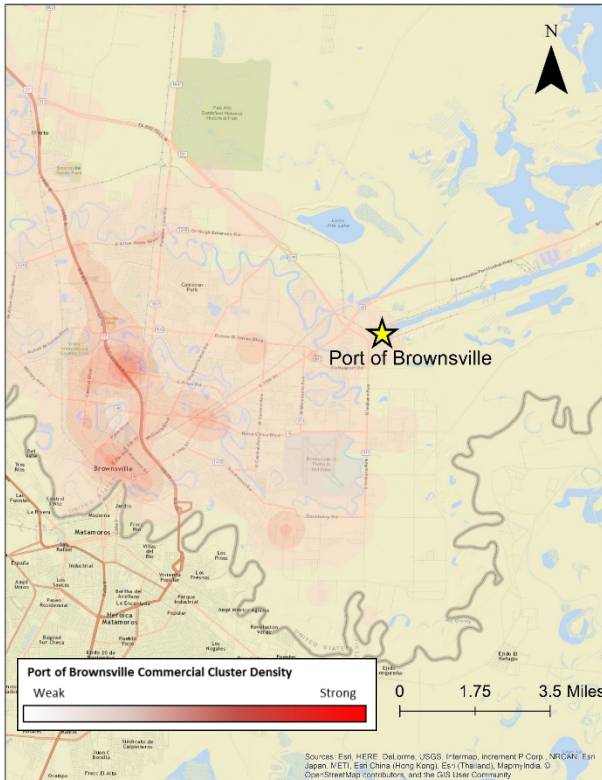


Figure 30. Port of Brownsville Rail Network.

Commercial and Industrial Activity Geographic Datasets

Figure 31 shows that most commercial and industrial economic activity occurs around the downtown area, which is located near the intersection of SH-48 and I-69E. The downtown area is 6 miles to the west of the port. Industrial activity is also located along SH-48, a corridor that connects the port area and the City of Brownsville downtown.

Port of Brownsville Commercial Cluster



Port of Brownsville Industrial Cluster

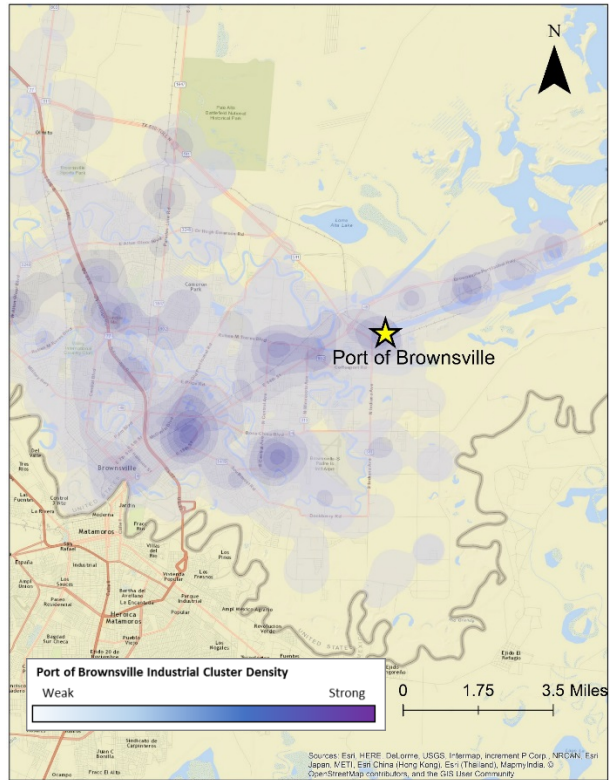


Figure 31. Port of Brownsville Commercial and Industrial Clusters.

Port of Brownsville IPIA and NPIA

Figure 32 shows the final Port of Brownsville IPIA. The rest of the Port of Brownsville Navigation District is considered as NPIA for TRZ revenue analysis.

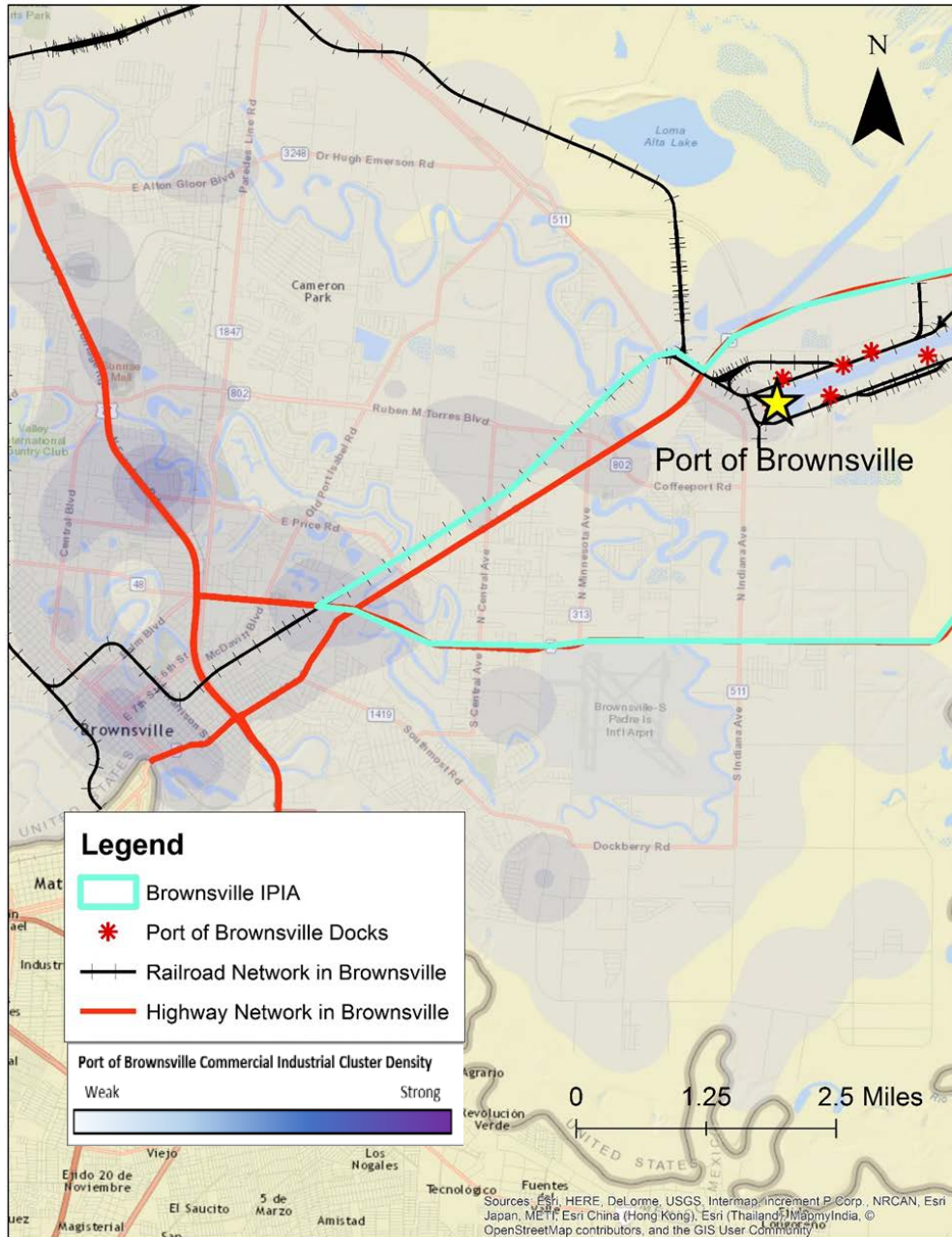


Figure 32. Port of Brownsville IPIA and NPIA.

APPENDIX D. PORT AUTHORITY TRZ REVENUE ESTIMATED ANNUAL CASH FLOWS

Table 12 and Table 13 depict the exact nominal and discounted annual and total revenues.

Table 12. Port of Beaumont Transportation Reinvestment Zone No. 1.

Year	Discounted to 2015 (5% discount rate)	Nominal (undiscounted)
2016	\$(20,834)	\$(21,876)
2017	\$(10,703)	\$(11,800)
2018	\$7,028	\$8,136
2019	\$82,250	\$99,975
2020	\$86,275	\$110,112
2021	\$89,991	\$120,596
2022	\$95,031	\$133,719
2023	\$99,889	\$147,582
2024	\$103,823	\$161,064
2025	\$108,654	\$176,985
2026	\$111,976	\$191,518
2027	\$123,165	\$221,187
2028	\$120,163	\$226,585
2029	\$123,918	\$245,349
2030	\$123,430	\$256,602
2031	\$120,449	\$262,925
2032	\$118,719	\$272,107
2033	\$121,957	\$293,504
2034	\$129,025	\$326,039
2035	\$131,949	\$350,101
2036	\$147,711	\$411,516
2037	\$152,216	\$445,272
2038	\$149,501	\$459,197
2039	\$146,405	\$472,171
2040	\$168,877	\$571,877
2041	\$168,157	\$597,910
2042	\$171,609	\$640,694
2043	\$168,268	\$659,633
2044	\$166,028	\$683,394
2045	\$160,729	\$694,660
2046	\$158,792	\$720,607
2047	\$154,391	\$735,662
2048	\$150,679	\$753,876
2049	\$146,479	\$769,508
2050	\$142,184	\$784,292
TOTAL	\$4,218,182	\$12,970,675

Table 13. Port of Brownsville Transportation Reinvestment Zone No. 1.

Year	Discounted to 2015 (5% discount rate)	Nominal (undiscounted)
2016	\$89,947	\$94,444
2017	\$171,613	\$189,203
2018	\$222,768	\$257,882
2019	\$273,232	\$332,115
2020	\$322,211	\$411,232
2021	\$366,851	\$491,615
2022	\$407,562	\$573,480
2023	\$442,879	\$654,334
2024	\$477,110	\$740,154
2025	\$507,992	\$827,465
2026	\$532,889	\$911,420
2027	\$556,175	\$998,810
2028	\$578,891	\$1,091,585
2029	\$593,805	\$1,175,693
2030	\$607,358	\$1,262,653
2031	\$619,071	\$1,351,354
2032	\$629,621	\$1,443,103
2033	\$637,745	\$1,534,810
2034	\$644,416	\$1,628,407
2035	\$651,472	\$1,728,550
2036	\$656,699	\$1,829,538
2037	\$660,133	\$1,931,061
2038	\$662,075	\$2,033,578
2039	\$662,937	\$2,138,037
2040	\$662,182	\$2,242,382
2041	\$661,606	\$2,352,454
2042	\$658,866	\$2,459,848
2043	\$655,532	\$2,569,771
2044	\$651,709	\$2,682,524
2045	\$647,216	\$2,797,230
2046	\$642,195	\$2,914,308
2047	\$637,317	\$3,036,780
2048	\$631,291	\$3,158,467
2049	\$625,499	\$3,285,963
2050	\$619,319	\$3,416,173
TOTAL	\$19,068,182	\$56,546,424