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October 23, 2013

Ms. Cynthia Brown  
Surface Transportation Board  
395 E Street, SW  
Washington, D.C. 20423

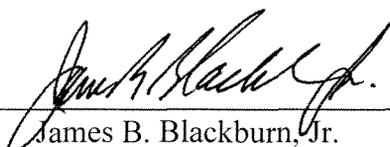
RE: FD-35781: Petition for Declaratory Order by Brazos River Bottom Alliance

Dear Ms. Brown:

Enclosed please find the original and ten (10) copies of the Petition for Declaratory Order by Brazos River Bottom Alliance, FD-35781. We have also enclosed a check for the filing fee of \$1,400.

Sincerely,

BLACKBURN CARTER, P.C.

by   
James B. Blackburn, Jr.

**FEE RECEIVED**  
OCT 24 2013  
SURFACE  
TRANSPORTATION BOARD

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BEFORE THE  
SURFACE TRANSPORTATION BOARD

FINANCE DOCKET NO. FD-35781

**PETITION FOR DECLARATORY ORDER  
BY BRAZOS RIVER BOTTOM ALLIANCE**

**EXPEDITED HANDLING REQUESTED**



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**FILED**  
OCT 24 2013  
SURFACE  
TRANSPORTATION BOARD

BEFORE THE SURFACE TRANSPORTATION BOARD

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FINANCE DOCKET NO. FD-35781

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**PETITION FOR DECLARATORY ORDER  
BY BRAZOS RIVER BOTTOM ALLIANCE**

Petitioners are members of the Brazos River Bottom Alliance, and hereby petition the Surface Transportation Board to commence a declaratory order proceeding to terminate a controversy and to remove uncertainty, by confirming that Union Pacific Railroad (“UPR”) requires approval under 49 U.S.C. § 10901 for the UPR rail project planned in Robertson County, Texas. This petition requests the Surface Transportation Board (“STB”, or the “Board”) to enter a declaratory order pursuant to 5 U.S.C. § 554(e) and 49 U.S.C. § 721(a) for the purpose of establishing the Board’s jurisdiction over this forthcoming UPR project.

The members of the Brazos River Bottom Alliance are among those who own the land, live on the land, service the land, and/or derive their livelihood from the land, located on or near where UPR’s project is to be sited. They are members of the community who thereby will be aggrieved by this UPR project.

Petitioners request that the Board institute a proceeding for this matter. Petitioners also request expedited handling, as UPR is currently advancing this project (*i.e.*, negotiating sales contracts with landowners), and federal review of the UPR project is necessary before it advances any further.

## I. INTRODUCTION AND SUMMARY

Union Pacific Railroad proposes to build new rail lines in Robertson County, Texas, in the heart of some of Texas's most productive agricultural land. This area of Robertson County is rural, with deep farming roots going back many generations. This area is nestled between the Brazos and Little Brazos Rivers, producing deep, rich soil that has been compared to the fertility of the soil around the Nile River. Most members of the community are ardently opposed to the UPR project: among the concerns, UPR's project will create negative economic impacts, as an entire way of life for the community is disrupted; there will be devastating environmental consequences on this community, as a massive industrial complex poses issues with air and water pollution (to adjacent rivers and the underground aquifer), noise pollution, and location in a flood plain; and there will be safety-related issues due to spills or derailment.

The conversion of this rich and fertile farmland to an industrial rail line is destructive to Texas, and it is myopic. State officials in Texas estimate that more than 2 million acres of cropland were converted to other uses between 1997 and 2007.<sup>1</sup> This loss impacts our agricultural and food supplies, our communities, and our environment. In other parts of the world, wealthy countries like China and Saudi Arabia are snapping up rich farm land in foreign countries (such as Brazil and Australia and Ethiopia) in order to meet their own large population's food needs.<sup>2</sup> Fertile farmland is an increasingly rare and precious commodity not only in Texas but also internationally. In Texas, citizens want to preserve their farm land. In Texas, our citizens cannot afford to lose their most fertile farm land to industry, when other sites

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<sup>1</sup> Houston Chronicle, "No sale, is not an option for farmers," October 8, 2012.

<sup>2</sup> New York Times, "Chinese interest in farm land makes Brazil Uneasy," [http://www.nytimes.com/2011/05/27/world/americas/27brazil.html?pagewanted=all&\\_r=0](http://www.nytimes.com/2011/05/27/world/americas/27brazil.html?pagewanted=all&_r=0) (May 27, 2011); The Economist, "Outsourcing's Third Wave," <http://www.economist.com/node/13692889> (May 21, 2009); News.Au.com, "Chinese snap up farmland," <http://www.news.com.au/business/companies/chinese-snap-up-prime-farm-land-in-wa/story-fnda1bsz-1226527490680> (Nov. 30, 2012).

are equally available to those industries. Here, in this case, UPR has other options. Other sites are available. Companies such as UPR must exercise a bit of vision, and a sense of civic responsibility, and recognize that the destruction of the choicest farm land is not good for Texas, or our country.

The Surface Transportation Board has jurisdiction to issue a certificate of public necessity when a railroad builds a new rail line. There are exceptions for certain spur or side tracks, but the new rail lines in Robertson County are not spur or side tracks. The test has been stated thus: “whether track is classified as rail line rather than spur track depends on whether the purpose and effect of the new trackage is to extend substantially the line of the carrier into new territory.” It has also been stated that, when the purpose of the track is to serve new industries or markets, and when the track is of importance to interstate commerce, these too are circumstances when the rail line is under the STB’s jurisdiction, and not exempt.

The UPR project in Robertson County is plainly intended to facilitate UPR’s extension of their services into new territories, to serve new markets and industries, and to further UPR’s participation in interstate commerce. As discussed further herein, through the project planned in Robertson County, Texas, UPR is attempting to penetrate new markets that have opened related to (1) the fracking industry, (2) coal exports, (3) the expansion of the Panama Canal, and (4) “near-shored” manufacturing in Mexico. Petitioners hired a consulting company specializing in railroads, R.L. Banks & Associates, to assist in the research of these new markets that UPR is attempting to reach by the development of the new rail lines in Robertson County. The R.L. Banks report is attached at Exhibit A. The R.L. Banks report discusses the four new markets and provides related research.

In the company's Form 10-K (filed as part of its SEC disclosures), UPR CEO Jack Koraleski stated, "A significant portion of our growth capital investment in 2012 was targeted to the southern region of our network to meet growing demand for new business, particularly in the shale-related energy arena."<sup>3</sup> With regard to the fracking industry, for the past several decades, transportation for the gas business has been through pipelines. Now, however, with the advent of the shale gas in the Eagle Ford, Permian Basin, and Bakken shale plays, oil and gas companies are making use of rail. The shale-related energy arena is a significant new market for UPR, one that cannot be adequately served without the development of UPR's new planned Robertson County rail lines.

Similarly, coal exports are a hot new market in the United States; until recently, there were very few coal exports in the United States. Now, with fewer coal domestic customers, there is a rush towards coal export, and companies serving the Gulf Coast are positioning themselves to join the coal export rush.<sup>4</sup> Various coal exports terminals along the Gulf Coast are being developed, and UPR (as well as other railroads) are attempting to join the fray. Furthermore, other international markets exist for UPR, with manufacturing in Mexico and the expansion of the Panama Canal. UPR's participation in these new markets will be dependent on the new rail lines in Robertson County. Specifically, UPR is positioning its rail lines to serve the automobile manufacturing business in Mexico and to serve the ships of greater cargo capacity that will reach the Gulf Coast ports when the planned expansion of the Panama Canal is complete in 2014 or 2015. UPR's access to all these new markets is not possible without the rail project planned for Robertson County.

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<sup>3</sup> Form-10K (emphasis added), available online at [www.sec.gov](http://www.sec.gov), [http://www.sec.gov/Archives/edgar/data/100885/000119312513045658/d477110d10k.htm#tx477110\\_14](http://www.sec.gov/Archives/edgar/data/100885/000119312513045658/d477110d10k.htm#tx477110_14).

<sup>4</sup> Houston Chronicle, "Gulf Coast Joins Export Coal Rush," <http://www.chron.com/business/article/Gulf-Coast-joins-export-coal-rush-3967862.php> (Oct. 20, 2012).

Additionally, in terms of safety, as the U.S. oil and gas boom is among the new markets being reached, the trains will be carrying greater volumes of hazardous materials. Rail transport is less safe than pipelines, and the proliferation of oil trains raises the risk of a major spill or derailment.<sup>5</sup> A former chairman of the National Safety Transportation Safety Board has said, “This [proliferation of trains carrying crude] is all occurring very rapidly, and history teaches that when those things happen, unfortunately, the next thing that is going to occur would be some sort of disaster.”<sup>6</sup> Larger trains are harder to control, which increases the chances of something going wrong. There is reason to worry about a derailment in a population center or in an environmentally sensitive area, such as the fertile farmland in Robertson County.<sup>7</sup> Even the Association of American Railroads acknowledges that the likelihood of a rail accident is double or triple the chance of a pipeline problem.<sup>8</sup> Thus, Petitioners are concerned not only about the environmental consequences of UPR’s planned project in Robertson County but also about the safety concerns.

The safety and environmental concerns include not just the conversion of pristine agricultural land to an industrial site handling hazardous materials, but also concerns such as the presence of endangered species in and near the Brazos River; flooding; and the contamination of the Brazos River from rainwater runoff from an industrial site adjacent to the Brazos River. Also, the development of the industrial site affects the quality and quantity of water for downstream users.<sup>9</sup> It is Petitioners’ expectation that these issues deserve careful review.

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<sup>5</sup> “Trains carry more oil across U.S. amid boom,” Matthew Brown and Josh Funk with the Associated Press (December 30, 2012).

<sup>6</sup> *Id.*

<sup>7</sup> *Id.*

<sup>8</sup> *Id.*

<sup>9</sup> Houston Chronicle, “No sale, is not an option for farmers” (October 8, 2012). The Houston Chronicle article discusses that Texas’s growing population has led to more and more impervious cover on the

As explained in greater detail below, Petitioners respectfully request a declaratory order that UPR's proposed rail lines in Robertson County are new rail lines within the meaning of 49 U.S.C. § 10901, requiring approval by the STB. Also, because Petitioners lack certain information from UPR (UPR Pacific has repeatedly declined meetings with Petitioners), Petitioners seek discovery, and have included discovery requests herein. Finally, it is appropriate for the Board to review Petitioners' complaint at this time, because UPR is soon to initiate condemnation proceedings. *Tampa Phosphate R. Co. v. Seaboard Coast Line R. Co.*, 418 F.2d 387, 393 (5th Cir. 1969).

## II. BACKGROUND

### A. Description of Petitioners, Brazos River Bottom Alliance.

Petitioners are members of Brazos River Bottom Alliance. The Brazos River Bottom Alliance (BRBA) represents landowners, tenant farmers, small ag-related business owners, and residents of the Mumford Community. The BRBA currently includes approximately 50 persons potentially to be affected by the UPR project. In many cases, BRBA members live on or near the land where UPR's project is to be sited, and are in the position of losing their land, their livelihood, or will suffer environmental harm to their businesses. *See* Affidavit of Kathleen C. Hubbard, Exhibit B, ¶ 1-2.

The acreage falling within or alongside the proposed project's footprint has been in continuous agricultural production for three generations. Some of the landowners are within a few years of getting their 100-year land designation from the Texas Department of Agriculture. However, they will be denied this honor if the project is built.

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ground, preventing storm water from soaking in to the ground and, therefore, leading to polluted stormwater runoff.

**B. Description of Union Pacific's New Rail Lines in Robertson County, Texas.**

Based on news reports and information released by the company, it is clear that UPR is planning a massive construction project of new rail lines in Robertson County. The project involves 1,200 surface acres (or more), and will cost between \$200 - \$300 million. The new railroad facility will involve up to 72 tracks, although Petitioners believe the number of tracks could be much higher, due to the estimated length and width of the project. As currently proposed, the facility is planned to be about six miles in length, and to be approximately a half of a mile wide.

This new rail facility will be located north of the Bryan-College Station area near the community of Mumford, Texas. The nearest major town is Hearne, which is to the north. Seven different UPR subdivisions operate into and out of Hearne and nearby Valley Junction. These include UPR's Austin, Bryan, Ennis, Ft. Worth, Giddings, Hearne, and Navasota subdivisions which extend as far as Ft. Worth, Longview, Houston, Smithville, and San Antonio. As shown on Figure 1, the rail lines that intersect near Mumford are termed IGN (International and Great Northern) and HTC (Houston & Texas Central). The proposed location of the new rail lines appears to make it pivotal to the penetration of the four new markets discussed herein (and discussed in the attached report prepared by R.L. Banks).

Figure 1, on following page.



to sell their land. On information and belief, four families who were not members of the BRBA have executed contracts with UPR over the last six months. *See* Affidavit of Kathleen C. Hubbard, Exhibit B, ¶ 7. UPR has purchased approximately 600 acres to date, some of which lies outside of the original project footprint; it is believed that UPR may be expanding the project's footprint.

It is clear from published statements and from the attached report prepared by R.L. Banks and Associates that, without this new yard, it would be impossible for UPR to penetrate the new areas of business identified herein. Union Pacific Railroad simply cannot accommodate these new markets with its existing infrastructure in Texas.

**C. Description of Community in and around Mumford, in Robertson County, Texas.**

The area in Robertson County, Texas, where the UPR project is planned is a thriving agricultural community. It contains some of the best farm land in America. This area includes the historic "Brazos Bottom," an area between the Brazos River and the Little Brazos River, known for its fertile soil. The fertility of the land adjacent to these rivers has been compared to the fertility of the land next to the Nile River. *See* Affidavit of Kathleen C. Hubbard, Exhibit B, ¶ 1. The land is fertile enough to grow crops ranging from peanuts, soy-beans, alfalfa, corn, peaches, tomatoes, sorghum, wheat, and cotton, just to name a few. *See* Affidavit of Kathleen C. Hubbard, Exhibit B, ¶ 3. Many of these farmers have been in the farming business for generations, and have businesses which they hope to pass to their children. The BRBA opposes the proposed location, in part, because it will destroy a significant portion of this historic area and fertile ground. Some land is rented, and some land is owned. Landowners, and farmers who rent the land, have been farming the unique soil for over a century.

The land in this part of Robertson County contributes millions of dollars to the local and state economies through not only agricultural but also oil and gas activities. Numerous oil and gas wells have been drilled and are operating in the area. The impact of the railroad project on the oil and gas activity is uncertain at this time, but the mineral interests may be rendered worthless due to the planned UPR project, should any wells be condemned.

Some of the landowners, tenant farmers, and small business owners are also stockholders in the Westbrook Valley Cotton Gin. *See* Affidavit of Kathleen C. Hubbard, Exhibit B, ¶11. If 1,200 or more acres of land is taken out of production because of this project, it is likely that this gin will have to cease operations. Neither the stockholders nor several small business owners (e.g., two aerial crop spraying businesses and others who service the land), who would lose a significant portion of their livelihoods, would be compensated by UPR for their loss of income. Thus, the UPR project is a threat to the Brazos Bottom economy for multiple reasons—agricultural loss, oil and gas loss, and loss of other industries.

UPR's proposed project will be located within a quarter of a mile of the Mumford Public School, which has approximately 500 students who attend kindergarten through 12th grade. *See* Affidavit of Kathleen C. Hubbard, Exhibit B, ¶10. If built, this project will turn a rural farming community, populated with large numbers of minorities, into an industrial site. The BRBA members have grave concerns about the dangers posed by an industrial operation on the health and well-being of the students who attend this school and the residents of the community.

Further, even in their existing, unexpanded use of this area, UPR has not been a good neighbor. Most egregiously, according to local reports, UPR trains block the existing public crossings, sometimes for up to 2-3 hours, thereby denying access to land bound by the UPR tracks and the Brazos River. *See* Affidavit of Kathleen C. Hubbard, Exhibit B, ¶ 6. Families that

live on the “wrong side” of the tracks are often forced to wait for long periods of time to cross the tracks in the cars. At times, farmers are unable to access their land, especially during the last few months which are critical times for crop irrigation. Also, families living west of the tracks are forced to wait for long periods of time to drive to work or reach their homes at the end of the day. On numerous occasions, school buses are unable to pick up children to take them to school. In fact, UPR trains block the public crossings for such lengthy periods that children have been sighted crawling under rail cars to get to school. At times, emergency medical service personnel have encountered difficulties reaching individuals in need of emergency care. Even the oil and gas maintenance crews and oil service trucks encounter problems and delays when the crossings are blocked. UPR has made no attempts to remedy these problems, despite frequent and repeated reports of blocked public crossings.

**D. Description of Environmental and Safety Concerns.**

The proposed UPR project will turn this rich, historic, farm land into an industrial site—with all the safety and environmental consequences that an industrial site entails. As discussed above, in terms of safety, the proliferation of oil and gas trains (containing not just petroleum-based products but also chemicals and toxics) raises the risk of a major spill or derailment. Even railroad representatives concede that there is a higher risk of a spill from rail lines than there is from pipeline transportation. In a pristine community such as the farming community near Mumford, a spill would have devastating consequences.

Petitioners are further concerned about the safety of area school children and the community at large. Compilation of rail accident data from the Federal Rail Administration’s website shows that from 2003 through 2012, UPR has had 27% more accidents than its closest

competitor (BNSF Railway Company) with most of those accidents occurring in Texas.<sup>10</sup> When comparing the train accident rate (number of accidents per 1,000,000 train miles) for all railroads from 2004 through June 2013, UPR's rate is dramatically higher. For example, in 2012, UPR's rate was 10.2 as compared to 2.24 for all railroads. This data underscores the danger that UPR's proposed rail facility poses to the Mumford community.

In terms of environmental concerns, as one local official has explained, the land in this part of the county is porous and the Brazos Alluvium water aquifer is at a depth 40-60 feet below the surface (*i.e.*, very near the surface). Thus, an industrial site of the magnitude of UPR's project will have a polluting, irreversible effect on the aquifer that serves an area from Bosque County to Fort Bend County.<sup>11</sup> Both irrigation wells and drinking water wells exist in the area, which pull groundwater from the aquifer; consequently, if or when contamination results from the railroad facility, it will negatively impact household drinking water wells and farming irrigation sources. Moreover, these impacts will occur not only in the immediate area but also more broadly for other who use the aquifer.

Likewise, with the construction of the UPR rail lines, the project will generate air pollution and stormwater runoff. Surface water pollution will become an issue for the nearby Brazos River. Contaminated stormwater runoff from the site will enter the Brazos River. Any resultant contamination to the Brazos River will have impacts to the local community and downstream users. The Brazos River is a rich ecosystem, and there are a number of candidate endangered species in this segment of the Brazos River. The impact of this facility on these species that are eligible for listing should be thoroughly evaluated as well. Furthermore, as the

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<sup>10</sup> Data available on federal railroad administration website, <http://www.fra.dot.gov/>.

<sup>11</sup> David Stratta (Board member of the Brazos Valley Groundwater Conservation District), quoted in "Union Pacific accused of refusing to meet with Robertson County landowners," available at, <http://www.abc40.com/global/story.asp?s=19182036>.

Brazos River is immediately adjacent to the west of the site, this area is river bottomlands, and thus there is a large flooding risk in the area.

Finally, members of the BRBA are concerned about forthcoming noise pollution. The incessant noise for those residents who live near the industrial facilities will disrupt their quality of life by invading their daily activities. Studies show that noise pollution has adverse impacts on health just as other types of pollution.

In total, and in addition to the loss of farmland, there are a number of environmental issues associated with building an industrial site of UPR's magnitude and careful evaluation is absolutely necessary. There will be substantial environmental impacts from the proposed facility—impacts that should be evaluated under the National Environmental Policy Act, in connection with the STB's review. *See Mid States Coalition for Progress v. Surface Transp. Bd.*, 345 F.3d 520 (8th Cir. 2003) (evaluating the significant environmental impacts associated with the Board's approval of the construction of new rail lines).

**E. Availability of Other Sites for Union Pacific's Project.**

With the great population growth in Texas, in the United States, and indeed globally, rich agricultural land should not be converted to industrial uses. While China and Saudi Arabia are buying up rich farmland in foreign nations,<sup>12</sup> Texans do not wish to lose their own farm land. If corporate stewardship has any meaning, UPR should not be considering the rich and fertile site along the Brazos Bottom in Texas. Other sites are available nearby.

It is believed that UPR has proposed this particular locale near Mumford for the project in Robertson County, not because it is the perfect location for UPR, but because it is an easy and cheap location for UPR to develop: the ground is graded, flat farmland. The land would require minimum expense and preparation for UPR. However, such criteria should not be the driving

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<sup>12</sup> See Note 2, *supra* (discussing news article from the New York Times and The Economist magazine).

reason for UPR to choose this site. Nearby sites of unimproved non-agricultural land exist in the area. Those non-agriculture sites are much better suited for a new industrial complex.

On information and belief, and according to local reports, other sites exist for development of the proposed UPR project. For example, (1) there is available land to the north of Hearne; and (2) there is available land to the west of Hearne near the airport, which is in the vicinity of Valley Junction. These sites are just two examples. According to local reports, these other communities, in contrast to Mumford, are receptive to the proposed UPR project. For example, the town of Hearne is willing to have the project sited within its ETJ. *See* Affidavit of Kathleen C. Hubbard, Exhibit B, ¶ 13. Also, several landowners at Valley Junction to the west are receptive to a UPR project. *Id.* Landowners who own property in both Mumford and Valley Junction have expressed willingness to sell their land in the Valley Junction area in order to preserve their land in Mumford, recognizing that the Valley Junction land is not as fertile and economically productive as the Mumford land.

In short, UPR has options that do not involve destroying the incredibly economically productive land in the Mumford community. It matters where UPR ultimately builds this enormous 1,200 acre (or larger) project because the project is believed to be just a “toe in the door” for Union Pacific. On information and belief, and according to local reports, Union Pacific seeks to expand the current project footprint. Thus, if constructed in Mumford, it will lead to the long-term destruction of the Mumford community and farming operations in the Brazos River Bottom.

### III. ARGUMENT

**A. Under established law, the Surface Transportation Board has jurisdiction over the construction of new rail lines whose purpose is to extend or expand the railroad into a new territory or new market.**

As a general matter, the Interstate Commerce Commission Termination Act (“ICCTA”) conveys exclusive jurisdiction to the STB over most activities of railroads,<sup>13</sup> and even of non-railroad company’s activities, when conducted on railroad property, under contract with the railroad.<sup>14</sup> The STB requires a certificate of authorization for a suite of railroad activities, including the following:

- Construction of an extension of a railroad line;
- Construction of an additional railroad line;
- Providing transportation over an extended or additional railroad line; or
- Acquisition of a railroad line or the operation of a new or extended line.<sup>15</sup>

The ICCTA carves out an exemption to the certification authority of the STB. The exemption states that the “Board does not have authority under this chapter over construction, acquisition, operation, abandonment, or discontinuance of spur, industrial, team, switching, or side tracks.”<sup>16</sup> Ordinarily, spur or industrial tracks are those which are used for the loading, reloading, storing, and switching of cars and other services merely incidental to the regular train haul. *Marion & E.R. Co. v. Missouri Pac. R. Co.*, 149 N.E. 492, 495 (Ill. 1925).

The determination of whether a particular track segment is a “railroad line,” requiring Commission authorization pursuant to § 10901(a), or a “spur, industrial, team, switching, or

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<sup>13</sup> “The jurisdiction of the Board over-- (1) transportation by rail carriers, and the remedies provided in this part with respect to rates, classifications, rules (including car service, interchange, and other operating rules), practices, routes, services, and facilities of such carriers; and (2) the construction, acquisition, operation, abandonment, or discontinuance of spur, industrial, team, switching, or side tracks, or facilities, even if the tracks are located, or intended to be located, entirely in one State-- is exclusive.” 49 U.S.C. § 10501 (b).

<sup>14</sup> *Boston & Maine Corp. v. Town of Ayer*, STB Finance Docket No. 33971.

<sup>15</sup> 49 USC § 10901 (a).

<sup>16</sup> 49 U.S.C. § 10906 (emphasis added).

side” track, exempt from Commission jurisdiction pursuant to § 10906, turns on the intended use of the track segment. *United Transp. Union-Illinois Legislative Bd. v. S.T.B.*, 169 F.3d 474, 478 (7th Cir. 1999); *Brotherhood of Locomotive Engineers v. U.S.*, 101 F.3d 718, 728 (D.C. Cir. 1996); *Railway Labor Executives Ass'n v. City of Galveston*, 849 F.2d 145, 148-49 (5th Cir. 1988), vacated on other grounds, 492 U.S. 901 (1989); *Nicholson v. I.C.C.*, 711 F.2d 364, 367 (D.C. Cir. 1983). That is, the determination turns on the intended use of the segment, not the label of the segment. *Nicholson*, 711 F.2d at 367; *New Orleans Terminal Co. v. Spencer*, 366 F.2d 160, 165-66 (5th Cir. 1966) (track segment identified as “side” track held to require Commission approval).

The test has been stated thus: “whether track is classified as rail line rather than spur track depends on whether the purpose and effect of the new trackage is to extend substantially the line of the carrier into new territory.” *United Transp. Union-Illinois Legislative Bd.*, 169 F.3d at 478. This test is derived from a U.S. Supreme Court case, which focused on whether the purpose of the new trackage is to extend the railroad into a “new territory.” In 1926, the Supreme Court held that:

If the purpose and effect of the new trackage is to extend substantially the line of a carrier into new territory, the proposed trackage constitutes an extension of the railroad... although the line be short and although the character of the service contemplated be that commonly rendered to industries by means of spurs or industrial tracks.

*Texas & P. Ry. v. Gulf, Colo. & S.F. Ry.*, 270 U.S. 266, 278 (1926). The D.C. Circuit has clarified that “a focus on use [may not be allowed to] obscure the larger purpose and effect of the transaction at issue.” *United Transp. Union-Illinois Legislative Bd.*, 169 F.3d at 478 (citing *Brotherhood of Locomotive Eng'rs*, 101 F.3d at 727–728). In other words, the broader purpose and effect of the new line must be part of the inquiry of the track’s intended use.

In one of its opinions, the STB has summarized the test to say that “an extension of or addition to a railroad line occurs when a construction project enables a carrier to penetrate or invade a new market.” *City of Stafford v. Southern Pacific Transportation Company*, 1994 WL 613381 (STB Oct. 28, 1994) (Fin. Dkt. 32395) (emphasis added). In general, the STB uses a case-by-case analysis that considers the line’s intended use, history, and physical characteristics. *Bristol Indus. Terminal Railway-Lease & Operation Exemption*, 1992 WL 214288 (I.C.C. Sep 01, 1992) (NO. 32106).

Importantly, the word “extension” is given a broad or liberal construction, and the words “spur” and “industrial” are given a limited or narrow construction, when evaluating the extension of the new track. *Colorado & W. Ry. Co. v. Colorado & S. Ry. Co.*, 469 F.2d 483, 485 (10th Cir. 1972); *Chicago, M., St. P. & P. R. Co. v. Northern Pac. R. Co.*, 120 F. Supp. 710, 712 (D. Wash. 1954) (citing *Texas & P. Ry.*, 270 U.S. 266 and other cases). And, to this end, a variety of factors are considered, not any one of which is controlling, when evaluating the intended use of a proposed new track segment. *Id.* at 713. For example, even if the new track does not contain regular movement of trains, or does not have a station, the track is nonetheless an extension if “the effect of the construction of that track will be to afford railroad service in direct competition with” another carrier. *Marion & E.R. Co.*, 149 N.E. at 495.

When the purpose of a railroad is to serve new industries, then the railroad line is considered to be an extension. *Colo. & Wyo. Railway Co. v. Colo. & Southern Railway Co.*, 469 F.2d 483, 486 (10th Cir. 1972); *Missouri Pac. R. Co. v. Chicago, R. I. & P. Ry. Co.*, 41 F.2d 188, 191 (8th Cir. 1930) (discussing that evidence showed that railroad hoped to serve new industries with the new track). It has also been stated that if “there are traffic movements which are part of the actual transportation haul from shipper to consignee, then the trackage over which the

movement takes place is a line of railroad, or extension thereof.” *New Orleans Terminal Company v. Spencer*, 366 F.2d 160, 165-66 (5th Cir. 1966). When a new rail line “is of such importance in interstate commerce and renders a service so predominantly devoted to the handling of interstate freight,” this too constitutes circumstances when the rail line is under the STB’s jurisdiction and is not exempt. *Piedmont & N. Ry. Co. v. Interstate Commerce Commission*, 286 U.S. 299, 311 (1932).

In sum, the focus of the inquiry is on the intended use of the track segment, and whether the track will invade the territory of another railroad company, or expand the involved market, in order to determine the Board’s jurisdiction. A railroad’s expansion into a new market sufficient to trigger STB jurisdiction does not have to be a simple physical invasion into a new area. It can be an entry into a new business industry, to serve a new shipper, or to serve a previously unserved sector in an area where lines already exist.

**B. The construction of new rail lines by Union Pacific Railroad in Robertson County, Texas, will enable Union Pacific Railroad to reach multiple new markets.**

The purpose of the construction of the new rail lines in Robertson County is to “enable” Union Pacific to “penetrate or invade new markets” and to reach new industries or shippers. *See City of Stafford v. Southern Pacific Transportation Company*, 1994 WL 613381. As stated, Petitioners retained consultants with expertise on railroads to investigate the purpose of the Robertson County project and the new markets it will enable UPR to reach. Through R.L. Banks & Associates, Petitioners have identified four distinct new markets which will be served and penetrated, due to the construction of the rail lines in Robertson County. The R.L. Banks report is incorporated by reference, and attached hereto as Exhibit A.

## 1. Hydraulic Fracturing and Oil-by-Rail Shipments.

The 21st Century hydraulic fracturing boom has been an unprecedented event with regard to oil-by-rail shipment. It is clear that UPR is constructing the new facilities in Robertson County to participate in and invade this new market. Union Pacific CEO Jack Koraleski has stated:

“A significant portion of our growth capital investment in 2012 was targeted to the southern region of our network to meet growing demand for new business, particularly in the shale-related energy arena. The increasing development of oil production in various domestic shale formations is providing an emerging market opportunity for rail with shipments of inbound frac sand and pipe, and outbound crude oil. In 2012, the impact was substantial – our crude oil shipments grew more than three-fold compared to 2011.”

In UPR’s own words, the fracking industry is “new business” and an “emerging market opportunity” for the company.

The increased shale production means that greater volumes need to be transported to the nation’s refineries for processing.<sup>17</sup> One of the greatest challenges for the transportation infrastructure is that much of the new shale production is coming from more remote places. Therefore, there are fewer options for transporting the oil and gas.<sup>18</sup> Typically, oil and gas is moved through pipeline infrastructure, but due to certain pipeline limitations, transportation flexibility is becoming a more significant issue. Railroads are emerging as a transportation alternative to pipelines. Moreover, there is a need to transport fracking sand, chemicals, and related materials to the shale development, and railroads can serve this need as well.

Shale oil and gas development in the Eagle Ford and Permian Basins (Texas) and the Bakken Basin (North Dakota and Montana) represents a tremendous new market opportunity that UPR is attempting to reach. This shale development requires new added rail shipment, including the transport of fracking sand, proprietary chemicals and other components. UPR CEO Jack

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<sup>17</sup> “Shale revolution leads to Rebirth of Rail Transportation,” *Downstreamtoday.com* (January 30, 2013).

<sup>18</sup> “As energy companies continue to invest in shale resources, transportation companies rush to keep crude flowing out,” *Houston Business Journal* (Aug. 10, 2012).

Koraleski has said that hauling oil and gas out of places like North Dakota will be a long-term business for railroads because trains are faster than pipelines, reliable and offer a variety of destinations.<sup>19</sup> Since 2009, the number of train cars carrying crude hauled by major railroads has jumped from about 10,000 a year to a projected 200,000 in 2012.<sup>20</sup> A sizable portion of this has been in the Northern Plains' Bakken area, but it has also been in Texas (as well as Colorado and western Canada).

UPR has been responding to the growth of this market. For example, UPR is responding to unprecedented regional growth in Texas and increased traffic by adding six new tracks to its Odessa rail yard. Dan Blank, manager of train operations with UPR, stated, "I've never seen or heard of anything like this."<sup>21</sup> Union Pacific's Odessa rail yard reported receiving 402,000 carloads of industrial and chemical material in the first quarter of 2009, but 531,000 carloads in the first quarter of 2012. Increased carload traffic required changes to the Odessa rail facilities. "We exhausted our resources with manpower, and our operations quickly became congested," Blank said.<sup>22</sup>

Additionally, UPR officials have said that they expect to increase the amount of oil and gas carried from the Bakken shale formation (North Dakota) to Gulf Coast refineries. One news source states that Burlington Northern Santa Fe (BNSF) Railroad has been the prime beneficiary from the high volumes of Bakken shale production,<sup>23</sup> and UPR may be trying to compete in this marketplace. BNSF Railroad is also trying to expand its facilities to compete in the Eagle Ford

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<sup>19</sup> "Trains carry more oil across U.S. amid boom," available at <http://www.usatoday.com/story/money/business/2012/12/30/trains-oil-boom-economy/1796505/> (December 2012).

<sup>20</sup> *Id.*

<sup>21</sup> "Union Pacific adds six tracks to Odessa rail yard," available at, <http://www.gosanangelo.com/news/2012/may/27/union-pacific-adds-six-tracks-to-odessa-rail/?print=1> (May 2012).

<sup>22</sup> *Id.*

<sup>23</sup> "Shale revolution leads to Rebirth of Rail Transportation," [Downstreamtoday.com](http://Downstreamtoday.com), January 30, 2013.

Shale areas,<sup>24</sup> as it purchased property in Bexar County, Texas, for development, and Union Pacific is likely competing with BNSF in the Eagle Ford area as well. Union Pacific officials have stated that they see opportunity for rail in this shale marketplace for many years to come.

In sum, several factors are contributing to this new market of shale gas for railroads: the remote location of the shale gas output; the increased production, and thus high volumes, of this oil and gas; the limitations of pipeline infrastructure and capacity; and the potential flexibility of railroads.<sup>25</sup> In short, there can be no question that the fracking industry, whether in Texas or elsewhere in the United States, is a market that UPR is aiming to penetrate and participate in. It is a market in which Union Pacific has competitors, and UPR is competing with other railroads for this business.

## **2. Coal Exports.**

Union Pacific is also attempting to invade the coal export market. There has been a decline recently in domestic customers for coal, and consequently coal exports have been on the rise. Coal industry experts predict that U.S. exports will surge to more than 100 million tons per year over the coming decades as consumption shifts away from the United States (where electric utilities are relying increasingly on natural gas and other fuel sources for power generation).<sup>26</sup> The United States exported roughly 107 million tons of coal in 2011, breaking a 20-year record. The trend continues.

Regarding the new coal export market, Kinder Morgan has been investing in Gulf Coast terminals (said to be approximately \$400 million), in order to boost its export capacity through

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<sup>24</sup> “San Antonio is emerging as vital rail junction for Eagle Ford Shale,” available at [www.bizjournals.com](http://www.bizjournals.com) (April 27, 2012).

<sup>25</sup> “Shale revolution leads to Rebirth of Rail Transportation,” [Downstreamtoday.com](http://Downstreamtoday.com), January 30, 2013; see also “As energy companies continue to invest in shale resources, transportation companies rush to keep crude flowing out,” *Houston Business Journal* (Aug. 10, 2012).

<sup>26</sup> “Peabody to boost exports from Gulf Coast,” *Climate Wire* (July 18, 2012).

the Gulf of Mexico to roughly 27 million short tons annually.<sup>27</sup> Kinder Morgan is involved in exporting the first Western coal through the Port of Houston.<sup>28</sup> Kinder Morgan has in fact already secured an air emissions permit for its coal terminal in Houston. The coal will reach these terminals by rail. Energy insiders are optimistic about the prospect of coal exports on the Gulf Coast. Peabody Energy Corporation, which is one of the largest private coal companies, has selected Houston and New Orleans as the primary ports for shipping Colorado, Powder River Basin, and Illinois Basin coal to international markets.<sup>29</sup> Peabody and Kinder Morgan have entered into long-term agreements to secure and expand the Gulf Coast export platform for Peabody's Colorado, Powder River Basin and Illinois Basin coal products.<sup>30</sup>

UPR has entered into contracts with Peabody. Peabody has secured a rail service agreement with UPR to transport the company's Colorado coal to Kinder Morgan's Houston terminals. Coal exports are a new market for the Gulf Coast, and UPR is at center stage in trying to take advantage of this new market as well. UPR has also said that it is working with Mexican railroad Ferromex on possibly moving coal through the Port of Guaymas, about 240 miles from the U.S. border.<sup>31</sup>

### **3. The Expansion of the Panama Canal.**

The Panama Canal is undergoing a \$5.25 billion expansion, expected to be completed in 2014 or 2015.<sup>32</sup> The expansion will influence global trade, including potential impacts on Texas

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<sup>27</sup> "Peabody to boost exports from Gulf Coast as Pacific Northwest terminal plans stall," available at, <http://www.eenews.net/stories/1059967454> (July 18, 2012).

<sup>28</sup> "Kinder Morgan to Export Colorado Coal," <http://www.reuters.com/article/2011/04/25/usa-coal-kinder-houston-idUSN2541318320110425>.

<sup>29</sup> "Peabody to boost exports from Gulf Coast as Pacific Northwest terminal plans stall," ClimateWire (July 18, 2012).

<sup>30</sup> News Release, <http://www.peabodyenergy.com/Investor-News-Release-Details.aspx?nr=1715277>.

<sup>31</sup> "Union Pacific looks to Mexico as U.S. coal demand falls," available at [www.longshoreshippingnews.com](http://www.longshoreshippingnews.com) (Jan. 28, 2013).

<sup>32</sup> Report from the Panama Canal Stakeholder Working Group, Final Report, at page ix (November 2011).

ports. The planned expansion has begun to impact and will continue to produce varying affects upon the transcontinental railroad system. Texas governmental officials formed a “Stakeholder Working Group” to evaluate impacts from the planned expansion, and UPR was represented among the working group members.<sup>33</sup> Among other findings, the Working Group concluded that the transportation system in Texas, including the rail system, will need to grow to support the commerce flowing from the expanded Panama Canal.<sup>34</sup> The report states that the rail network in Texas is critical to the port system.<sup>35</sup> Among the commodities that Texas is positioned to export are coal and petrochemical products.<sup>36</sup>

Currently, large ships dock at West Coast ports (e.g. Port of Long Beach and Port of Los Angeles) to offload intermodal cargo. A significant portion of this cargo is loaded onto intermodal railcar and railed cross-country to markets east of the Rocky Mountains. With the opening of a larger Panama Canal, ships of greater capacity will be able to travel across the isthmus and access ports along the Gulf of Mexico with greater speed than the current route around the tip of South America.

Thus, many believe that there will be a shift of larger vessels servicing Gulf Coast ports.<sup>37</sup> The expansion of the Panama Canal is enabling new markets. UPR CEO Koraleski has stated that UPR is working to establish infrastructure to take advantage of intermodal opportunities stemming from the Panama Canal expansion.<sup>38</sup>

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<sup>33</sup> *Id.* at 2.

<sup>34</sup> *Id.* at page x.

<sup>35</sup> *Id.* at 43.

<sup>36</sup> *Id.* at page x.

<sup>37</sup> *Id.* at 7.

<sup>38</sup> “Union Pacific focuses on Growth as it marks its 150th anniversary”, available at, [http://www.progressiverailroading.com/union\\_pacific/article/Union-Pacific-focuses-on-growth-as-it-marks-its-150th-anniversary--31251](http://www.progressiverailroading.com/union_pacific/article/Union-Pacific-focuses-on-growth-as-it-marks-its-150th-anniversary--31251) (June 2012).

There are plans for the La Quinta Trade Gateway project on the north side of Corpus Christi Bay, which would be the highest profile land development initiative at the Port of Corpus Christi—a planned 75-acre, on-dock rail yard with more than 5,000 feet of track could lead to significant increases in rail traffic over the UPR railroad Kosmas subdivision, and the connection UPR railroad Brownsville subdivision. La Quinta would enable railroad lines to serve importers and exporters in South, West, and Central Texas, as well as in Northern Mexico and the Central United States, as well as provide shippers with distribution center operations.

UPR is attempting to reach some of the new markets that will be created. To this end, the Robertson County proposed project is part of a larger set of new rail lines and projects to reach these new markets. With the opening of a larger Panama Canal, ships of greater capacity will be able to travel across the isthmus and access ports along the Gulf of Mexico and Atlantic Ocean with greater speed than the current route around the tip of South America. A UPR representative has opined, in part, on the new markets that will be opened with a larger Panama Canal, explaining: “I think a lot of people are looking at (the expansion) from a crude oil perspective, setting up crude oil terminals for exports. We believe from a crude oil perspective that offering a lot of destinations and flexibility is very positive. We have worked with a variety of different ports and companies that want to ship crude oil to a variety of different places in Texas.”<sup>39</sup> So, UPR is positioning itself, through the Robertson County proposed project, to participate in the new markets that are opening up with the expansion of the Panama Canal.

#### **4. Mexico: Imports from “Near Shored” Manufacturing.**

Due to the increase in overseas transportation costs and an ever-increasing growth in wage rates being paid in the South Asian manufacturing sector, the practice of “near shoring” has

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<sup>39</sup> “Union Pacific plans expansion in Houston,” available at, <http://www.bizjournals.com/houston/print-edition/2012/11/02/exclusive-union-pacific-plans.html?page=all> (November 2012).

been on the rise. Many companies have found it more economic to manufacture goods in Mexico, due to the combination of proximity and decreased transportation distance to U.S. markets, rather than in overseas markets. UPR is the only U.S. railroad to have access to all six points where the U.S. rail system connects to the Mexican rail system, giving it great leverage and opportunity in the cross-boarder market.<sup>40</sup> This means that any new commodity, such as Nissan's new NYC taxi cabs, made in Mexico and shipped to the U.S. via train, likely will travel over UPR rails.

The R.L Banks report concluded that it is "undeniable" that these four markets are becoming accessible to rail companies and that UPR's proposed construction of new lines in Robertson County is intended for the flow of UPR rail traffic associated with these markets.

**C. The construction of new rail lines by Union Pacific Railroad in Robertson County Texas is subject to the jurisdiction of the Surface Transportation Board.**

To summarize the law recited above in Part A, a new rail line is subject to the Board's jurisdiction when the new track will penetrate a new territory or market, invade the territory of another railroad, or expand an involved market. The focus of the inquiry is on the intended use of the track segment. A railroad's expansion into a new market sufficient to trigger STB jurisdiction can be an entry into a new business industry, to serve a new shipper, or to serve a previously un-served sector in an area where lines already exist.

**1. Because the new lines in Robertson County will enable Union Pacific Railroad to penetrate new markets and expand current markets, the new lines are subject to STB jurisdiction.**

The STB and the courts have focused on several factors in evaluating whether new rail lines are regulated under Section 10901. The starting point is to evaluate the purpose and effect of the new rail lines, and whether that purpose and effect is to "extend substantially the line of

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<sup>40</sup> "Union Pacific will key on the southern part of network", World-Herald (January 25, 2013).

the carrier into new territory.” *United Transp. Union-Illinois Legislative Bd.*, 169 F.3d at 478; *see also Colo. & Wyo. Railway Co.*, 469 F.2d at 486 (stating that an “extension contemplates serving new customers in an area not theretofore served by that railroad”). In the instant case, there are at least two new marketplaces that are currently emerging—the shale oil and gas development, and manufacturing centers in Mexico—and two others that will be emerging in the future—coal exports from the Gulf Coast, and markets associated with an expanded Panama Canal—and UPR is clearly positioning itself to fully participate in these four markets.

Unqualifiedly, based on all the research in the R.L. Banks report, the answer in this case is that the purpose and effect of the Robertson County rail lines is to enable Union Pacific to extend substantially its business into these four new markets. The facts prove this. For example, as expressly stated by UPR CEO Jack Koraleski (in UPR’s 2012 Form 10-K ) with regard to the fracking industry, it is a “new business” and an “emerging market opportunity” for the company. Looking at the geography of the proposed new lines (Figure 1), Robertson County is positioned at an interchange of UPR lines, lines which reach to the Permian Basin and the Eagle Ford shale plays. Additionally, a recent news article stated that the boom “in Texas crude oil, Gulf Coast chemical traffic and the Mexican auto industry led to high volumes across UPR’s southern network.”<sup>41</sup> The Robertson County project is vital and critical to UPR’s participation in these new markets.

As explained, the key inquiry is not simply the immediate use of the new lines but the “larger purpose and effect” of them. *United Transp. Union-Illinois Legislative Bd.*, 169 F.3d at 478; *Brotherhood of Locomotive Engineers v. U.S.*, 101 F.3d at 728. In other words, the STB must pierce behind simple concepts that the Robertson County lines are intended simply for

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<sup>41</sup> World-Herald, “Union Pacific will key on the southern part of network” (January 25, 2013).

efficiency. Instead, in this case, the larger purpose and effect of the Robertson County rail project is to enable UPR to serve four new markets.

Notably, the word or name assigned to the new rail lines (such as a “classification” yard) is not the deciding factor in whether the new lines are regulated by the STB. *Nicholson v. I.C.C.*, 711 F.2d 367 (“It is well established that the determination of whether a particular track segment is a ‘railroad line,’ requiring Commission authorization pursuant to section 10901...turns on the intended use of the track segment, not on the label or cost of the segment.”); *see also Effingham Railroad Company—Petition for Decl. Order*, IL, 2 S.T.B. 606, 1997 WL 564155 (Sept. 12, 1997), *aff’d sub nom. United Transp. Union v. Surface Transp. Board*, 183 F.3d 606 (7th Cir. 1999) (a line of only several hundred feet long was under Board jurisdiction when it enabled the railroad to reach a new shipper). Thus it is the purpose and effect of the new rail lines that controls. Consequently, even if UPR views the Robertson County project as merely a yard, the company’s opinion is not the driving consideration—it is what the purpose of the new rail lines will be and what their effect will be—*i.e.*, to serve new shippers and new markets.

Furthermore, the U.S. Supreme Court has consistently held that the coverage of the applicable statutes should be interpreted broadly: “The Transportation Act was remedial legislation, and should therefore be given a liberal interpretation.” *Piedmont & Northern Ry. Co. v. I.C.C.*, 286 U.S. 299 (1932). The Act “is construed to make federal authority effective to the full extent that it has been exerted.” *Transit Commission v. United States*, 289 U.S. 121. “In other words, we must give a liberal or broad construction to word “extension” and a limited or narrow construction to the words “spur” and “industrial.” *Colorado & Wyoming Ry. Co. v. Colorado & Southern Ry. Co.*, 469 F.2d 483,485 (10th Cir. 1972). These principles of construction further

underscore that the focus is on the larger purpose and effect of the new lines in Robertson County.

2. **Because the new lines in Robertson County will enable Union Pacific Railroad to directly compete with other carriers, the new lines are subject to STB jurisdiction.**

Additionally, courts have also looked at whether “the effect of the construction of that track will be to afford railroad service in direct competition with” another carrier. *Marion & E.R. Co.*, 149 N.E. at 495. Stated another way, the question is whether the new rail lines will “alter the competitive balance” between railroads, even if the new lines are used for switching.<sup>42</sup> *Riverview Trenton Railroad Company—Petition for an Exemption, MI*, 2003 WL 21108179 (May 15, 2003). In *Texas & P. Ry. v. Gulf, Colo. & S.F. Ry.*, 270 U.S. 266, at issue was 7.5 miles of new rail line that would enable the railroad to compete with a competitor. The Supreme Court ruled that, under such facts, that new line must be subject to regulation.

Here, as explained, BNSF Railroad has been the prime beneficiary from the high volumes of Bakken shale production, and BNSF Railroad is also trying to expand its facilities to compete in the Eagle Ford Shale areas, purchasing property in Bexar County, Texas, for development. UPR is trying to compete with BNSF in serving these shale developments by building the Robertson County lines to expand their competitiveness with these new markets. Under the authority of the *Riverview Trenton Railroad Company* decision, UPR’s new lines in Robertson County will alter the competitive balance with other carriers, necessitating STB jurisdiction. Under the authority of *Texas & P. Ry. v. Gulf, Colo. & S.F. Ry.*, 270 U.S. 266, the invasion of

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<sup>42</sup> The Board stated: “If track - even track that is used for purposes such as switching - (1) will constitute the entire operation of the new carrier; (2) permits the using carrier to extend operations into, or invade, new territory, and thereby alter the competitive balance between railroads; and/or (3) is essential to the through movement of traffic from shipper to consignee, then it is deemed to be a railroad line subject to Board licensing requirement.” *Riverview Trenton Railroad Company—Petition for an Exemption*, 2003 WL 21108179.

one railroad into a market served by another railroad is a national interest and confers jurisdiction by the federal regulatory agency. The new UPR lines in Robertson County will be approximately 6 miles long. Just like in *Texas & P. Ry. v. Gulf, Colo. & S.F. Ry.*, new lines that enable competition with another railroad must be subject to the STB jurisdiction.

**3. Because the new lines in Robertson County are of critical importance to interstate commerce, the new lines are subject to STB jurisdiction.**

Furthermore, in an early U.S. Supreme Court case, the high court focused on whether the new rail lines are “of such importance in interstate commerce and renders a service so predominantly devoted to the handling of interstate freight,” that the rail lines must come under the STB’s jurisdiction. *Piedmont & N. Ry. Co. v. Interstate Commerce Commission*, 286 U.S. at 311. This too is an important aspect of the planned Robertson County rail lines. Here, it is clear that the new lines will help serve the forthcoming coal exports to markets outside the United States, and they will help serve the transportation of goods related to fracking operations. These are all critical aspects of interstate commerce. News reports have stated that the rail companies are positioning to invest in new resources to accommodate the increase in oil and gas traffic resulting from the shale development.<sup>43</sup> When the new lines help serve the Bakken shale development, and bring oil and gas to refineries here in Texas, or facilitate the import and export of goods for the expanded Panama Canal, this too is part of interstate commerce.

A UPR representative has stated that the company’s strategy is “to ensure we are providing a great value to the customers, continuing to do what we do *by adding capacity*—whether it is yard capacity, whether it is storage in transit for plastics, whether it is an additional

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<sup>43</sup> “As energy companies continue to invest in shale resources, transportation companies rush to keep crude flowing out,” *Houston Business Journal* (Aug. 10, 2012).

main line.”<sup>44</sup> For this reason too, because of the role in interstate commerce served by the incredibly large set of new rail lines in Robertson County, UPR’s project comes under the STB jurisdiction. Importantly, the purpose of STB jurisdiction is to retain federal oversight in the matters of national concern. Because the new lines will enable UPR to reach new markets and compete against other carriers, the STB has jurisdiction over this project.

**4. Additional factual development may expose additional reasons why the new lines are subject to STB jurisdiction.**

On information and belief, members of the BRBA understand that the proposed UPR rail project will be accepting containers and serve multiple functions for UPR in addition to classification. *See* Affidavit of Kathleen C. Hubbard, Exhibit B, ¶ 15. In *New Orleans Terminal*, one federal court stated, “If there are traffic movements which are part of the actual transportation haul from shipper to consignee, then the trackage over which the movement takes place is a ‘line of railroad or extension thereof.’” 366 F.2d at 165–66. On information and belief, UPR will be using the new lines in Robertson County as part of the actual transportation haul from shipper to consignee. Thus, the Union Pacific project should be subject to STB jurisdiction not only because of the new markets that the project is enabling, but also because of the types of traffic movements that will take place over the new lines.

As discussed below, Petitioners are requesting discovery on UPR to better understand the character and purpose of the Robertson County lines, and the types of traffic movements that will take place on them.

The Petitioners believe that sufficient information is contained in the R.L. Banks report to substantiate a finding that the Robertson County rail lines should fall under the STB’s jurisdiction. However, in an abundance of caution, Petitioners are also seeking discovery from

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<sup>44</sup> “Union Pacific plans expansion in Houston,” available at, <http://www.bizjournals.com/houston/print-edition/2012/11/02/exclusive-union-pacific-plans.html?page=all> (November 2012).

UPR, in order to obtain a clearer picture of what is planned and the purpose and effect of the Robertson County project. For example, Petitioners believe that it would be useful to obtain information about whether internal studies by UPR show that new trackage in Robertson County is necessary to enable UPR to reach the four identified markets; whether the new lines are superseding lines; what traffic movements will occur on the lines; what the current volume of traffic of the lines that intersect near Mumford is estimated to be; and what information exists that shows that those lines are at capacity – and that the Robertson County new lines enable UPR to expand its capacity and expand their reach to new markets, among other information.

#### **IV. REQUEST FOR DISCOVERY**

Pursuant to federal regulations, discovery is permitted in this proceeding. “Parties may obtain discovery under this subpart regarding any matter, not privileged, which is relevant to the subject matter involved in a proceeding other than an informal proceeding.” 49 C.F.R. § 1114.21(a); *see Denver & Rio Grande Ry. Historical Found. D/B/A Denver & Rio Grande Railroad, LLC* (STB Apr. 30, 2012) (Docket No. FD 35496) (stating that the “Board’s rules specifically provide that parties may obtain discovery—in the form of depositions, interrogatories, requests for documents, and requests for admissions—for any matter, not privileged, which is relevant to the subject matter involved in a formal proceeding”).

This dispute with UPR over the location of the proposed new rail lines in Robertson County has been ongoing for many months. Petitioners, however, have not had the benefit of any discovery. Accordingly, Petitioners are seeking discovery to learn more about the proposed Robertson County project. The discovery request is attached hereto at Exhibit C. Once Petitioners have had the benefit of discovery, Petitioners will supplement this Petition, as

necessary, and, based on the entire record, the STB will be able to determine that the proposed new lines in Robertson County fall within the STB jurisdiction.

Members of the BRBA have tried to meet with UPR on multiple occasions. *See* Affidavit of Kathleen C. Hubbard, Exhibit B, ¶ 8. For example, in the Summer 2012, one BRBA committee member was in contact with Clint Schelbitzki, who works with UPR's public relations department in Fort Worth. Nothing fruitful came of this contact; instead, the BRBA received a letter that UPR would only communicate with individual landowners (presumably related to condemnation proceedings), and Mr. Schelbitzki refused the request for a meeting. Also, communication was attempted with Joe Adams, who works as Vice President for Public Affairs, in the company's Spring, Texas. Nothing fruitful came of the conversation either. Further, in the Fall 2012, communication was attempted with Andrew Card, who serves on the UPR Board of Directors, but Mr. Card denied the request for a meeting. Thus the request for discovery here is not a fishing expedition but a legitimate need to understand what is going on with the proposed project and to establish that the proposed project falls within the STB's jurisdiction. All previous attempts by BRBA members to better understand this project have been refused.

**V. REQUEST FOR BOARD TO INSTITUTE A PROCEEDING AND  
REQUEST FOR EXPEDITED HANDLING**

Petitioners respectfully request that the STB institute a proceeding and give them the opportunity to present their arguments in a hearing before the Board, after discovery responses by Union Pacific. Petitioners request that the Board set forth a procedural schedule.

Petitioners also request expedited handling of this case, because Union Pacific already is starting to negotiate sales contracts with various landowners and the UPR project plans are underway.

## VI. CONCLUSION AND REQUEST FOR INJUNCTIVE RELIEF

Petitioners respectfully request that the Surface Transportation Board issue a declaratory order that the new rail lines proposed by UPR near Mumford in Robertson County, Texas, fall within the Board's jurisdiction pursuant to 49 U.S.C. § 10901. Petitioners also respectfully request that the Surface Transportation Board expedite this declaratory order proceeding before UPR advances the project in Robertson County. Finally, Petitioners request injunctive relief to halt this project before the STB has conducted a thorough review, including environmental review.

Respectfully submitted,

BLACKBURN CARTER, P.C.

by: s/ James B. Blackburn

James B. Blackburn, Jr.

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713/524-1012

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*Counsel for Petitioners*

**EXHIBIT A**

REPORT BY RL BANKS & ASSOCIATES

BEFORE THE SURFACE TRANSPORTATION BOARD

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FINANCE DOCKET NO. FD-35781

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**PETITION FOR DECLARATORY ORDER  
BY BRAZOS RIVER BOTTOM ALLIANCE**

**Affidavit of John McLaughlin**

I, John McLaughlin, make the following declaration pursuant to 28 U.S.C. § 1746:

1. I am competent to make this declaration.
2. I have been retained by the Brazos River Bottom Alliance to provide an expert report in the above-captioned matter on behalf of the Brazos River Bottom Alliance.
3. I, and my team at R.L. Banks & Associates, provided an expert report in this matter, which is attached to this declaration. Everything in the report reflects the results of our research and professional expertise.

I, John McLaughlin, declare under penalty of perjury that the foregoing is true and correct.

Executed on this date, September 10, 2013.

  
\_\_\_\_\_  
John McLaughlin  
Director  
R.L. Banks & Associates, Inc.  
9 Navajo Road  
Hi-Nella, New Jersey 08083

# John W. McLaughlin

## Director, Market and Network Solutions

### Education

BS, Transportation Management, Indiana University School of Business, 1979

### Years of Transportation Experience

34 (1979)

### Qualifications

Mr. McLaughlin joined RLBA in 2007 after eighteen years at a Class 1 railroad and ten years subsequently at a Less-Than-Truckload (LTL) motor carrier. His railroad career featured analytical, supervisory and service design responsibilities in operations, being the primary 24/7 contact on service issues of major intermodal customers, and development and implementation of price, service and communications plans supporting market expansions. During his motor carrier career Mr. McLaughlin organized and led strategic, revenue development and sales support initiatives such as market share analysis and directing development of the carrier's website. Since joining RLBA he has provided analysis and recommendations to public agencies regarding the initiation or expansion of commuter and intercity passenger rail services in Michigan and New York. He has also provided expert railroad capacity and operations analysis to clients engaged in proceedings before the Surface Transportation Board.

### Relevant Project Experience

- ***Twin Cities & Western Railroad*** Evaluated the threat of potential traffic diversion that would result from a Class I railroad acquiring a competing regional railroad. Interviewed customers of the client railroad and reported on the likelihood that they would divert traffic from client. Calculated the potential operating margin advantage of the competitor as a metric for the magnitude of the diversion threat, on a lane and commodity-specific basis. Tested the competitor's train counts and capacity calculations on a key main line, and provided a verified statement as part of client's filing with the Surface Transportation Board.
- ***Arizona Electric Power Cooperative*** Assisted in the simulation of a 2,200 mile plus railroad network mirroring Burlington Northern Santa Fe (BNSF) and Union Pacific lines linking Powder River Basin origins and AEPSCO's Apache generating facility near Cochise, AZ. Using Berkley Simulation Software's Rail Traffic Controller, RLBA assessed the capacity of a hypothesized railroad network to handle current and future additional business volumes in support of a stand-alone railroad rate case dispute. Mr. McLaughlin tested inputs and design of the model, participated in developing track configuration and operating plan and provided analysis of the model's output.
- ***Seminole Electric Cooperative*** Mr. McLaughlin entered and tested inputs and design of the model and developed alternatives to be considered by other consultants in connection with RLBA simulation of a 2,000 mile plus railroad network mirroring CSX lines linking various coal origins with Seminole Electric's generating station at Palatka, FL. Using Berkley Simulation Software's Rail Traffic Controller®, he assessed the capacity of a hypothesized railroad network to handle current and future additional business volumes in support of a stand-alone railroad rate case dispute.
- ***The Oregon International Port of Coos Bay*** Interviewed representatives of several major shippers on the RailAmerica subsidiary, Central Oregon and Pacific Railroad Inc. (CORP), which was embargoed. Mr. McLaughlin's interviews ascertained: 1) historical rail traffic volumes and shipper requirements so as to develop future railroad freight traffic projections; 2) determine how much

## John W. McLaughlin

more it was costing shippers to ship by a combination of a truck and rail than an all-rail haul and 3) how volume might change in the future in this rural region., which data supported a Feeder Line Application to the Surface Transportation Board to acquire the rail line.

- **Village of Barrington** Tested current and forecasted train volumes submitted by Canadian National Railway in an application to control the Elgin, Joliet & Eastern Railroad, and created an independent forecast of train volumes, in support of client's filing with the Surface Transportation Board. Created the forecasts using the Freight Analysis Framework (FAF2.2) Database of the USDOT's Federal Highway Administration. Led firm's review of the Class 1 railroad's work papers, development of discovery questions and assessment of the resulting discovery documents in connection with this northern suburb of Chicago.
- **Confidential Private Extraction Client** Developed rail operating plans for three options to moving ore from two mines to one processing plant and conducted RTC simulations of mine - processing plant operations to develop run-times, crew times, car -miles, etc. as basis for estimating train operating costs. Built operating cost model to estimate the costs that a shortline operator would incur if providing the service in options. Facilitated rail equipment recommendations and estimated costs of ownership (capital costs) and operation (operating costs). Assembled economic model which included material handling operating and capital costs - plus railroad costs - to provide client with comprehensive tally of the total costs of four combinations of possible operating and capital cost scenarios. Led the development and illustration of capital enhancements required by Class I to enable the prospective mine train operations on its mainlines.
- **Capital Metropolitan Transportation Authority, Austin, TX** Developed the commercial aspects of a Ten-Year Strategic Freight Rail Plan. Conducted customer interviews to develop volume forecasts and satisfaction measures. Combined this data with research about benchmark rate levels to propose tariff rate adjustments so as to increase revenues. Developed a volume flow analysis and ten-year forecast to support drafting of a capital plan.
- **Chicago – Detroit / Pontiac Passenger Rail Corridor Investment Plan** Led the calculation of estimated unimpeded run-times on ten prospective route options between Chicago Union Station and Michigan City, IN using the train performance calculator (TPC) tool within the Rail Traffic Controller (RTC®) train operations simulation software.
- **Port Authority of New York and New Jersey** Developed rail intermodal operating plans for service between the Port Authority of New York and New Jersey on-dock terminals and ten prospective inland terminals. Area railroads and railroad documents were consulted to check double-stack clearances, crew work rules and commuter windows. Maps were produced describing the prospective routes. Mr. McLaughlin then built a model which enabled comparisons of the average operating cost per train among the ten prospective rail corridors.

Prior to joining RLBA, Mr. McLaughlin worked as a Conrail (Consolidated Rail Corporation) operations, customer service and commercial official. He held regional train performance and locomotive distribution responsibilities, and system-wide responsibilities in service planning, intermodal service management supporting less-than-truckload and truckload motor carrier customers, and pricing in the truckload carrier line of business. As Senior Business Development Analyst, managed intermodal penetration of the truckload motor carrier market from zero to a \$50 million line of business in five years. Also played significant role in the restructuring of the train network to accommodate intermodal double stack technology.



## REPORT: Growth Indicators of Union Pacific Traffic Resulting from New Business Development

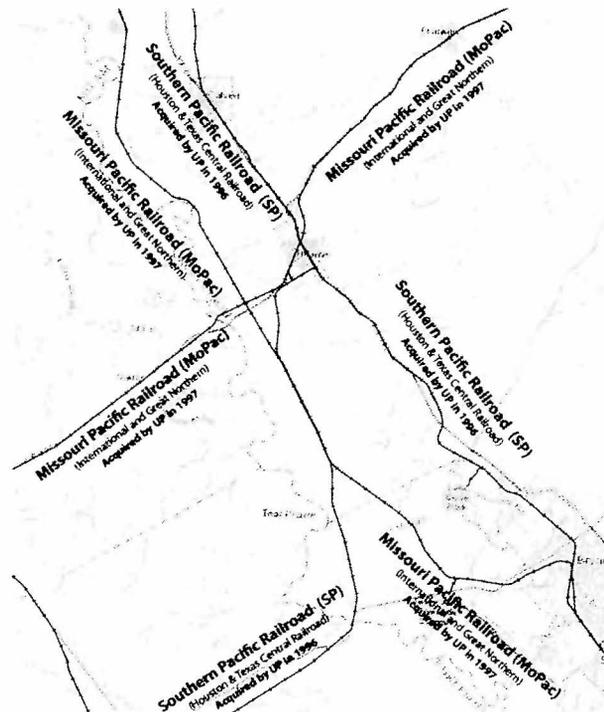
### Introduction

At the request of the law firm Blackburn and Carter, R.L. Banks & Associates, Inc. (RLBA) scoured the internet, railroad journals, trade magazines and other sources to determine what new market growth Union Pacific Railroad (UP) was engaging in would result in its need to develop a rail yard in Robertson County, Texas. Initial results indicated that growth resulting from three primary markets could have a substantial enough impact on UP to warrant the expansion of its mainline into a *new* railroad classification yard between Mumford and Hearne, Texas:

1. Hydraulic Fracturing and Oil-by-Rail Shipments (supply components, Permian Basin shale oil, Bakken shale oil and Eagle Ford shale oil);
2. Expansion of the Panama Canal and
3. Import of goods from “near-shored” manufacturing facilities in Mexico and Mexican Coal Export

While the following sections, organized by subject matter, provide pertinent points and cited sources, RLBA also believes the history of rail line ownership, and subsequent mergers in the 1990’s is important to acknowledge. As UP worked to grow its rail network following deregulation in 1980, it soon pursued the annexation of the Missouri Pacific (MoPac) and Southern Pacific Railroads (SP). [Note: though it initially attempted to acquire MoPac in the mid 1980’s, it was held up in legal proceedings until 1997.]

This merger is important in that it allowed two formerly-competing railroads to come under one ownership. The map at left shows how the former competitors’ lines crossed (center of map) - an area which is now owned by one company. The flow of commodities through this area has continued, but now that UP owns the entire system, it can create a classification yard to process those commodities. When owned by various railroads, this would not have been made less feasible from an economic perspective.



## 1. Hydraulic Fracturing and Oil-by-Rail Shipments

The twenty first century hydraulic fracturing oil boom is an unprecedented event with respect to oil-by-rail shipment and development of new rail transportation markets in the past few decades. Though oil traditionally moved by rail (e.g. Rockefeller's Oil Trains), the advent of modern pipeline technologies following WWII largely spelled the end of oil-by-rail shipments. That is, until the development of the Permian Basin and Bakken shale oil ranges.

The flexibility provided by rail shipment, volatility of the market and at least temporary lack of pipeline infrastructure has driven development of unprecedented oil-by-rail volumes. Regarding the Bakken range, UP is partner railroad to Canadian Pacific Railway, one of two that have access to that oil field, making it an ideal carrier of that oil down to Texas refineries.

Shale oil development in both the Bakken and Permian Basin require a great deal of added rail shipment, including the transport of "frac sand," proprietary chemicals and components, all of which originate in one form or another in Texas.

The following are quotes from sources pertaining to UP's growth in this new market:

- The volume of crude oil transported by rail has mushroomed in the past year. (Exhibit 9) The combined U.S. and Canadian average weekly railcar loadings exploded in 2012, rising by approximately 39%. Union Pacific (UNP-N) indicated that it moved 2,000-5,000 carloads of crude oil in 2011 and approached 50,000 units last year [2012].<sup>1</sup>
  - Union Pacific invested \$50 million in the Permian Basin last year in new rail yards and sidings to enable more efficient movement of trains. Last fall, the rail company was moving 125 unit-trains of crude oil a month, which was growing. Each unit train can move roughly 65,000 barrels of oil. And in Louisiana, Union Pacific has invested \$200 million to expand a crude oil receiving terminal located near several refineries.
- Sam Margolin, vice president and refining analyst for Dahlman Rose & Co., anticipates more Bakken oil, which is currently being consumed in the U.S. Midwest and on the Gulf Coast, will find its way to the East Coast as well as the West Coast.<sup>2</sup>
  - While EOG Resources Inc. and other producers are aggressively railing it to the Gulf Coast, new oil supply from nearer sources—the Eagle Ford, Permian Basin and Oklahoma—plus new Canadian oil-sands crude may make some Bakken oil less competitive due to transportation costs.
  - And, the Gulf Coast might not be the best market for all Bakken output in the future. "The Bakken has benefited during the past 12 to 18 months from having good access to the Gulf Coast, but there is a lot of crude migrating there now, so the Bakken is potentially going to be less competitive," Margolin says.
- NEW YORK, July 22 (Reuters) - Union Pacific Corp (UNP.N: Quote, Profile, Research, Stock Buzz), the largest publicly held U.S. railroad, said it [sic] expects to quadruple the amount of oil it carries this year from the Bakken shale formation in North Dakota to U.S. Gulf Coast refineries.<sup>3</sup>
  - He said the company moved about 4,400 carloads of crude oil out of Bakken Shale in

2010. "We expect to move a little more than 16,000 carloads in 2011," he said, adding the railroad moved a total of 8.8 million carloads in 2010.
- "We're focusing exclusively on our own rail infrastructure to support it, and everything that we see, even as pipelines develop, tells us there's going to be a continued opportunity for rail in this marketplace going forward for a long time," he said.
  - [UP President and CEO Jack] Koraleski said that with additional capacity coming on stream from the Bakken and other plays like the Eagle Ford shale oil in southern Texas, Union Pacific is looking to develop additional capacity. "One of the unique things that rail gives to customers is the opportunity to go to various places and to play to the extent they can the market advantages for themselves, so we see a lot of interest in that," he said.
  - Omaha, Neb.-based Union Pacific said it has made these investments in locations throughout Texas. In the Permian Basin alone, the company said it has made \$50 million of investments in new rail yards and sidings this year.<sup>4</sup>
    - "Right now, we are moving 125 unit trains of crude oil a month, and we see that increasing," said Joe Adams, vice president of public affairs for Union Pacific. "A single unit train can move 65,000 barrels of crude."
    - Also, in Louisiana, the company is constructing a \$200 million expansion for a crude-receiving facility that is situated near refineries.
    - In Houston, the company is doing repairs and putting a new rail yard in Anglewood [Englewood], a \$17 million project that will help companies ship equipment like pipe and frac sand to shale wells.
    - Adams said each well requires three to five rail cars of pipe and 30 to 50 cars of frac sand. Each rail car carries an average of 101 tons of frac sand.
    - "One of the things happening now is the coal business is declining, but it's more than offset by the boom we are seeing in oil and gas development and our role in it. Our volumes are up more than 400 percent in those areas," Adams said. This boom has already created 785 Union Pacific jobs in Texas this year.
    - "As people build pipelines, there will not be as much rail needed," Adams said. "But now, companies have the flexibility to respond to the market with rail."
  - Kinder Morgan Energy Partners said on Monday it was working on a joint venture on developing a multi-commodity rail service in the west Texas town of Pecos to serve the resurgent oil and natural gas industry of the Permian Basin.<sup>5</sup>
    - Total railcar capacity is anticipated to be 300 to 600 per day based on demand. The terminal is strategically located along the Pecos Valley Southern Railway (PVS) and directly adjacent to the Union Pacific mainline in Pecos.
  - Union Pacific is responding to unprecedented regional growth and increased traffic by adding six new tracks to its Odessa rail yard.<sup>6</sup>
    - "I've never seen or heard of anything like this," said Dan Blank, manager of train operations with Union Pacific. Blank said the new tracks ought to be complete in July. He took his post in Odessa in 2009, when train activity was in a slump compared with how many carloads are being moved today.
    - Union Pacific Odessa rail yard reported receiving 402,000 carloads of industrial and chemical material in the first quarter of 2009. In the first quarter of 2012, which also marked the 150th anniversary of Union Pacific being in business, the rail yard received

- 531,000 carloads of industrial and chemical material.
- Typically, industrial material includes pipe and fracking sand, and the chemical materials include hydrochloric acid and crude oil.
  - One average sand carload carries around 101 tons of material.
  - "Through 2011, it all exploded with traffic. There were businesses that left Odessa in 2009, came back, did some work on their rail spur and were fully functional again," Blank said. Increased carload traffic required change to the rail yard. "We exhausted our resources with manpower, and our operations quickly became congested," Blank said.
  - In a simplified version of what occurs at the yard, fracking sand and chemicals converge from around the country in Fort Worth. From Fort Worth, carloads head west to the Odessa rail yard, where it is the responsibility of the yard workers to sort materials and send them to businesses throughout the Permian Basin.
- Iowa Pacific Holdings L.L.C. subsidiary the Texas-New Mexico Railroad (TNMR) recently began moving unit trains of crude oil along its route, which serves as a key rail line in the Permian Basin oilfield. TNMR operates about 100 miles of track between a connection with Union Pacific Railroad in Monahans, Texas, and Lovington, N.M.<sup>7</sup>
    - The first unit train departed on Jan. 22 from Genesis Energy L.P.'s recently constructed crude oil loading facility near Wink, Texas, and headed for the Texas Gulf Coast. TNMR has experienced massive growth in carloads because of the vast expansion of drilling and oil production in the Permian Basin, Iowa Pacific Holdings officials said in a prepared statement.
    - "The initiation of crude oil unit trains represents the latest milestone in a major revitalization of this critical rail link," they said.
  - Union Pacific Railroad CEO Jack Koraleski said hauling oil out of places like North Dakota will be a long-term business for railroads because trains are faster than pipelines, reliable and offer a variety of destinations.<sup>8</sup>
    - "The railroads are looking at this as a unique opportunity, a game-changing opportunity for their business," said Jeffery Elliot, a rail expert with the New York-based consulting firm Oliver Wyman.
    - Since 2009, the number of train cars carrying crude hauled by major railroads has jumped from about 10,000 a year to a projected 200,000 in 2012. Much of it has been in the Northern Plains' Bakken crude patch, but companies say oil trains are rolling or will be soon from Texas, Colorado and western Canada.

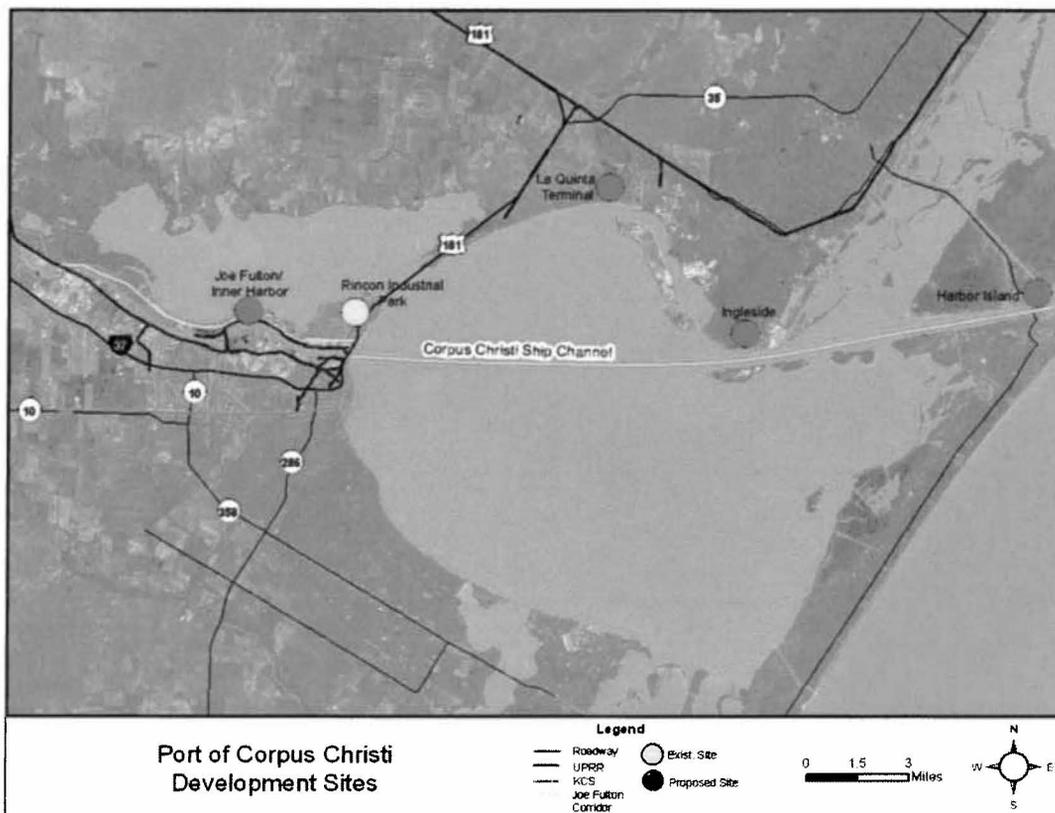
## 2. Expansion of the Panama Canal

The planned expansion of the Panama Canal has begun to impact and will continue to produce varying affects upon the transcontinental railroad system. Currently, large ships dock at West Coast ports (e.g. Port of Long Beach and Port of Los Angeles) to offload intermodal cargo. A significant portion of this cargo is loaded onto intermodal railcar and "railed" cross-country to markets east of the Rocky Mountains. With the opening of a larger Panama Canal, ships of greater capacity will be able to travel across the isthmus and access ports along the Gulf of Mexico and Atlantic Ocean with greater speed than the current route around the tip of South America.

This bypass might impart two changes to the railroad industry in general and Union Pacific in particular: 1) it will divert a portion of transcontinental rail traffic to ship and 2) it will result in greater Gulf Port intermodal activity than has been experienced to-date. The following quotations from news sources and State of Texas studies outline how Union Pacific will handle this new market.

- Plans for the La Quinta Trade Gateway project on the north side of Corpus Christi Bay represent the highest profile land development initiative at the Port of Corpus Christi.... A planned 75-acre, on-dock rail yard with more than 5,000 feet of track could lead to significant increases in rail traffic over the Union Pacific (UP) railroad Kosmas subdivision, and the connection UP railroad Brownsville subdivision. La Quinta would enable railroad lines to serve importers and exporters in South, West, and Central Texas, as well as in Northern Mexico and the Central United States with competitive prices, as well as provide shippers with low cost, cross dock, and distribution center operations (Figure 5.3).<sup>9</sup>

Figure 5.3 Land Development Patterns at the Port of Corpus Christi



- Yet the good times for BNSF and other railroads are not solely a result of rising traffic. Rob Knight, finance director of Union Pacific, owner of the largest US rail network, is one of many executives to highlight the importance of efficiency improvements since industry deregulation in 1980. A program to tackle yard congestion and other productivity problems reduced the proportion of UP's revenues used up by costs from 81.6 per cent in 2006, to 70.6 per cent in 2010,

he says. "It's really unlocking the motivation of all of our employees," Mr. Knight adds.<sup>10</sup>

- Investment is also sharply up. Norfolk Southern, the second-largest network in the eastern US, has spent heavily on upgrading its Heartland Corridor between Virginia and Chicago to handle new traffic arriving at eastern seaports. Traffic is expected to grow after 2014, when the expanded Panama Canal will allow shipping lines to introduce new, bigger ships on services from Asia.
- Uncertainties remain, meanwhile. If expansion to the Panama Canal encourages shipping lines to send more goods to US east coast ports, that could cut out some lucrative, long-distance train journeys eastwards from southern Californian ports for BNSF and Union Pacific.
- West Rail. This project will relocate the Union Pacific Railroad (UPRR) line from the Rio Grande River to US 77/83 north of Brownsville. It was developed through a partnership between TxDOT, Cameron County, CCRMA, and the City of Brownsville. The improvements, which include construction of a new international rail bridge and approximately 6 miles of new single rail track from the new bridge to US 77/83, will eliminate 11 at-grade crossings within Brownsville. The project is currently under construction and approximately 71 percent complete with a construction cost of \$24.8 million. Once this new rail line is complete, it will provide a direct connection from Mexico to the Port of Brownsville.<sup>11</sup>
- A number of railroad improvements have been identified in previous studies and plans [regarding the greater Houston rail network]. The Texas Rail Plan, the TxDOT Waterborne Freight Corridor Study, the TxDOT Houston Region Freight Study, the Port Capital Plans, the H-GAC Regional Goods Movement Study, and other studies identified a number of rail improvement needs. As noted previously with the roadway projects, these rail projects were identified previously to address capacity needs, bottleneck issues, and other concerns. They are not linked to the Panama Canal expansion. Undertaking these projects will assist in meeting future opportunities associated with population increases and energy developments in the state and the Panama Canal expansion, however.<sup>12</sup>
  - A number of these projects focus on railroad grade crossing improvements to address safety, capacity, and congestion. The majority of these projects are in the Houston area, where numerous automobile-train collision hot spots and safety and impedance situations exist. These projects were identified prior to extensive discussion of the Panama Canal expansion and potential impacts on Texas.
- How will the expansion of the Panama Canal affect your business in Houston?<sup>13</sup>
  - Typically the biggest impact we would have expected would be on our intermodal business. We would have expected the ships that would have stopped in L.A./Long Beach (Calif.) would go through the canal and go to the East Coast.
  - But we really believe a lot of the shift that was going to take place has already happened. The natural flows that come into the West Coast and get on rail to move into the population center in the middle of the country will still continue that way. For Houston, (an increase in rail traffic) is really dependent on where those products are being sold.
  - I think a lot of people are looking at (the expansion) from a crude oil perspective, setting up crude oil terminals for exports. We believe from a crude oil perspective that offering a lot of destinations and flexibility is very positive.
  - We have worked with a variety of different ports and companies that want to ship crude

oil to a variety of different places in Texas.

- So our strategy around that is to ensure we are providing a great value to the customers, continuing to do what we do by adding additional capacity — whether it is yard capacity, whether it is storage in transit for plastics, whether it is an additional main line. There also are areas where we are trying to double-track so we can go bidirectional. We are doing a lot of things to support that whole economy.

### 3. Import of Goods from “Near-shored” Manufacturing Facilities and Mexican Coal Export

Due to the increase in overseas transportation costs and an ever-increasing growth in wage rates being paid in the South Asian manufacturing sector, the concept of “near shoring” has been on the rise over the past decade. Many companies have found it more economic to manufacture goods in Mexico, due to the combination of proximity and decreased transportation distance to U.S. markets, than in overseas markets. As outlined below, Union Pacific is the only U.S. railroad to have access to all six points where the U.S. rail system connects to the Mexican rail system, giving it great leverage and opportunity in the cross-boarder market. This also means that any new commodity, including Nissan’s new NYC taxi cabs, made in Mexico and shipped to the U.S. via train, likely will travel over UP.

- Booms in Texas crude oil, Gulf Coast chemical traffic and the Mexican auto industry led to high volume levels across U.P.'s southern network. Volumes there were up 3 percent in the fourth quarter and 5 percent for the year, said Lance Fritz, executive vice president of operations.<sup>14</sup>
  - U.P. fourth-quarter successes included a 14 percent surge in chemical volumes due to continued crude oil growth and an increase in industrial chemicals and plastics. Automotive volume growth also was on the rise at 9 percent, reflecting the company's strong partnership with auto parts manufacturers in Mexico, Butler said. Typically the biggest impact we would have expected would be on our intermodal.
  - “The story on autos is that it continues to strengthen,” he said. “We're hoping it continues to strengthen. We're in a position to haul parts and finished vehicles to multiple destinations.”
  - U.P.'s advantage in Mexico is that it's the only American railroad to have access to all six rail entry points to the country and it also owns 26 percent of Mexico's largest railroad. Fritz said that although the southern network is one of the most constrained part of the railroad, it has locomotives in storage and can reposition horsepower and manpower to respond to demand.
  - Intermodal volume also increased 2 percent in the fourth quarter and for the year. The company's fourth-quarter revenue mix was 21 percent intermodal, 17 percent industrial, 17 percent chemicals and 9 percent autos.
- The planned expansion would more than double Peabody's export capacity along the Gulf Coast to between 5 million and 7 million tons annually between 2014 and 2020, according to company officials. In 2011, Peabody shipped 6.6 million tons of coal through export terminals on the Atlantic, Pacific and Gulf coasts, and it has projected total exports of 10 million tons for this year. Much of the coal being shipped from Texas and Louisiana will serve Peabody's European markets, the St. Louis-based company said.<sup>15</sup>

- To help facilitate its Gulf Coast export expansion, Peabody has secured a rail service agreement with Union Pacific Railroad to transport coal from its Colorado mines to Kinder Morgan's Houston terminals, the company announced. Kinder Morgan has also agreed to invest roughly \$400 million in its Gulf Coast terminals, boosting its export capacity through the Gulf of Mexico to roughly 27 million short tons annually.
- The United States exported roughly 107 million tons of coal last year, breaking a 20-year record, and is on pace this year to exceed 120 million tons, which would break the all-time record of 112.5 million tons set in 1981.

## Conclusion

The Union Pacific Railroad network is an intricate, interconnected and, in some instances, redundant system. As the map in the introduction displays, two UP predecessor railroads and, subsequently seven of its operating subdivisions, converge in the immediate vicinity of Hearne, making it a prime location, from the railroad's perspective, to build a classification yard at which to sort its manifest trains and redistribute goods over its rail network.

Given the proximity of the subject, proposed rail yard to the new rail markets outlined in this study, it is likely that the yard will handle traffic associated with the shipment of all of the commodities outlined above. UP is likely financing this construction with its capital with the intention that the new yard, located at the crossroads of seven railroad "subdivisions," will provide it strategic operational benefit and thereby increased profitability. This rail yard will play a part in increasing the flow of commodities associated with the many new markets developing in Texas to/from all points north, west and east.

The explosion of shale oil development in the United States, along with the chemicals, frac sand, pipe and water needed to access it, will be a continual growth new market over the coming decade on U.S. Class I railroads. With chemicals and frac sand originating in Texas, oil from North Dakota terminating at Gulf Coast refineries and Eagle Ford shale oil being drilled in the region, the subject classification yard certainly will handle a portion of the manifest shipments as they are sorted and redistributed across the nation. Expansion of the Panama Canal and increased container traffic to/from Houston will result in a greater need to handle manifest intermodal containers as they enter/exit the Port and are distributed to the hubs of San Antonio, Dallas and Fort Worth, all of which are beyond the proposed classification yard from that port. Finally, increased production of importable commodities in Mexico also will lead to increased rail traffic through the State of Texas, which will have, at minimum, a measurable impact on the freight traffic moving through the proposed rail yard.

While R.L. Banks & Associates, Inc. is not privy to the internal market projections of UP or its overall strategies, the evidence unearthed in this study point to the undeniable fact that new markets are becoming accessible and that the construction of the proposed rail yard will expedite the flow of UP rail traffic, including products associated with those new markets.

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## Union Pacific will key on the southern part of network

By Emily Nohr

WORLD-HERALD STAFF WRITER



REBECCA S. GRATZ/THE WORLD-HERALD

Union Pacific has its eye on the southern part of its network this year, as the region's volume levels returned to pre-recession and higher levels to help the railroad post strong fourth-quarter returns and a record 2012 profit.

**Booms in Texas crude oil, Gulf Coast chemical traffic and the Mexican auto industry led to high volume levels across U.P.'s southern network.** Volumes there were up 3 percent in the fourth quarter and 5 percent for the year, said Lance Fritz, executive vice president of operations.

"Capital investments are generating an excellent return and are having a positive impact," Fritz said of U.P.'s southern network.

That balanced continued overall sluggish coal and grain markets.

Thursday, during the Omaha-based railroad's fourth-quarter earnings report to investors, U.P. announced plans to spend about \$3.6 billion in capital investments in 2013, more than half of which will go toward replacing infrastructure and for commercial facilities like the Santa Teresa facility in New Mexico and other southern projects.

The southern investment will help continue U.P.'s record-breaking profits streak, company officials said, which posted a \$1.04 billion fourth-quarter profit. That was the same as the last quarter and enough to make a record-breaking year with an overall net income increase of 20 percent, from \$3.3 billion to \$3.9 billion.

Fourth-quarter profits were up 7 percent, from \$964 million to \$1.04 billion, while earnings per share were up 10 percent from \$1.99 to \$2.19. Fourth-quarter operating revenues were up 2 percent from \$4.8 billion to \$4.9 billion, and operating income was up 7 percent from \$1.6 billion to \$1.7 billion.

For the year, earnings per share were up 23 percent, from \$6.72 to \$8.27. Operating revenues were up 6 percent for the year, from \$18.5 billion to \$19.7 billion, and operating income was up 18 percent from \$5.7 billion to \$6.7 billion.

"We're very proud of what we've accomplished here," said Rob Knight, the company's chief financial officer.

U.P. fourth-quarter successes included a 14 percent surge in chemical volumes due to continued crude oil growth and an increase in industrial chemicals and plastics. Automotive volume growth also was on the rise at 9 percent, reflecting the company's strong partnership with auto parts manufacturers in Mexico, Butler said.

For the year, chemicals and automotive volumes each rose 13 percent. Knight said he suspects the auto boom is partly due to a recovering economy's pent up demand for newer vehicles.

"The story on autos is that it continues to strengthen," he said. "We're hoping it continues to strengthen. We're in a position to haul parts and finished vehicles to multiple destinations."

U.P.'s advantage in Mexico is that it's the only American railroad to have access to all six rail entry points to the country and it also owns 26 percent of Mexico's largest railroad. Fritz said that although the southern network is one of the most constrained part of the railroad, it has locomotives in storage and can reposition horsepower and manpower to respond to demand.

Intermodal volume also increased 2 percent in the fourth quarter and for the year. The company's fourth-quarter revenue mix was 21 percent intermodal, 17 percent industrial, 17 percent chemicals and 9 percent autos.

Coal volumes — which were 20 percent of the company's revenue mix in the fourth quarter dropped 17 percent in the fourth quarter and 14 percent for the year because of high coal stock piles and low natural gas prices, said Eric Butler, executive vice president of marketing and sales.

Agricultural volumes — which were 16 percent of the company's fourth-quarter revenue mix declined 9 percent in the fourth quarter and 4 percent for the year. Butler noted that the drought had the biggest affect in U.P. territory, limiting corn supply in those areas and lowering grain shipments and livestock counts in dry states like Texas and Arkansas.

Knight said it's likely declines in coal and grain markets will lag through the first quarter of 2013.

U.P. CEO Jack Koraleski didn't speak during the company's call with investors. Company officials said he was ill.

Contact the writer: 402-444-1192, [emily.nohr@owh.com](mailto:emily.nohr@owh.com)

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# Union Pacific looks to Mexico as US coal demand falls: officials

<http://www.longshoreshippingnews.com/2012/04/union-pacific-looks-to-mexico-as-us-coal-demand-falls-officials/> January 28, 2013

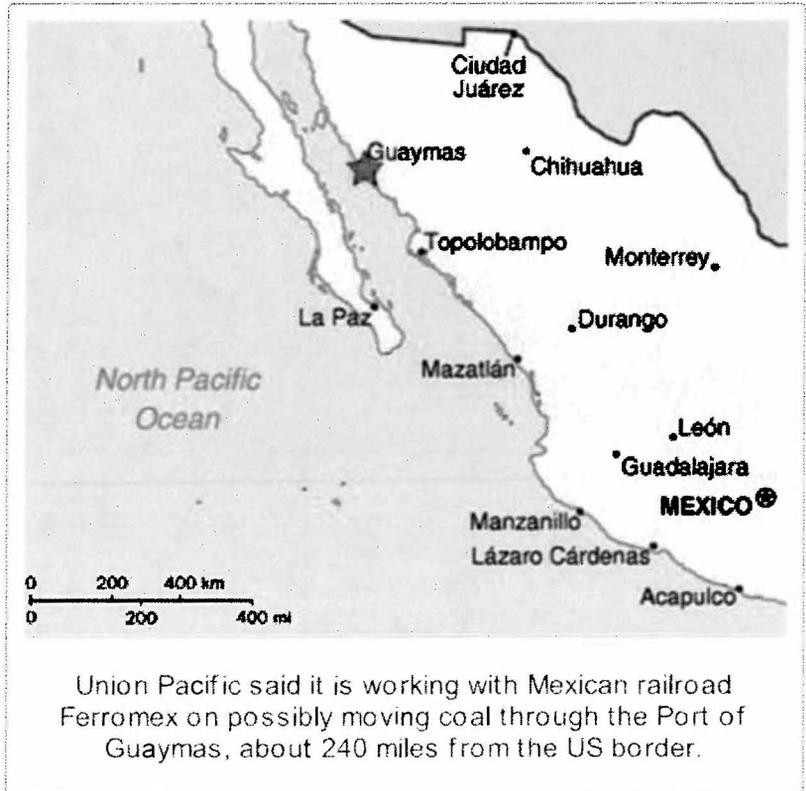
As domestic US coal volumes continue to shrink, Union Pacific executives said they are closely watching terminal developments in Longview, Washington, and even exploring the potential of exporting coal through the Port of Guaymas in northwest Mexico.

Union Pacific CEO Jack Koraleski said that the railroad would benefit most from the Millennium Bulk Terminals project in Longview, a \$600 million terminal capable of exporting 44 million mt/year.

But the US Environmental Protection Agency's recent inquiry into the Morrow Pacific coal export project in Oregon is making Union Pacific wary of possible environmental restrictions as Millennium seeks a permit.

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## **COAL:**

### **Peabody to boost exports from Gulf Coast as Pacific Northwest terminal plans stall**

Daniel Cusick, E&E reporter

*ClimateWire*: Wednesday, July 18, 2012

Peabody Energy Corp., the world's largest private coal company, tipped the U.S. coal export scales southward yesterday by selecting Houston and New Orleans as primary ports for shipping Colorado, Powder River Basin and Illinois Basin coal to international markets.

Under new agreements with Kinder Morgan Energy Partners, Peabody said it would gain additional coal export capacity from Kinder Morgan's Deepwater Terminal and Houston Bulk Terminal in Texas, as well as increased access to the International Marine Terminal at Myrtle Grove, La., south of New Orleans.

The planned expansion would more than double Peabody's export capacity along the Gulf Coast to between 5 million and 7 million tons annually between 2014 and 2020, according to company officials. In 2011, Peabody shipped 6.6 million tons of coal through export terminals on the Atlantic, Pacific and Gulf coasts, and it has projected total exports of 10 million tons for this year.

Much of the coal being shipped from Texas and Louisiana will serve Peabody's European markets, the St. Louis-based company said.

Gregory Boyce, Peabody's chairman and CEO, said in a statement that the partnership with Kinder Morgan's Gulf Coast terminals will help the company establish "a large-volume, sustainable U.S. export platform to meet growing global seaborne coal demand."

The company expects to begin shipping Colorado and Powder River Basin coal through the Houston terminal in 2014.

Shipments of Colorado and Powder River Basin coal from Louisiana will begin around the same time, and Peabody will extend contracts at the Cora River terminal in Illinois to facilitate shipments of Illinois Basin coal for domestic and international markets.

### **Big coal export market expected**

Coal industry experts predict that U.S. exports will surge to more than 100 million tons per year over the coming decade as consumption shifts away from the United States -- where electric utilities are relying increasingly on natural gas and other fuel sources for power generation. The coal would go to emerging markets in China, Southeast Asia, India and Latin America where coal remains a primary fuel for electricity.

To help facilitate its Gulf Coast export expansion, Peabody has secured a rail service agreement with Union Pacific Railroad to transport coal from its Colorado mines to Kinder Morgan's Houston terminals, the company announced. Kinder Morgan has also agreed to invest roughly \$400 million in its Gulf Coast terminals, boosting its export capacity through the Gulf of Mexico to roughly 27 million short tons annually.

Kinder Morgan Terminals President Jeff Armstrong said in a statement, "Export coal demand continues to grow around the country, and Kinder Morgan is well positioned with our network of terminals to serve our customers' needs in multiple locations."

The United States exported roughly 107 million tons of coal last year, breaking a 20-year record, and is on pace this year to exceed 120 million tons, which would break the all-time record of 112.5 million tons set in

1981.

Yet if such numbers are to be realized, export capacity must be expanded quickly, officials say, and they are opening fronts on all three major coasts -- from Charleston, S.C., to New Orleans and Houston, to Los Angeles, Portland and Seattle.

## **West Coast dreaming**

One location where U.S. coal companies and shipping firms have worked hard to expand terminal capacity, but failed so far, is the Pacific Northwest, where some estimate exports of the Powder River Basin coal could reach 75 million tons by 2017, and more than double again to 170 million tons by 2022.

Various entities, including consortia involving Kinder Morgan, Peabody, Arch Coal, Ambre Energy of Australia and SSA Marine, have proposed up to six coal terminals for the Washington and Oregon coasts. But those efforts have been stymied by permitting delays, environmental opposition and calls for comprehensive environmental reviews by permitting authorities.

A major coal terminal sought by Peabody and partner SSA Marine at Cherry Point, Wash., would allow for the export of 24 million tons of coal annually, and backers of the Gateway Pacific Terminal say it will create between 300 and 400 permanent direct jobs and generate \$140 million in wages and tax revenue annually, according to the project's [website](#).

But the terminal, combined with the other five proposals, has garnered skepticism and outright opposition from those who believe a massive coal terminal will diminish air and water quality in the region while increasing noise, congestion and wait times at rail crossings.

Sen. Patty Murray (D-Wash.), a member of the Senate Energy and Water Development Appropriations Subcommittee, is among those critics. She wrote to the Army Corps of Engineers last month expressing concern about how a major influx in coal export activities would affect environmental and public health.

So far, the Army Corps has resisted such calls. In a recent letter to Oregon Gov. John Kitzhaber (D), Jo-Ellen Darcy, assistant Army secretary for civil works, said her agency would limit its reviews to individual project sites and cast a broader regulatory net only where required under the National Environmental Policy Act ([Greenwire](#), June 18).

Even so, executives behind the coal terminal proposals have expressed frustration at the slow pace of approvals. "The opposition thrown at these projects has caused delay after delay after delay," John Schlosser, another senior Kinder Morgan executive, told the trade publication *SNL Coal Report* in a recent interview. "The coal industry needs these facilities."

## **Brighter prospects on Gulf Coast?**

Schlosser and other proponents of coal exports may have reason to be more optimistic about their prospects on the Gulf Coast, where rail and shipping infrastructure have been developed to handle bulk commodities like coal, gravel and timber products.

Coal is also likely to face less opposition from environmental groups along what is known as the "Energy Coast," a moniker born of extensive offshore oil and gas drilling, petroleum refining and other energy-related activities along a 700-mile stretch of coast from Alabama to Texas.

But there are logistical and financial drawbacks to Gulf Coast ports, which are far removed from both the Powder River Basin coal fields and the fastest-growing international coal markets. Asia-bound exports of U.S. coal from Gulf Coast terminals, for example, would require passage through the Panama Canal, after which the loaded ships would face very long trans-Pacific journeys.

By contrast, shipments from the Pacific Northwest offer a more direct and much shorter route to China, South Korea and other Asian markets.

According to the Seattle-based Sightline Institute, which has studied the Pacific Northwest coal export market, British Columbia ports are nearly 1,200 nautical miles closer to Shanghai than the Port of Los Angeles.

A 2011 [analysis](#) by Sightline found that while coal exports have increased at the three largest British Columbia terminals -- Ridley, Westshore and Neptune -- there is not enough room at those ports to absorb a major increase in U.S. exports.

"The expanded capacity planned for [British Columbia's] coal ports would not come close to handling the volumes of coal called for by the recent proposals in Washington state," the analysis found. Moreover, Sightline said the British Columbia ports would continue to favor metallurgical-grade Canadian coal that fetches a higher price on international markets.

Peter Epstein, a senior coal analyst with MockingJay Inc., noted recently in a Seeking Alpha [blog post](#) that with the slow development of U.S. export facilities in the Pacific Northwest, Powder River Basin coal producers have been forced to jockey for port allocations at two major British Columbia terminals, Ridley and Westshore.

"PRB exports through the Gulf [of Mexico] are feasible," Epstein wrote, "but that route is also the main export venue for Illinois basin coal," which has also become highly competitive due to its low costs and high heating value.

For that reason, Epstein predicted, Powder River Basin producers may need to find new markets for between 20 and 25 percent of the region's 450 million tons of annual production.

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## Shale Revolution Leads to Rebirth of Rail Transportation

by G. Allen Brooks Parks Paton Hoepfl & Brown

Wednesday, January 30, 2013

The Shale Revolution has created numerous challenges for energy thinking – both here in North America and globally.

The success in exploiting America's shale resources has contributed to a resurgence of domestic crude oil production. The most recent weekly U.S. oil production figure, as reported by the Energy Information Administration (EIA), is over seven million barrels per day, the highest level since March 1993. The EIA in its December *Short Term Energy Outlook* forecasts that domestic oil production, which they estimated averaged 6.4 million barrels per day (mmb/d) in 2012 will average 7.3 mmb/d this year and increase further to 7.9 mmb/d in 2014. If the latter target is reached, it will match the highest level of domestic production since 1988.

All this additional oil production means greater volumes need to be transported to the nation's refineries for processing. The great challenge for our crude oil transportation infrastructure is that much of the new shale production is coming from more remote locations. Figuring out how to ship this growing shale output has become a major issue since oil that can't reach a refinery has little value. Moreover, due to pipeline limitations, oil producers already are struggling with how to reach the most profitable refineries. That means transportation flexibility is becoming a more significant consideration.

Traditionally, crude oil is moved from producing wells to refining centers via pipelines. When new wells are close to existing producing areas, the infrastructure requirements may only involve constructing a small diameter pipeline from the wells to an interconnection point with a larger capacity pipeline. That is relatively easy to do when the new volumes are not large, but shale oil output is beginning to exceed those limits. It means the pipeline industry needs to plan to construct larger volume pipelines to haul the oil from the new shale fields to the refineries. As shale output is growing rapidly and forecasts call for output to continue to rise, the transportation companies need to try to anticipate what volumes they will be moving in the future in order to construct the appropriately sized pipelines.

The transportation situation has been further compounded by the glut of oil accumulating in the middle of the country as new Bakken shale output is flowing there along with increased oil imports from Canada. To date, the restriction on moving large volumes of crude oil from the Cushing, Oklahoma storage point to Gulf Coast refineries has resulted in depressed oil prices at that mid-continent site. The low oil price has significantly helped the few mid-continent refineries in operation that benefit from a low feedstock price and high final product prices. The recent reversal and expansion of the Seaway Pipeline will help to correct this geographical supply imbalance and should result in boosting mid-continent oil prices. But this move hasn't solved the problem totally, and won't be a solution if additional oil continues to come from the Bakken formation and Canada.

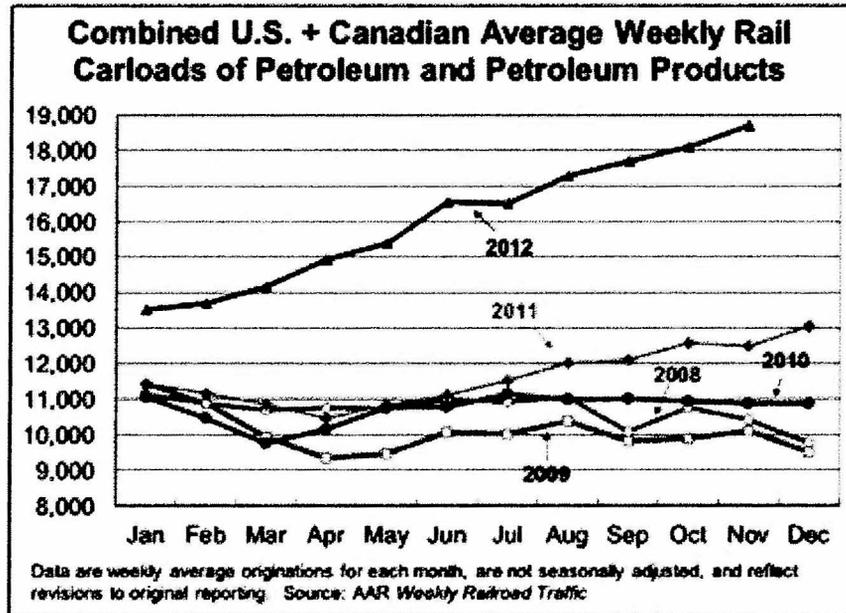
To try to overcome these problems, the oil industry is reverting back to historical methods of moving oil such as truck, train and barge, or a combination of the three, in addition to pipelines. Railroads are becoming a popular transportation option for shale oil, especially the oil from the Bakken formation in Montana and North Dakota. Recently, Phillips 66 (PSX-N) announced a 5-year contract with Global Partners L.P. (GLP-N) to move Bakken oil to the company's Bayway refinery in New Jersey. Global will use its rail loading, logistics and transportation network to deliver about 50,000 barrels per day to Phillips 66. This is merely one of many new and expanded contracts to move oil production from the Bakken and South Texas Eagle Ford formations to refineries.

### UP GROWTH

The volume of crude oil transported by rail has mushroomed in the past year. (Exhibit 9) The combined U.S. and Canadian average weekly railcar loadings exploded in 2012, rising by approximately 39%. Union Pacific (UNP-N) indicated that it moved 2,000-5,000 carloads of crude oil in 2011 and approached 50,000 units last year. Value-investor Warren Buffett's BNSF railroad, a unit of his Berkshire Hathaway (BRK.B-N) conglomerate, saw its petroleum activity grow from 203,735 carloads in 2011 to 353,738 in 2012, a gain of 73.6%. Moreover, the

annualized rate in the fourth quarter was 443,000 units, a 25% increase over the 2012 volume, but BNSF has stated publicly its planned volumetric increase in 2013 will be more like 40%.

**EXHIBIT 9. RAIL MOVEMENT OF CRUDE OIL EXPLODING**  
 SOURCE: AMERICAN ASSOCIATION OF RAILROADS

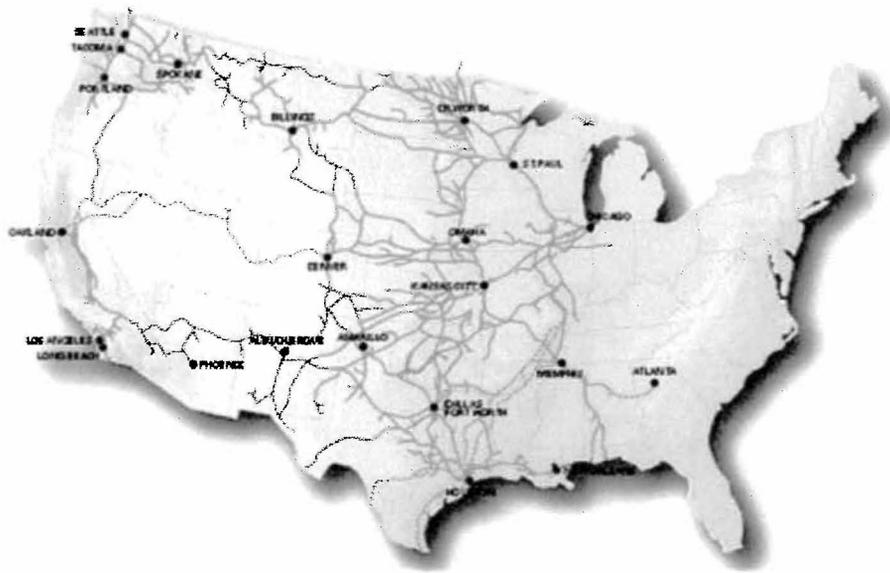


Even pipeline companies are getting involved in the railroad business by building terminal facilities to offload railcars at receiving points along their pipelines. A consortium of pipeline companies headed by Plains All American Pipeline LP (PAA-N) announced it will spend an estimated \$1 billion on rail projects this year. Enbridge Inc. (ENB-N) is investing about \$160 million to develop a North Dakota rail terminal. When the first stage was completed last September, it was able to transfer 10,000 barrels of crude oil from trucks to rail cars. In the second phase, just commencing construction, the company will double-loop the track for the rail cars allowing tanker cars to wait to be loaded. At full capacity, the terminal will handle 80,000 b/d.

Union Pacific invested \$50 million in the Permian Basin last year in new rail yards and sidings to enable more efficient movement of trains. Last fall, the rail company was moving 125 unit-trains of crude oil a month, which was growing. Each unit train can move roughly 65,000 barrels of oil. And in Louisiana, Union Pacific has invested \$200 million to expand a crude oil receiving terminal located near several refineries.

Probably the prime beneficiary from the explosion in Bakken production has been BNSF. If one looks at the company's rail network throughout the western part of the United States, it is not hard to see that it has rail lines reaching into every shale basin.

**EXHIBIT 10. BNSF'S RAIL NETWORK TOUCHES WESTERN SHALES**  
SOURCE: BNSF FACT SHEET 2012



Last year, the company spent \$400 million on new rail terminals and track upgrading in order to capitalize on the shale boom. It is planning on investing \$197 million in track upgrades in Montana and North Dakota this year. Given the close association between Warren Buffett and President Barack Obama, there are often rumblings that the President's rejection of the Keystone XL Pipeline construction permit was in order to not create a cheaper alternative to BNSF. Estimates are that rail transportation charges for Bakken oil can range between \$5 and \$18 per barrel depending on where it is heading. Most comparisons of transportation options suggest that it costs roughly \$10 a barrel more to move the oil by rail than pipeline, but for oil that may be trapped in areas where it sells at \$30-\$40 a barrel discount to Gulf Coast or East Coast oil imports, that extra transportation cost is well worth it to capture the additional coastal-market premium.

One of the more interesting aspects of this shale oil and railroad saga is to go back into history and see the evolution of oil transportation from the beginning of the petroleum era in the United States. Following the discovery of oil in western Pennsylvania with Col. Edwin Drake's well, the oil was hauled in used whiskey barrels by wagons operated by teamsters from the well sites to trains, which then hauled it to a refinery in New York City. Because of the congestion in the region and the captive market situation, the cost of transporting the oil to the rail depot exceeded the total freight charge from Pennsylvania to New York, according to Ida Tarbell's 1904 *History of Standard Oil*. To overcome the high tariff due to the monopoly situation, a 9-mile long, wooden pipeline was constructed to move the oil to the rail line, one of the first uses of a pipeline in the U.S. to haul oil.

Another interesting footnote to this transportation story is why we have 42-gallon barrels as the standard measure in the oil industry. It began with England's King Richard III who defined wine "puncheons" as a cask holding 84 gallons and a "tierce" as one holding 42 gallons. These casks were made by "tight" coopers who constructed them under guidelines established by their guild, The Worshipful Company of Coopers. Over the years, puncheons and tierces were transported to America along with all sorts of other casks. By 1700, due to Pennsylvania statute, practical experience and custom, water-tight tierces became the standard container for shipping everything from eels, fish, molasses and whale oil. A 42-gallon tierce full of crude oil weighed about 300 pounds, which was considered to be about as much weight as a man could reasonably wrestle around. Twenty of them would fit nicely on the flat cars used by the railroads (see Exhibit 11 and note the barrels in each flat car). For the industry, bigger casks were unmanageable and smaller ones less profitable. Thus, the 42-gallon cask became the oil industry standard in the 1860s and remains so today.

**EXHIBIT 11. 1860S OIL CREEK TRAIN HAULS BARRELS OF OIL**  
SOURCE: THE OIL CREEK RAILROAD COMPANY, 1860-1868



Due to the location of shale output, the time lag in planning and then building new pipelines and the existence of convenient railroads with greater flexibility than pipelines to reach the most profitable refineries, railroading of oil has become a growth business once again. It will remain so, as long as new tanker cars can be procured and until production peaks.

G. Allen Brooks is Managing Director of Houston-based investment banking firm Parks Paton Hoepfl & Brown. This article originally appeared in the Jan. 29, 2013, issue of PPHB's new sletter "Musings from the Oil Patch."

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## San Antonio is emerging as vital rail junction for Eagle Ford Shale



Sanford Nowlin

Reporter- San Antonio Business Journal

Email

Business for San Antonio's two railroad operators is picking up steam from activity in the Eagle Ford Shale.

Burlington Northern Santa Fe LLC late last year purchased 290 acres in Southwest Bexar County, telling local economic development officials it plans to construct a railyard — or perhaps a larger shipping facility — at the site to capitalize on growing South Texas traffic.

And, rival Union Pacific Corp., spurred on by the thriving Eagle Ford petroleum play, has hired 300 people here since the beginning of last year, increasing its South Texas workforce to 1,400. It's also reopened a South Side railyard idled a few years ago for lack of activity.

The Eagle Ford, which stretches through two-dozen counties south of San Antonio, is shaping up to be one of the state's prime economic generators, and rail lines are booming as drillers ship oil to refiners and bring in raw materials like sand and pipe.

"BNSF feels they need more of a presence in Bexar County because they have trackage rights here but don't have a rail yard, per se," says **San Antonio Economic Development Foundation** President Mario Hernandez, who helped the company during its site-selection process. "The tremendous business being generated with the Eagle Ford Shale presents some real opportunities for shipping companies."

Omaha, Neb.-based UP and Fort Worth-based BNSF became the two prime rail providers in South Texas after UP's acquisition of Southern Pacific in the 1990s.

BNSF spokesman Joseph Faust confirms that his company acquired land in south Bexar County for "industrial development purposes" but declines to reveal specifics.

"It would be premature to discuss any potential or possible further use for this property at this time," he adds.

While local economic development and shipping officials say BNSF has been tight-lipped about its plans, several say they would be surprised if the company chooses to sit on the land and let the petroleum boom pass it by.

"My impression was that they're trying to build a footprint," says [David Marquez](#), Bexar County economic development director. "That has to be important for a railroad operating in an area like San Antonio that has a growing industrial economy."

UP three years ago opened a \$100 million intermodal transportation terminal in San Antonio that can switch cargo containers from trains onto tractor trailers fanning out from the site.

Rising shipments into and out of the Eagle Ford have only boosted the importance of the terminal and the company's three San Antonio railyards, UP spokeswoman [Raquel Espinoza](#) says.

The city serves as a significant junction as shipments of frac sand come into the shale from Midwest producers and as oil heads out to Gulf Coast refineries.

"San Antonio is a key location for us because it links the country — our whole network, if you will — with South Texas and the gateway to Mexico," Espinoza says.

With shipments into the shale on the increase, the company recently restarted a yard near Port San Antonio on the city's Southwest Side that it had previously used just for storage.

"Once we started seeing more activity in the Eagle Ford area, we put it back in use," Espinoza adds.

## **Gaining steam**

Port San Antonio, which operates a rail yard that connects both UP and BNSF lines, experienced a 53 percent uptick in traffic during 2011. More than half of its current rail activity at the privatized air base is now related to the shale, Port San Antonio General Manager [Tony Salinas](#) says.

"The majority has been industrial sand for fracking," he says.

While rail shipments dwindled during the nation's prolonged economic downturn, analysts say activity around the Eagle Ford and North Dakota's Bakken shale plays are reversing the trend.

During the first quarter, Union Pacific's petroleum-products loadings increased 63 percent, according to **Frost & Sullivan** transportation analyst [Stephen Spivey](#). The industry also expects additional growth in industrial products and chemical shipments for the rest of this year and into 2013.

"I would suggest the short- to medium-term outlook is bright for the rail industry," Spivey says.

Even so, Spivey says BNSF may not be in a hurry to build a South Texas railyard. The company is working to improve its credit profile and paying out dividends to billionaire Warren Buffett's Berkshire Hathaway Inc., which purchased the railroad in 2010 for \$44 billion.

"I would expect BNSF to focus on its core customers in agriculture and coal rather than spending capital to develop new rail networks in South Texas," Spivey adds.

However, the company's capital spending is likely to rise to \$3.9 billion this year from \$3.3 billion, according to a recent Standard & Poor's research report on the company. And industry observers say South Texas likely is a key part of its growth strategy.

"You'd think that the more customers and traffic they pick up, the more interest they'd have in developing that property," says Mike Weiss, president of 4M Realty Co., which helped UP put together its intermodal site.

The EDF's Hernandez says a bigger presence from BNSF could be another selling point for manufacturers mulling investment in San Antonio. Heavy industrial facilities, including Toyota's \$1 billion truck plant on the city's South Side, rely on rail as a primary means of shipping.

"UP is a great railroad and they do a great job," Hernandez says. "But from an industrial users' standpoint, any time you have competition from two providers, that's even more attractive."

Sanford Nowlin covers energy/utilities, transportation/aviation and manufacturing.

# Trains carry more oil across U.S. amid boom

Matthew Brown and Josh Funk, AP 9:05 a.m. EST December 30, 2012



(Photo: Thinkstock)

BILLINGS, Mont. — Energy companies behind the oil boom on the Northern Plains are increasingly turning to an industrial-age workhorse — the locomotive — to move their crude to refineries across the U.S., as plans for new pipelines stall and existing lines can't keep up with demand.

Delivering oil thousands of miles by rail from the heartland to refineries on the East, West and Gulf coasts costs more, but it can mean increased profits — up to \$10 or more a barrel — because of higher oil prices on the coasts. That works out to roughly \$700,000 per train.

The parade of mile-long trains carrying hazardous material out of North Dakota and Montana and across the country has experts and federal regulators concerned. Rail transport is less safe than pipelines, they say, and the proliferation of oil trains raises the risk of a major derailment and spill.

Since 2009, the number of train cars carrying crude hauled by major railroads has jumped from about 10,000 a year to a projected 200,000 in 2012. Much of it has been in the Northern Plains' Bakken crude patch, but companies say oil trains are rolling or will be soon from Texas, Colorado and western Canada.

"This is all occurring very rapidly, and history teaches that when those things happen, unfortunately, the next thing that is going to occur would be some sort of disaster," said Jim Hall, a transportation consultant and former chairman of the National Transportation Safety Board.

Rail companies said the industry places a priority on safety and has invested heavily in track upgrades, provided emergency training and taken other measures to guard against accidents. There have been no major oil train derailments from the Bakken, according to federal regulators.

Union Pacific Railroad CEO Jack Koraleski said hauling oil out of places like North Dakota will be a long-term business for railroads because trains are faster than pipelines, reliable and offer a variety of destinations.

"The railroads are looking at this as a unique opportunity, a game-changing opportunity for their business," said Jeffery Elliot, a rail expert with the New York-based consulting firm Oliver Wyman.

BNSF Railway Co., the prime player in the Bakken, has bolstered its oil train capacity to a million barrels a day and expects that figure to increase further. To accommodate the growth, in part, the railroad is sinking \$197 million into track upgrades and other improvements in Montana and North Dakota.

BNSF is also increasing train sizes, from 100 oil cars per train to as many as 118.

Larger trains are harder to control, and that increases the chances of something going wrong, safety experts said. State and local emergency officials worry about a derailment in a population center or an environmentally sensitive area such as a river crossing.

Rail accidents occur 34 times more frequently than pipeline ones for every ton of crude or other hazardous material shipped comparable distances, according to a recent study by the Manhattan Institute, a conservative think tank. The Association of American Railroads contends the study was flawed but acknowledges the likelihood of a rail accident is double or triple the chance of a pipeline problem.

The environmental fears carry an ironic twist: Oil trains are gaining popularity in part because of a shortage of pipeline capacity — a problem that has been worsened by environmental opposition to such projects as TransCanada's stalled Keystone XL pipeline. That project would carry Bakken and Canadian crude to the Gulf of Mexico.

Wayde Schafer, a North Dakota spokesman for the Sierra Club, described rail as "the greater of two evils" because trains pass through cities, over waterways and through wetlands that pipelines can be built to avoid.

"It's an accident waiting to happen. It's going to be a mess and we don't know where that mess is going to be," Schafer said.

For oil companies, the embrace of rail is a matter of expediency. Oil-loading rail terminals can be built in a matter of months, versus three to five years for pipelines to clear regulatory hurdles and be put into service, said Justin Kringstad of the North Dakota Pipeline Authority. Although more pipelines are in the works, he said moving oil by rail will continue.

The surge comes at the right time for railroads: Coal shipments — a mainstay of the rail industry — have suffered because of competition from cheap natural gas.

In the eastern U.S., CSX and Norfolk Southern railroads haven't seen as much growth because oil from the Marcellus Shale area of Pennsylvania, Ohio and New York is close enough to refineries that trucks haul the crude.

Yet BNSF is beginning to haul Bakken crude east to Chicago, where it hands off the tank cars to CSX or Norfolk Southern for delivery to Eastern refineries. It has also sent oil to the West Coast, a trend that could increase if Alaska crude production falters, as some industry observers are predicting.

The growth will require significant upgrades to already congested rail lines, industry analysts said.

Overall, crude oil shipments still represent less than 1 percent of all carloads. And there are far more dangerous materials aboard the nation's trains, including explosives, poisonous gases and other industrial chemicals.

But emergency officials are increasingly wary of major accidents involving oil trains, which carry far more cargo than some other hazardous-material trains.

While oil is not as volatile as some other products, a rupture of just one car can spill 20,000 to 30,000 gallons, said Sheldon Lustig, a rail expert who consults with local governments on accidents and hazardous materials.

Recognizing the risks, Houston-based Musket Corp., an operator of oil train terminals in North Dakota, Wyoming, Colorado, Utah and Oklahoma, has donated spill equipment and provided training to fire officials.

"You want to be a good steward in that community," said Musket managing director JP Fjeld-Hansen.

Federal Railroad Administration officials said they have coordinated hazardous-material training seminars and sought more law enforcement patrols for rail crossings to increase safety.

Federal law requires railroads to select hazardous-material routes after analyzing the potential for accidents in heavily populated areas and environmentally sensitive spots. Those analyses are confidential for security reasons.

Lustig said the railroads have considerable sway over the process.

"Under federal guidelines, the railroad makes the analysis, the railroad decides what they want to do, and the railroad does it," he said. "There is no public accountability."

*Funk reported from Omaha, Neb. AP reporter James MacPherson in Bismarck, N.D., contributed.*

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## Texas-New Mexico Railroad operates first crude oil unit train

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Iowa Pacific Holdings L.L.C., subsidiary the Texas-New Mexico Railroad (TNMR) recently began moving unit trains of crude oil along its route, which serves as a key rail line in the Permian Basin oilfield. TNMR operates about 100 miles of track between a connection with Union Pacific Railroad in Monahans, Texas, and Lovington, N.M.

The first unit train departed on Jan. 22 from Genesis Energy L.P.'s recently constructed crude oil loading facility near Wink, Texas, and headed for the Texas Gulf Coast. TNMR has experienced massive growth in carloads because of the vast expansion of drilling and oil production in the Permian Basin, Iowa Pacific Holdings officials said in a prepared statement.

**"The initiation of crude oil unit trains represents the latest milestone in a major revitalization of this critical rail link," they said.**

Over the past three years, Iowa Pacific Holdings has spent about \$25 million to upgrade TNMR's track, such as by replacing rail and ties, installing ballast and sidings, and constructing a new locomotive shop. In August 2012, UP and TNMR opened a new jointly funded interchange yard in Monahans to facilitate traffic growth and accommodate unit trains.

"With our strong record of reinvesting in the rail properties operated by our companies, we are well positioned to support continued growth in moving crude oil by rail," said Iowa Pacific Holdings President Ed Ellis.

Iowa Pacific Holdings operates nine U.S. railroads, and manages two United Kingdom rail lines and other rail-related businesses.

1/28/2013

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This is obviously not UP, but the connection to UP at Monahans (which is in Western Texas) indicates that there is growth in a new traffic area.

## Union Pacific adds six tracks to Odessa rail yard

### Material carloads fortify Permian Basin

By John Corrales [jcorrales@oaoa.com](mailto:jcorrales@oaoa.com)

Originally published 11:00 p.m., May 27, 2012

Updated 11:00 p.m., May 27, 2012

Union Pacific is responding to unprecedented regional growth and increased traffic by adding six new tracks to its Odessa rail yard.

The \$10 million Odessa rail yard project, which includes the six new tracks and plans to build a parallel line connecting east Odessa and west Midland, is part of a larger \$50 million expansion of rail services throughout the Permian Basin. The track additions more than double the rail yard capacity, increasing the number of tracks from five to 11.

"I've never seen or heard of anything like this," said Dan Blank, manager of train operations with Union Pacific.

Blank said the new tracks ought to be complete in July. He took his post in Odessa in 2009, when train activity was in a slump compared with how many carloads are being moved today.

Union Pacific Odessa rail yard reported receiving 402,000 carloads of industrial and chemical material in the first quarter of 2009. In the first quarter of 2012, which also marked the 150th anniversary of Union Pacific being in business, the rail yard received 531,000 carloads of industrial and chemical material.

Typically, industrial material includes pipe and fracking sand, and the chemical materials include hydrochloric acid and crude oil.

One average sand carload carries around 101 tons of material.

"Through 2011, it all exploded with traffic. There were businesses that left Odessa in 2009, came back, did some work on their rail spur and were fully functional again," Blank said. Increased carload traffic required change to the rail yard.

"We exhausted our resources with manpower, and our operations quickly became congested," Blank said. "The system is fairly linear — we move either forward or backward by getting cars off the mainline and sorted on tracks two through five."

FRACK SAND  
TRAFFIC?

By adding the additional tracks, Blank said, the mainline can be kept clear for incoming and outgoing trains while other carts are sorted.

In a simplified version of what occurs at the yard, fracking sand and chemicals converge from around the country in Fort Worth. From Fort Worth, carloads head west to the Odessa rail yard, where it is the responsibility of the yard workers to sort materials and send them to businesses throughout the Permian Basin.

When loaded cars reach the businesses, they return empty ones to the rail yard and then back to Fort Worth.

The trend continued to ripple outward, not only affecting the need for more tracks, but the need for more employees, too.

Tony Alvarado, who was getting his master's of business administration at Angelo State University during the economic downturn of 2009, said he wasn't sure how things would turn out after he graduated.

"I was planning on going into business for myself," Alvarado, manager of yard operations at UP, said. "That was before the economy crashed. I have a lot of experience in HVAC, and thought that that's what would I do."

But before graduating, Alvarado said he looked into Union Pacific and found he liked the direction of the company.

Blank said that in 2009 and 2010, Union Pacific kept some employees in reserve status, where they continued to train.

When the need for more employees became apparent in 2011, Blank said, employees came back trained and ready to work.

Blank said 95 percent of what moves through the Odessa rail yard will go to oil and gas businesses.

"I feel accomplished knowing I work for the backbone of the oil and gas industry," Alvarado said.



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## Kinder Morgan enters JV for Permian Basin oil rail service

Mon, Feb 27 2012

NEW YORK, Feb 27 (Reuters) - Kinder Morgan Energy Partners said on Monday it was working on a joint venture on developing a multi-commodity rail service in the west Texas town of Pecos to serve the resurgent oil and natural gas industry of the Permian Basin.

The pipeline and terminal giant said that it would work with Watco, the nation's largest privately held shortline railway, and Martin Midstream Partners, a smaller master limited partnership for oil and gas services, to construct project.

Kinder Morgan has a preferred equity stake in Watco.

The first stage, a terminal expected to be operating by May, will also provide access to the Light Louisiana sweet crude oil markets which load in St. James, Louisiana.

Crude oil, natural gas liquids, sand used in hydraulic fracturing, pipes, tubes, structural steel, rig mats and other supplies can be railed in and out, and transferred to trucks for delivery to surrounding area.

Once the terminal has been fully developed, it will encompass approximately 85 acres and will be able to support unit trains. No time frame was given for when it will be fully developed but the partners envisage natural gas and crude gathering and processing systems.

In addition, the partners have held initial discussions to develop train terminal specializing in fracking sand to service Reeves County and surrounding counties.

Total railcar capacity is anticipated to be 300 to 600 per day based on demand. The terminal is strategically located along the Pecos Valley Southern Railway (PVS) and directly adjacent to the Union Pacific mainline in Pecos.

The Permian Basin is benefiting from new drilling horizontal technology, including fracking, used in tight oil formations to gather oil and gas.

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New UNION PACIFIC TERMINAL and MARKET.



## Union Pacific expanding operations in Permian Basin



Union Pacific employees install switchers Tuesday along Business 20 which will be used as part of a new set of tracks parallel to the existing tracks.

Posted 11 months ago | BY JON VANDERLAAN

It's no secret that the oil boom affects many aspects of life in the Permian Basin, and now Union Pacific Railroad is responding by expanding with millions of dollars worth of projects under way.

This month Union Pacific will begin a project to add six tracks to its rail yard. The project is expected to be completed by the second quarter of 2012 with the results aimed at increasing capacity and reducing delays.

"Crews deliver sand and pipe to drilling locations and then in some locations they haul crude oil out of the site. It has brought a lot of employment opportunities to the area." UP spokeswoman  
our Infrastructure

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That's about **\$10 million** on this project, she said, which will more than double the existing capacity of the yard at Business Interstate 20 and JBS Parkway, which currently has five tracks. Espinoza said drilling companies contract the railroad company to haul their goods, and the need has increased in the past year enough to warrant expanding the Odessa yard. A new yard with four tracks will also be constructed in Monahans at a cost of about **\$17 million**.

**"It's definitely a healthy investment that we're making here. But certainly we're also supporting the drilling efforts in Eagle Ford Shale in South Texas as well,"** Espinoza said. "It's one of those things that we're perfectly suited to support because the rail lines are already there."

Because of the sudden need for the extra capacity, Espinoza said Union Pacific paid an additional fee to expedite the process to get the Odessa and Monahans yards finished within a year.

Guy Andrews, executive director of economic development for the Odessa Chamber of Commerce, said he didn't expect the rail growth to be spurred by the oil boom.

Although oil is the main factor, the Summit Power Group's Texas Clean Energy Project also is causing some of the growth, he said.

**"We've had booms before, but it's a nice change to see that this particular boom seems to be driving it,"** Andrews said. "It makes it less expensive to ship the pipe in and you can obviously ship a whole lot more pipe in by rail that way."

The rail company is also shelling out about **\$41 million** for additional tracks next to existing tracks that will add capacity, Espinoza said.

Other projects currently under construction, such as a switch at Interstate 20, are also taking place throughout the Permian Basin, she said, adding millions of more dollars to the equation.

Espinoza said the company has hired **54 employees** since January 2011 and continues to hire employees to work the extra capacity it is building.

Andrews said although oil and large companies will be serviced first in Union Pacific's expansion, the company also most likely will serve the smaller companies, as well.

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From the Houston Business Journal

:<http://www.bizjournals.com/houston/print-edition/2012/08/10/as-energy-companies-continue-to-invest.html>

PREMIUM CONTENT: Aug 10, 2012, 5:00am CDT

## As energy companies continue to invest in shale resources, transportation companies rush to keep crude flowing out



Molly Ryan

Reporter- Houston Business Journal

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Oil and gas producers show no signs of slowing down drilling activity in shale formations across the country. However, without pipeline infrastructure in place to quickly transport those resources to refineries, companies have turned to a more traditional mode of transportation — rail.

Most of the country's shale plays are located in remote areas, including the Eagle Ford Shale in South Texas and the Bakken Shale in North Dakota. Therefore, there are fewer options for transporting the oil and gas.

Instead of building expensive new pipelines, which take a long time to construct, many companies are opting to truck oil and gas to existing rail lines, but are finding that they need to build new rail terminals and purchase new rail cars. Rail companies also need to invest in new resources to accommodate the increase in traffic.

Multiple Houston-based energy companies, including Enbridge Energy Partners LP (NYSE: EEP), Kinder Morgan Energy Partners LP (NYSE: KMP) and Musket Corp., have already spent millions in rail terminal investments to move oil and gas from trucks to rail. Rail lines, such as Union Pacific Corp. (NYSE: UNP), in turn are investing across Texas to make their railways more efficient.

**Phillips 66** (NYSE: PSX) CEO Greg Garland said during a June energy conference that the company is considering purchasing up to 2,000 new rail cars to move Bakken crude oil east and west, since the company is currently transporting about 100,000 barrels a day, and it expects this number to continue to increase.

"Rail projects can go in quicker than pipeline projects, and right now there is a shortage of

pipeline infrastructure out of (the shale plays)," said [Mike Moeller](#), director of Enbridge Pipelines in North Dakota, where the company is investing about \$160 million in rail projects.

"The speed at which it can be constructed, operated and connected to refining hubs are the real drivers, and it is what our customers are asking for," he said.

## **Rail terminals**

One of the earliest entrants into the shale-related rail space was Musket Corp., a Houston logistics firm that owns and operates rail terminals and cars.

Musket opened its first rail terminal in the [Bakken Shale](#) in 2008, and it has seen so much business that it expanded this spring. Now, the terminal has an outbound capacity of 60,000 barrels per day of crude oil, up from 10,000 barrels per day before the expansion.

"There was always a risk (of investing in shale-related terminals), but our point of view was that domestic crude production was going to continue to rise," said [J.P. Fjeld-Hansen](#), Musket's managing director. "We caught on early, and it has been a good business for us."

Musket's expanded terminal created about 50 jobs, and the company plans to continue to invest in rail terminals and create more jobs. The company also has another rail terminal in the Bakken, one in Wyoming, and it is currently building another in Colorado.

As for the future, Fjeld-Hansen said the company is pursuing rail terminal opportunities in West Texas near the Eagle Ford Shale, but did not disclose how much it is investing.

Enbridge previously revealed it is investing about \$160 million to develop a North Dakota rail terminal.

According to Enbridge's Moeller, the first stage of the project is under construction and expected to be completed in September. When the first stage is complete, the terminal will be able to transfer 10,000 barrels of crude a day from trucks to rail cars.

During the second stage of the project, beginning in January, Enbridge will build a double-loop track for the rail cars, allowing the tanker cars to more efficiently wait to be loaded. At full capacity, the terminal will be able to transfer 80,000 barrels per day.

"We are providing a service to customers to access better-priced crude," Moeller said.

Kinder Morgan, one of Enbridge's competitors, has also invested in shale rail terminals. In 2011, the company partnered with Watco Companies LLC, a Kansas-based short-line rail company, to build multiple rail terminals.

Since then, Kinder Morgan has built three rail terminals with Watco in the Eagle Ford Shale and in Canada, said [Bill Henderson](#), vice president of liquids development for Kinder Morgan's terminals group. However, as shale production continues, Henderson said, Kinder Morgan is looking into building more rail terminals in the Bakken and Marcellus shales.

"We are working on several different opportunities that involve pipeline and rail," Henderson

said. "It's a natural adjunct to our current terminals business to facilitate our oil and liquids transportation. It is in conjunction with the shale plays explosion."

## Rail lines

In addition to new rail terminals to manage the onloading and offloading of materials, railroad companies also need to make investments, such as creating new rail yards — industrial leads where cars can be taken on and off a line in places the rail traditionally did not stop, and sidings, which allow trains to pass each other.

Omaha, Neb.-based Union Pacific said it has made these investments in locations throughout Texas. In the Permian Basin alone, the company said it has made \$50 million of investments in new rail yards and sidings this year.

"Right now, we are moving 125 unit trains of crude oil a month, and we see that increasing," said Joe Adams, vice president of public affairs for Union Pacific. "A single unit train can move 65,000 barrels of crude."

Also, in Louisiana, the company is constructing a \$200 million expansion for a crude-receiving facility that is situated near refineries.

← Most-likely in St. James, LA... would impact the junction and traffic through TX?

In Houston, the company is doing repairs and putting a new rail yard in Anglewood, a \$17 million project that will help companies ship equipment like pipe and frac sand to shale wells. Adams said each well requires three to five rail cars of pipe and 30 to 50 cars of frac sand. Each rail car carries an average of 101 tons of frac sand.

← MANIFEST FREIGHT.

"One of the things happening now is the coal business is declining, but it's more than offset by the boom we are seeing in oil and gas development and our role in it. Our volumes are up more than 400 percent in those areas," Adams said.

This boom has already created 785 Union Pacific jobs in Texas this year.

"As people build pipelines, there will not be as much rail needed," Adams said. "But now, companies have the flexibility to respond to the market with rail."

## Rail vs. Pipeline transportation

Between 2002 and 2011, the annual number of hazardous materials-related accidents on freight railroads has steadily decreased. In 2002, there were 31 hazardous materials incidents — which could involve oil and gas related cars — while in 2011, there were 21 incidents, according to the Federal Railroad Administration.

The Association of American Railroads said railroads transport about 1.7 million carloads of hazardous materials each year, and 99.9 percent of carloads reach their destination without an accident.

However, some experts say the safest means of transporting oil and gas is by pipeline.

Accidents are 25 times more likely to occur on rail than pipeline, according to statistics quoted by Andy Black, president and CEO of the Washington, D.C.-based Association of Oil Pipe Lines. Furthermore, if infrastructure is in place, it is cheaper to transport oil by pipeline instead of by rail, Black said, adding that it costs \$2 to move a barrel of crude oil by pipeline and \$12 by rail.

Molly Ryan covers manufacturing, technology, the Port and logistics.

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## Union Pacific sees rail oil shipments quadrupling

Fri, Jul 22 2011

\* Union Pacific sees 2011 petroleum shipments quadrupled

\* Railroad sees continued rail opportunity for oil

NEW YORK, July 22 (Reuters) - Union Pacific Corp (UNP.N: [Quote](#), [Profile](#), [Research](#), [Stock Buzz](#)), the largest publicly held U.S. railroad, said it expects to quadruple the amount of oil it carries this year from the Bakken shale formation in North Dakota to U.S. Gulf Coast refineries.

"We'll probably quadruple the amount this year in terms of moving from the Bakken down to the St. James and elsewhere. We're seeing just a lot of interest overall," said Jack Koraleski, executive vice president of marketing and sales.

He said the company moved about 4,400 carloads of crude oil out of Bakken Shale in 2010.

"We expect to move a little more than 16,000 carloads in 2011," he said, adding the railroad moved a total of 8.8 million carloads in 2010.

By rail, oil generally travels in batches of 60,000 barrels or more on unit trains of 100 cars.

Prices of U.S. benchmark crude oil West Texas Intermediate Clc1 touched record lows against other crudes as supplies from Canada and the Bakken back up in the oil hub of Cushing, Oklahoma due to lack of pipeline capacity to carry it to the U.S. Gulf Coast for processing into gasoline and diesel.

The difference in price between WTI and global benchmark North Sea Brent LCOc1 grew to over \$23 a barrel earlier this spring, and refiners scrambled for ways to take advantage of the cheaper WTI price, turning to rail, barges and trucks to carry oil.

"We're focusing exclusively on our own rail infrastructure to support it, and everything that we see, even as pipelines develop, tells us there's going to be a continued opportunity for rail in this marketplace going forward for a long time," he said.

Earlier on Friday, the U.S. State Department said it expects to issue a final environmental assessment on a key pipeline - TransCanada Corp's (TRP.TO: [Quote](#), [Profile](#), [Research](#), [Stock Buzz](#)) proposed pipeline \$7 billion pipeline - that would alleviate the backup of inventories of crude in Cushing. [ID:nN1E76L0QK]

Koraleski said that with additional capacity coming on stream from the Bakken and other plays like the Eagle Ford shale oil in southern Texas, Union Pacific is looking to develop additional capacity.

"One of the unique things that rail gives to customers is the opportunity to go to various places and to play to the extent they can the market advantages for themselves, so we see a lot of interest in that," he said.

(Reporting by Janet McGurty and Lynn Adler; Editing by David Gregorio)

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# Tri-Coastal Bakken

By Nissa Darbonne

November 30, 2012

Where does Bakken oil go? Increasingly, producers and end-users are working to send it to the U.S. Northeast to refiners that have been marginalized—some even shuttered—by Brent-priced waterborne crude that costs \$25 or more than U.S. onshore sourced feedstock.

"We are talking to rail companies at this time about that potential in the future," says Eric Le Dain, senior vice president, strategic planning, reserves and marketing, for Enerplus Corp. The Calgary-based E&P is making some 12,500 gross barrels of oil equivalent per day from its Bakken acreage in North Dakota with a projection to exit 2012 at 15,000 per day. It makes another 6,000 per day from the Bakken in Montana.

Sam Margolin, vice president and refining analyst for Dahlman Rose & Co., anticipates more Bakken oil, which is currently being consumed in the U.S. Midwest and on the Gulf Coast, will find its way to the East Coast as well as the West Coast.

"Bakken production is expected to grow much more, so off-take outside of the Midwest refining market is necessary," Margolin says. "The Midwest has pretty much reached its maximum capacity of utilizing that crude."

While EOG Resources Inc. and other producers are aggressively railing it to the Gulf Coast, new oil supply from nearer sources—the Eagle Ford, Permian Basin and Oklahoma—plus new Canadian oil-sands crude may make some Bakken oil less competitive due to transportation costs.

Neal Walters, partner, Americas, in consulting firm A.T. Kearney's energy practice, says, "Once the pipeline infrastructure resolves the glut issue at Cushing and allows some of the Midcontinent and Canadian crudes to get to more markets, that West Texas Intermediate (WTI)/Brent differential will head closer to historical levels."

The Bakken story began in 2004, when Continental Resources Inc. drilled the first successful horizontal in the formation. Today, the play is making some 700,000 barrels a day, elevating North Dakota recently to the No. 2 oil-producing state in the nation behind Texas and ahead of Alaska and California.

Continental alone was making 74,000 barrels per day in the second quarter of 2012. Stephen Bradley, Continental's vice president, oil marketing, told Bentek Energy symposium attendees in Houston this spring, "We will see North Dakota production continue unabated unless the price collapses." Differentials to WTI that Continental had seen in the first half of 2012 ranged from -\$4 in January to -\$30 in February to about -\$1 in May. As differentials swing wildly, "somebody gets burned a lot," he said.

Differentials have improved in the second half of this year, however, says Enerplus' Le Dain. The company gained its Bakken position in 2005 via a prescient acquisition of Texas-based wildcatter Bobby Lyle's Lyco Energy Corp. Enerplus currently ships

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Railed to gulf coast, Permian Basin could make an impact... LOCAL PERMIAN BASIN OIL by RAIL?

its Bakken oil via rail to the Gulf Coast, on Enbridge Inc.'s North Dakota system to Clearbrook, Minnesota, and on the Butte system to Guernsey, Wyoming, which serves that refining region and points east.

In the first quarter, Enerplus' Bakken differentials in the field were some \$15 below WTI. That began to improve in the spring, and further in the third quarter. "In fact, in October, the differential was mostly removed. But it is widening again in December contracts," Le Dain says.

Margolin says Bakken production—among that of the Lower 48—has had the most volatile differential patterns. "Bakken prices sort of move all over the place relative to WTI. I think that suggests it doesn't really have a natural offtake center. It is figuring out its market as we go."

And, the Gulf Coast might not be the best market for all Bakken output in the future.

"The Bakken has benefited during the past 12 to 18 months from having good access to the Gulf Coast, but there is a lot of crude migrating there now, so the Bakken is potentially going to be less competitive," Margolin says.

Other coasts

So where to? Two new markets may help narrow the gaps: the East Coast and the West Coast. Some Bakken crude is making its way to the Northeast—where all of the U.S. PADD 1 refining capacity is concentrated currently—via rail to Maine and then barged south.

But, that's expensive, Margolin notes. "What Carlyle Group is doing at Philadelphia is building a lot of its own infrastructure to directly receive those shipments, so they don't have to use third-party barges and which dramatically increases the volume a single plant can bring in from the Bakken."

In that deal, The Carlyle Group LP has purchased Sunoco Inc.'s Philadelphia refinery — the largest on the East Coast at 330,000 barrels a day—with an aim of making it newly economic by bringing in Bakken crude and using new Appalachian natural gas and gas liquids. Delta Air Lines Inc. is having some success with getting Bakken oil to its newly acquired Trainer, Pennsylvania, refinery, Margolin adds, but the company isn't reporting much about the operations. "It's a bit of a black box at this point."

Plains All American LP has developed a rail terminal at a former refining complex in Yorktown, Virginia, to ship Bakken oil received via rail to other East Coast refineries.

Brad Olsen, vice president, equity research, for Tudor, Pickering, Holt & Co. Securities Inc. (TPH), noted in early November that some 3 million barrels a day of onshore-priced oil is beginning to arrive on the Gulf Coast via new pipe. "To a lesser extent," he adds, "the onshore advantage will also spread to the East and West coasts as refineries there increase their ability to receive Bakken and other onshore crudes."

Margolin says that driving the East and West coasts as additional important off-take centers for Bakken oil in the future is that Gulf Coast refiners aren't equipped to handle light, sweet oil exclusively. For East Coast refiners, a disadvantage they created in strategy in the past century may be an advantage today: Southern refiners upgraded to handle more heavy oil sourced from Latin America; meanwhile, East Coast refiners are already able to handle all the Bakken-sourced light, sweet they can get.

On the West Coast, where imports have grown over the years as Alaskan and Californian production have declined, refiners are accustomed to the slate of low-, medium- and heavy-gravity oil. Refiner Tesoro Corp. is looking at railing Bakken oil all the way to southern California, where it plans to buy BP Plc's 266,000-barrel-per-day Carson refinery.

"That rail distance is expensive, but Tesoro is talking about it," Margolin says. It is already getting some 30,000 barrels a day to its Anacortes, Washington, facility via rail with plans to expand this to 60,000 a day.

Also, BP Plc plans to import Bakken oil to its Cherry Point, Washington, refinery.

Margolin says, "It's not as expensive to get it to the Pacific Northwest as Southern California. Tesoro will only have to pay \$8.50 a barrel for transport, which is cheaper than what it costs to get it to the East Coast. The Bakken is closer to the West Coast. It's just a straight shot west to Seattle."

TPH managing director and head of integrated oil research Robert Kessler notes that Tesoro's plan for Carson, California, is to use less Alaskan oil and more distressed Lower 48 oil. It estimates rail costs from the Bakken to southern California are some \$12.50 per barrel. Alaskan oil transportation also costs some \$12.50 a barrel. At Tesoro's Anacortes, Washington, refinery, the \$60-million bill for adding the 60,000-barrel-per-day rail terminal for Bakken crude is expected to pay for itself in two quarters, he adds.

"Long term, Tesoro expects—and so do we—Bakken prices to have strong differentials and be priced based on LLS (Louisiana Light Sweet) and rail prices to the Gulf Coast," Kessler says.

Producers take note, however: Kessler says the current wait for new rail cars is some 18 months.

#### Refining markets

Is enough East Coast demand still in place? The TPH research team noted this spring that some 50% of Northeast refining capacity had closed or was closing. Since then, Carlyle Group bought the Philadelphia complex that will continue operations and Delta Air Lines bought the Trainer facility.

Margolin says, "I don't expect significantly more closures, at least the way the market is currently." To sum up the destruction in the PADD 1 refining complex, it imported 1.6 million barrels of crude oil a day in mid-2007. This year, it is importing 1 million a day.

A.T. Kearney's Walters says the decline is seen all along the Eastern Atlantic Basin. "There were two world-scale refineries in the Caribbean—one in Aruba and one in the Virgin Islands, totaling more than 700,000 barrels of daily capacity—that are mothballed. They are just not economically viable at today's waterborne crude price."

Far north along the eastern Atlantic Basin, Royal Dutch Shell and BP have each applied for permits to import Bakken and other Lower 48 oil to Canadian Maritimes refineries. While exporting U.S.-produced oil requires federal approval, Margolin says that receiving permission to export it to Canada is not difficult. "Canada has a lot of refining capacity and some of the product gets exported back to the U.S., so the regulatory authorities don't feel as though exporting crude to Canada is a restriction in domestic supply."

Walters, who is based in Toronto, says that further relief in pressure on new supply to the Gulf Coast will be opening an outlet for Canadian oil-sands production to the Pacific Basin, accessing the West Coast refining complex and, possibly, Asia.

"Keystone XL by itself won't be enough to secure markets for all the incremental oil-sands crude. There is potential for another 2- to 3 million barrels a day coming onstream in the next decade," he says.

To him, modern North American oil dynamics are not entirely a surprise. "The potential for the oil sands and the oil-shale revolution was well known five years ago. But I think the extent of how massive and fundamental the revolution is has brought change that has caught many, if not most, of the industry pundits a bit by surprise."

Margolin notes that expectations of dwindling world oil supply had been powering oil prices until a few years ago. Today, instead, North Sea, West African, North African and other barrels that had a ready market in the U.S. are seeking other homes, such as Asia.

"There is some concern among producers that the world oil price can go lower from here," Margolin says. "The kind of price environment that we saw in 2007 and 2008 when 'peak oil' really sort of controlled the price-action valve is probably not coming back for a while."

Meanwhile, for getting more Bakken production to markets, it's going to be rail, he adds. "It is the cheapest and easiest to scale up. It's difficult to get a pipeline of the size that is needed commissioned and built relative to simply adding terminal capacity. The railroads are already there."

Walters concludes that the East and West coasts offer the most favorable price economics to Bakken producers today, and something has to give in the U.S. Midwest refining market. Traditionally, feedstock has come to it from the Gulf Coast and from western Canada. "The challenge refiners are going to face is on the demand side. Between the advent of biofuels, now the potential to go to 15% ethanol and the fairly dramatic increase in fuel economy, it is pretty much going to hold domestic gasoline demand flat.

"That is regardless of how quickly Bakken and other shale-based crudes come online."

Regarding the East Coast refining corridor, Margolin makes one more note: Oil shipments to the U.S. Northeast were expected in the past decade to decline because refining capacity would be replaced by cheaper refined-product supplies from overseas. What has turned the global oil market on its head is that North American oil production is experiencing growth. So, "we always expected to import less crude, but the fact that we're not importing product either is what has been the big surprise."

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## Exclusive: Union Pacific plans expansion in Houston



Molly Ryan

Reporter- Houston Business Journal

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Diane Duren rides in style.

When Union Pacific Corp.'s (NYSE: UNP) executive vice president in charge of strategic planning, administration and human resources arrived in Houston Oct. 26, she came in on a vintage steam-powered train, complete with a two-story, wood-paneled executive car.

Although Duren was in town to promote Union Pacific's 150th anniversary, she is more than familiar with the Houston market, since she most recently served as the vice president and general manager of the Omaha-based rail line's chemicals division, which has a significant and growing presence in the Gulf Coast due to the shale boom. A map of Union Pacific's current and proposed capital investments shows the Gulf Coast is dotted with activity, from new terminals and tracks to extensions of tracks.

During an interview with HBJ, Duren discussed some of the new projects in Houston and why Union Pacific is so interested in the Gulf Coast.

### **What is Union Pacific's long-term strategy for Houston?**

For Houston, with the low-cost natural gas ..., we know that a lot of our major chemical customers have announced they are going to do ethylene expansions. Usually from ethylene comes polyethylene, so there are a lot of plastics we think will be produced starting in the next four to five years. We know people now are doing a lot of de-bottlenecking, and they are trying to get as much product ready (as possible). They (now) have a great cost advantage, and now they are competitive worldwide.

So our strategy around that is to ensure we are providing a great value to the customers, continuing to do what we do by adding additional capacity — whether it is yard capacity, whether it is storage in transit for plastics, whether it is an additional main line. There also are

areas where we are trying to double-track so we can go bidirectional. We are doing a lot of things to support that whole economy.

It is not just chemicals, though, there is a lot of building that is going to take place in the city of Houston. So we are moving a lot of rock and things like that that are going into building new campuses for companies. We are involved in the shale plays that are in West Texas, and a lot of those products that go over there are coming out of the Houston area. And the automobile industry continues to grow, so the whole South Texas area is (growing).

### **Will you be hiring?**

Absolutely. I think it's apparent there is a great opportunity here for growth in a lot of different areas. We are certainly hiring and continuing to hire moving forward.

### **How will the expansion of the Panama Canal affect your business in Houston?**

Typically the biggest impact we would have expected would be on our intermodal business. We would have expected the ships that would have stopped in L.A./Long Beach (Calif.) would go through the canal and go to the East Coast.

But we really believe a lot of the shift that was going to take place has already happened. The natural flows that come into the West Coast and get on rail to move into the population center in the middle of the country will still continue that way. For Houston, (an increase in rail traffic) is really dependent on where those products are being sold.

I think a lot of people are looking at (the expansion) from a crude oil perspective, setting up crude oil terminals for exports. We believe from a crude oil perspective that offering a lot of destinations and flexibility is very positive.

We have worked with a variety of different ports and companies that want to ship crude oil to a variety of different places in Texas.

### **Do you have any plans involving liquefied natural gas?**

We are evaluating whether we should use LNG to power our locomotives. There is a lot of research going into that, but the question is: How do you get a local supply of LNG? Our locomotives go all over the country, and we have to have a ready supply of the fuel to use.

### **Do you face competition with pipelines trying to transport oil and gas from shale plays?**

Certainly pipelines are going to come in with the big growth in the amount of oil that is being produced (in shale plays). We know they will come in, but pipelines usually go one direction. The flexibility that rail brings is you can go to the East Coast, you can go to Louisiana, you can go to Texas, California, and you can get there very quickly. That is the value we bring to the crude oil shippers.

### **With all the oil, gas and chemical business in the Gulf Coast, are you slowing down in other areas?**

Our coal business has been challenged because of low-cost natural gas. It is down 10 percent year to date. There are some areas we have plenty of capacity. We believe when the coal business comes back, we will have the resources available to address it.

By the numbers:

**2,000:** Union Pacific employees in Houston.

**785:** Union Pacific jobs created in Texas this year.

**\$2 billion:** Amount Union Pacific invested in the Houston area in the past five years.

Molly Ryan covers manufacturing, technology, the Port and logistics.

August 22, 2011 5:20 pm

## Texas rail yard highlights growth challenges

By Robert Wright, Transport Correspondent

Beneath the scorching Texas sun at Burlington Northern & Santa Fe's Alliance intermodal yard outside Fort Worth, orange mobile cranes straddle container trains so long they seem to stretch into infinity. The cranes swing containers from trains to waiting tractors then move on swiftly, reflecting the pressure on a yard whose management is struggling to cope with 13 per cent year-on-year traffic growth so far this year.

There is a similar sense of bustle at many key facilities across the US's railroad system, still the world's largest by route miles. US railroads' container traffic – traffic in boxes that can carry anything from Chinese-manufactured toys to food or chemicals – was up 7.8 per cent in the first half of this year, to 421,241 units, against the same period last year, amid only 1 per cent first-half growth in US GDP. Maru Iabichela, the Alliance yard's manager, says that there have been instances this year where have been held outside the yard, obstructing a main line, for lack of anywhere to put them.

The rows of white trucks belonging to JB Hunt, one of the US's biggest trucking companies, in the Alliance yard's truck park illustrated one of the main reasons for the robust growth. Many US trucking companies, suffering from high fuel prices, driver shortages and road congestion, have shifted many long-haul trips to rail, and opted instead to handle only the short-haul trips to and from yards such as Alliance.

Railcars carrying some of the in-demand commodities that are also contributing to growth – including grain, soya beans and ethanol – are handled at a neighbouring yard.

Ms Iabichela's most pressing concern is to extend the yard's truck parking area for the fifth time this year – and to find more workers.

“We’ve had to hire more aggressively,” Ms Iabichela says. “With these volumes, we need to be flooding those tracks with people, getting cranes up to trains . . . It’s good times.”

Yet the good times for BNSF and other railroads are not solely a result of rising traffic. Rob Knight, finance director of Union Pacific, owner of the largest US rail network, is one of many executives to highlight the importance of efficiency improvements since industry deregulation in 1980.

A programme to tackle yard congestion and other productivity problems reduced the proportion of UP’s revenues used up by costs from 81.6 per cent in 2006, to 70.6 per cent in 2010, he says. “It’s really unlocking the motivation of all of our employees,” Mr Knight adds.

Investment is also sharply up. Norfolk Southern, the second-largest network in the eastern US, has spent heavily on upgrading its Heartland Corridor between Virginia and Chicago to handle

new traffic arriving at eastern seaports. Traffic is expected to grow after 2014, when the expanded Panama Canal will allow shipping lines to introduce new, bigger ships on services from Asia.

“We’re willing to make those investments in a way that, 20 years ago when every dollar was tight, we would hold back,” Wick Moorman, NS’s chief executive, says.

Uncertainties remain, meanwhile. If expansion to the Panama Canal encourages shipping lines to send more goods to US east coast ports, that could cut out some lucrative, long-distance train journeys eastwards from southern Californian ports for BNSF and Union Pacific.

“I think our view is that the Panama Canal will change things, certainly in ways that we’re not sure of,” Mr Moorman says. “But our traffic is going to continue to grow from both directions.”

Mr Knight also sounds a cautious note about the growing traffic in “ag” commodities such as grain and soya beans that he acknowledges have boosted both UP’s and BNSF’s traffic this year.

“Ag markets have tended to come and go, particularly export markets,” he says.

Regulators could also step in if market conditions remain favourable. Hearings this year of the Surface Transportation Board – the industry regulator – have investigated customers’ claims that some railroads are exploiting current conditions to overcharge.

Mr Knight of UP, which plans \$3.3bn capital expenditure this year, says railroads would reduce expenditure on improving capacity and buying new locomotives if regulators capped returns.

Yet there remains a powerful sense that today’s railroads face fundamentally different circumstances from 30 years ago.

“They’ve changed from inwardly-focused slow or no-growth engineering companies, to companies who have offices globally,” Anthony Hatch, a veteran industry analyst, says. “[They] look to see where manufacturing changes in Asia, how that’s going to impact trade flows.”

The US’s clogged highways, poor public finances and truck driver shortages should ensure the growth that has facilitated that transformation continues, according to Matt Rose, BNSF’s chief executive.

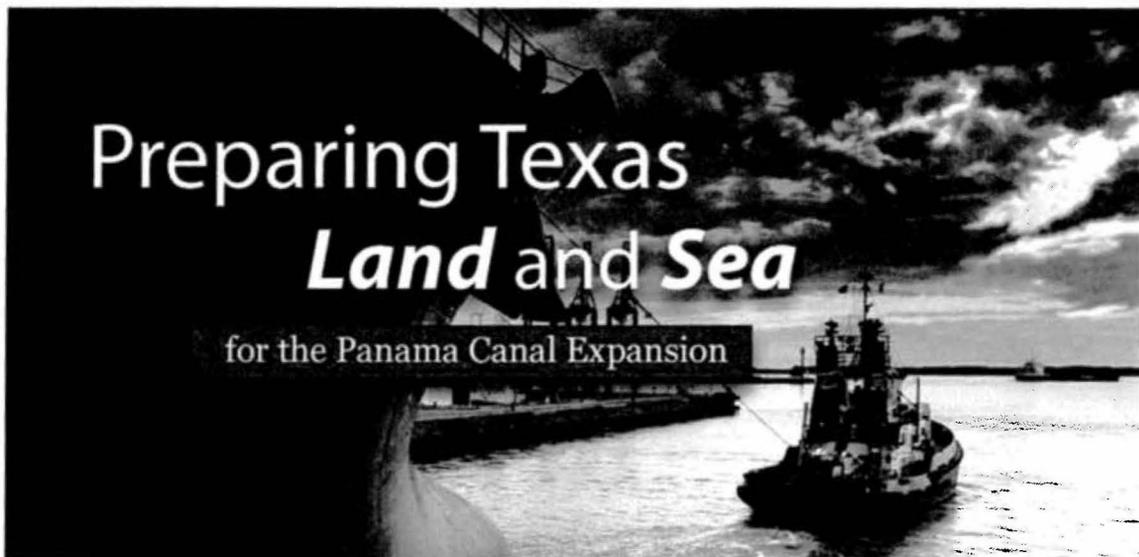
“There’s going to be such a shortage of transportation on the highway side of the sector that the railways are going to have to continue to step up and provide more and more capacity,” he says.

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**REPORT FROM THE  
PANAMA CANAL STAKEHOLDER WORKING GROUP**



**FINAL REPORT**

**November 2012**

# **REPORT FROM THE PANAMA CANAL STAKEHOLDER WORKING GROUP**

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Cameron County Judge Carlos H. Cascos, Vice Chair  
Mr. Joseph Adams, Union Pacific  
Mr. Steve Boecking, AllianceTexas  
Mr. Aaron Demerson and Mr. Amir Mirabi,  
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Mr. John LaRue, Texas Ports Association  
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## **EXECUTIVE SUMMARY**

### **INTRODUCTION**

Texas ports are an important economic engine for the state and the nation. Handling approximately 564 million tons of foreign and domestic cargo annually, Texas ports rank first nationally in goods exports and waterborne commerce. Texas ports account for 19 percent of U.S. port tonnage, and four ports—Houston, Corpus Christi, Beaumont, and Texas City—are in the top 10 ports in the country. Texas ports create nearly 1.4 million jobs and generate over \$82 billion in personal income annually. The maritime cargo activity at the public marine terminals in Texas generated \$277 billion in economic value to the state in 2011.

The Panama Canal is undergoing a \$5.25 billion expansion, which is expected to be completed in 2014 or early 2015. The new locks being added as part of the expansion will accommodate larger and wider vessels. In addition to serving these post-Panamax vessels, the expansion will reduce current congestion in the locks, providing more reliable and faster transit time for ships of all sizes. The wider locks will also accommodate liquefied natural gas (LNG) tankers, which cannot use the canal today.

The expansion of the Panama Canal will influence global trade, including potential impacts on Texas ports. The Texas Department of Transportation (TxDOT) formed a Panama Canal Stakeholder Working Group (PCSWG) in early 2012 and sponsored a research study conducted by the Texas A&M Transportation Institute (TTI) to assess the opportunities associated with the Panama Canal expansion and to examine the potential impacts on Texas ports and the landside infrastructure, including roadways, railroads, and intermodal facilities. The PCSWG was charged with examining short-, mid-, and long-range TxDOT transportation improvements that will better position the state of Texas to take advantage of the Panama Canal expansion and enhance Texas' role in global trade.

Led by Harris County Judge Ed Emmett as chair and Cameron County Judge Carlos Cascos as vice chair, the PCSWG held six information-gathering meetings. Representatives from shippers, carriers, ports, metropolitan planning organizations (MPOs), regional mobility authorities (RMAs), public agencies, industry groups, university research institutes, and consultants provided information on local conditions, current and future use of the Panama Canal, other opportunities, and infrastructure needs. TxDOT representatives summarized current roadway projects and future projects at the meetings. A review of previous studies and current plans was also conducted to identify roadway, rail, and port projects that may be impacted by the Panama Canal expansion or increases in global trade.

### **FINDINGS**

Based on the information presented at the PCSWG meetings and the review of previous and current projects and studies, the PCSWG identified a number of findings, recommendations,

and actions to increase exports and imports through Texas ports and expand Texas' position as a global gateway for the nation.

The following major findings and recommendations are made by the PCSWG:

- **Overarching Finding**—One overarching finding from the study is that the Panama Canal expansion—coupled with continued population growth in Texas, energy sector developments, and the emergence of new trading partners throughout the world—represents opportunities to expand Texas' position as a global gateway for the nation. By providing a low-cost, reliable, safe, secure, multimodal, and environmentally sustainable supply chain, the state can increase its global trade, create new jobs, and expand the economy of the state and nation.
- **Overarching Finding**—As the leading goods export state in the country, Texas is well positioned to take advantage of the Panama Canal expansion and other opportunities to increase the export of dry bulk, liquid bulk, general and break bulk cargo, and containers to existing and new markets. Commodities in these general categories include agricultural produce, coal, value added manufacturing products, petrochemical and chemical products, military cargo, paper products, consumer goods, and other products. The emerging LNG export market resulting from energy developments in the state represents a major opportunity.
- **Overarching Finding**—To increase global trade and economic development, Texas must develop processes that provide a transportation system focused on commerce, including Texas ports, the Gulf Intracoastal Waterway (GIWW), the roadway system, the rail system, and the pipeline network. It is critical that Texas accelerate investments in freight transportation infrastructure to grow commerce and increase the tax base of the state.
  - Texas should invest in freight transportation infrastructure.
  - Freight transportation infrastructure investments grow commerce.
  - Commerce grows the tax base of the state.
- **Recommendation**—TxDOT should remain focused on trade-related improvements. TxDOT, working with its partners, has numerous projects in different stages of planning, design, and construction that address critical transportation needs in the state. Many of these projects focus on key trade corridors and connections to Texas ports. Working with available funding and recognizing that significant priorities exist throughout the state, TxDOT should continue to advance these projects in a timely fashion to address freight flow, safety, security, congestion, and environmental issues, and to strengthen Texas' position in global trade.

- Recommendation**—TxDOT should formalize the freight discussion in transportation planning. The Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21) encourages state departments of transportation to develop a state freight plan and establish a freight advisory committee. Projects that are included in a state freight plan are eligible for a larger federal funding share. TxDOT should develop a Texas Freight Plan, using the information presented in this report, especially the summary of short-, mid-, and long-range projects identified in previous studies and plans, as a base for the development of the plan. Additionally, TxDOT should convene a State Freight Advisory Committee by transitioning the PCSWG into that role to help TxDOT develop a Texas Freight Plan. Additional members should be considered to ensure that freight stakeholders from all modes and various user groups are represented on the advisory committee.
- Recommendation**—Increase the use of the GIWW. The GIWW, which is maintained by the U.S. Army Corps of Engineers (USACE), is an important component of the Texas and U.S. maritime system. Ensuring that adequate funding is available to maintain the GIWW at a 12 ft depth and to make needed capital improvements is critical. As the local non-federal sponsor of the GIWW in Texas, TxDOT should continue to work in partnership with USACE, Texas ports, users of the GIWW, and other groups to establish a strategy for adequate funding of maintenance and operation of the GIWW, along with needed capital improvements. TxDOT should also continue to work with USACE, counties, cities, and developers to prevent real estate encroachment on the GIWW, as well as to identify strategies to increase the use of the GIWW.
- Recommendation**—Texas ports should continue with their port improvement plans. Maintaining and improving port infrastructure, including channels, harbors, turning basins, terminals, and landside access, are key to the economic competitiveness of Texas ports. Ensuring that Texas ports are deep and wide enough to meet current and future shipping demands is imperative. The ports, working with USACE, TxDOT, and other partners, should continue to pursue deepening projects.
- Recommendation**—TxDOT should serve as a resource for Texas ports. TxDOT should increase the visibility of port and maritime interests at the state level by establishing a Maritime Division within the department. Additionally, TxDOT and Texas' ports should work together to strategically align their related activities, including the functions of the Port Authority Advisory Committee, and to seek funding for the Port Access Account Fund and the Port Capital Program.
- Recommendation**—TxDOT should work with the railroads, Texas ports, and other stakeholders to support needed rail capacity projects to accommodate

increases in imports and exports. The rail industry has made significant investments in capacity to handle freight growth in Texas. Additional rail improvements have been identified or are underway. Railroads that serve the ports, TxDOT, MPOs, and other groups should pursue needed rail improvement projects. The TxDOT Rail Division can play a role in facilitating this process as part of the anticipated detailed analysis of projects included in the Texas Rail Plan. The Texas Freight Plan should also address needed rail projects in the state. The current rail projects underway at the Port of Beaumont, the Port of Corpus Christi, the Port of Brownsville, the Port of Houston, Port Freeport, the Port of Galveston, and other ports should continue to be developed. These projects help to more efficiently move goods in and out of the ports on rail and relieve highways of freight congestion.

- **Recommendation**—Build on existing activities of the Texas Wide Open for Business<sup>TM</sup> initiative at the Office of the Governor—Economic Development and Tourism by developing and implementing a “Texas Global Gateway” marketing and information program. The Texas Global Gateway concept would provide a one-stop, unified, coordinated, and comprehensive source of information on all transportation modes in Texas for use in promoting the state with shippers, carriers, and other international clientele. The program would also be coordinated with the federal agencies and other groups responsible for promoting international trade. A coordinated strategy to promote Texas ports with international trading partners through contacts and trade missions could also be considered as part of the program.

## CHAPTER I—INTRODUCTION

### BACKGROUND

The Panama Canal is a critical link in the global maritime transportation system. Opened in 1914, the 51-mile canal connects the Atlantic Ocean to the Pacific Ocean across the Isthmus of Panama. The canal is currently undergoing a \$5.25 billion expansion, which is expected to be completed in late 2014 or early 2015. The Panama Canal expansion is anticipated to influence global shipping patterns. The canal expansion, along with population growth and energy development in Texas, provides opportunities to expand global trade through Texas ports.

Texas ports are an important economic engine for the state and the nation. Texas ports rank first nationally in goods exports and waterborne commerce, handling approximately 564 million tons of foreign and domestic cargo annually. Texas ports account for approximately 19 percent of U.S. port tonnage, and four ports—Houston, Corpus Christi, Beaumont, and Texas City—are in the top 10 ports in the country. Agricultural produce, petrochemical products, value added manufacturing, coal, and other commodities are exported through Texas ports, while all types of consumer goods and electronic products, automobiles, and other commodities are imported through the ports and distributed throughout the state and region. The Texas ports create nearly 1.4 million jobs and generate over \$82 billion in personal income annually. The maritime cargo activity at the public marine terminals in Texas generated \$277.6 billion in economic activity to the state in 2011. A total of \$2.4 billion of direct, induced, and indirect state and local taxes were generated by maritime activity at the public and private port terminals in Texas.

The Texas Department of Transportation (TxDOT) initiated a research project in early 2012 to assess the opportunities associated with the Panama Canal expansion and to examine the potential impacts on Texas ports and landside infrastructure, including roadways, railroads, and intermodal facilities. The department retained the Texas A&M Transportation Institute (TTI) to assist with this project and formed a Panama Canal Stakeholder Working Group (PCSWG).

As documented in this report, a series of meetings were held to obtain information from shippers, carriers, ports, industry groups, and other organizations on their current operation and use of the Panama Canal, their perspectives on the future use of the expanded canal, planned improvements and infrastructure projects, and related activities. Information from other research projects, including a recent review of previous studies assessing the potential impact of the Panama Canal expansion and freight issues, was also used to identify future infrastructure needs.

This report documents the results of these activities. It summarizes the major findings from speakers at the PCSWG meetings and the review of previous studies. It highlights landside transportation projects identified in previous studies and plans to facilitate and expedite exports and imports through Texas ports. It presents a comprehensive multimodal strategy for increasing the benefits from the Panama Canal expansion and other opportunities facing the state. It also

identifies programs, projects, and policies to promote Texas as a global gateway, further supporting the state’s economy. The recommendations further enhance the competitive position of Texas’ ports compared to other ports in the country, allowing the state to respond to numerous opportunities to expand global trade.

**WORKING GROUP MEMBERS AND CHARGE**

The PCSWG was formed by TxDOT in early 2012 to provide the department with a better understanding of the potential opportunities associated with the Panama Canal expansion and the transportation infrastructure needed to best take advantage of these opportunities. Led by Harris County Judge Ed Emmett as chair and Cameron County Judge Carlos Cascos as vice chair, members of the PCSWG reflected the variety of stakeholders influenced by the Panama Canal expansion. Table 1 presents the members of the PCSWG and their affiliations.

**Table 1. Panama Canal Stakeholder Working Group Members.**

<b>Name</b>	<b>Organization Represented</b>
Judge Ed Emmett, Chair	Harris County
Judge Carlos H. Cascos, Vice Chair	Cameron County
Mr. Joseph Adams	Union Pacific (UP)
Mr. Steve Boecking	AllianceTexas
Mr. Aaron Demerson/ Mr. Amir Mirabi	Office of the Governor—Economic Development and Tourism
Mr. Kenneth Dierschke	Texas Farm Bureau
Mr. John Esparza	Texas Motor Transportation Association
Mr. Jim Greenwood	Texas Oil and Gas Association
Mr. James Griffin	East Harris County Manufacturers Association
Mr. John LaRue	Texas Ports Association
Mr. Fred Malesa	BNSF Railway
Mr. Carlton Schwab	Texas Economic Development Council
Mr. Jack Todd	Texas Association of Manufacturers
Mr. Rigoberto Villarreal	City of McAllen
Colonel Leonard Waterworth	Port of Houston Authority

The charge to the PCSWG was to “identify short-, mid-, and long-term TxDOT transportation improvements that will better position the state of Texas to take advantage of the Panama Canal expansion and enhance Texas’ role in global trade.” In addition to the Panama Canal expansion, the PCSWG considered other factors influencing the state’s position in global trade, including population

**Charge to the Working Group**

Identify short-, mid-, and long-term TxDOT transportation improvements that will better position the state of Texas to take advantage of the Panama Canal expansion and enhance Texas’ role in global trade.

growth and new and expanding natural gas and oil exploration, production, and refining in the state. Growing international export markets and new trading partners were also discussed.

## MEETINGS, PROCESS, AND SCHEDULE

The PCSWG held six information-gathering meetings. The PCSWG reviewed and finalized the project report at a seventh meeting. Figure 1 shows the locations and dates of these meetings. At the first meeting in Austin, Texas, Transportation Commissioners Bill Meadows and Jeff Austin discussed the charge to the PCSWG, and Chair Judge Ed Emmett outlined the roles, responsibilities, and expectations of PCSWG members. A set of operating principles were also discussed and agreed upon. Rob Harrison from the Center for Transportation Research at the University of Texas at Austin provided an overview of freight logistics and the Panama Canal expansion.



**Figure 1. Location and Dates of PCSWG Meetings.**

Five subsequent meetings followed a common format. The meetings opened with an opportunity for public comments, including welcomes from local officials. Invited speakers covered a wide range of topics associated with the Panama Canal expansion, local activities, and future plans. A TxDOT representative highlighted current and planned projects in the area.

Table 2 summarizes the organizations of speakers at each meeting. As highlighted, representatives from shippers and carriers, ports, metropolitan planning organizations (MPOs), regional mobility authorities (RMAs), public agencies, university-affiliated research institutes, industry groups, and consultants provided information on local conditions, future opportunities, and infrastructure needs. Time for discussion of issues, opportunities, needs, and the final report was also provided at most meetings. Appendix A presents a complete list of speakers. Appendix B presents the references used in the report.

**Table 2. Speakers at Panama Canal Stakeholder Working Group Meetings.**

Organizations and Groups	Meetings							
	Austin	Corpus Christi	Houston	Beaumont	Fort Worth	Brownsville	Additional Input <sup>5</sup>	Total
Shipper/Carriers		3	5	1	1	1	1	12
Ports <sup>1</sup>		2	3	3		1		9
Elected Officials		2	1	2	1	1		7
Public Agencies <sup>2</sup>	2	2	1	2	1	3		11
University Transportation Institutes	1				1	1		3
Industry Groups <sup>3</sup>			2	1	2	1		6
Consultants					2			2
Others <sup>4</sup>			2					2

<sup>1</sup> Includes ports and navigation districts.

<sup>2</sup> Includes TxDOT, MPOs, RMAs, the U.S. Army Corps of Engineers (USACE), the U.S. Army, and local governments.

<sup>3</sup> Includes national and regional associations, and local bureaus and forums.

<sup>4</sup> Includes special interest groups and citizens.

<sup>5</sup> Includes additional input from telephone calls and emails.

## **ORGANIZATION OF REPORT**

The remainder of this report is organized into six chapters. Chapter II presents an overview of the Panama Canal expansion, projected population growth in the state, and energy exploration, extraction, and refining activities. It also highlights the emergence of new trading partners for Texas and growing international export markets. Chapter III highlights the opportunities for expanded global trade through Texas ports as identified by speakers at PCSWG meetings and available reports. Chapter IV summarizes previous studies and plans identifying freight-related infrastructure needs in the state. Chapter V presents the TxDOT projects discussed by department representatives and other speakers at PCSWG meetings. Chapter VI describes the GIWW, ports, and rail projects identified in previous studies, as well as the pipeline network in Texas, and other projects, programs, and policies to support expanding global trade. Chapter VII presents the overall findings, recommendations, and actions for consideration by TxDOT and other agencies and groups to expand Texas' position in global trade. Appendix A lists the speakers at the PCSWG meetings. Appendix B lists the references used in the report. The PCSWG meeting summaries and the PowerPoint slides used by some speakers are available at the TxDOT PCSWG website [http://www.dot.state.tx.us/panama\\_texas/](http://www.dot.state.tx.us/panama_texas/).



## **CHAPTER II—EXPANSION OF THE PANAMA CANAL AND OTHER FACTORS INFLUENCING FREIGHT MOVEMENTS IN TEXAS**

The PCSWG was formed to examine the potential impacts of the Panama Canal expansion on Texas ports and the landside transportation system. In discussing the potential impacts of the expanded canal, the working group also noted the importance of the projected population growth in the state and the recent energy exploration, extraction, and refining on global trade. The emergence of new global trading partners, including Brazil and other South and Central American countries, Asia, India, Africa, Russia, and other areas, was also noted. This section summarizes the Panama Canal expansion, projected population growth, energy developments, and emerging trading partners to set the stage for the discussion of opportunities for expanding global trade in Chapter III.

### **OVERVIEW OF THE PANAMA CANAL EXPANSION**

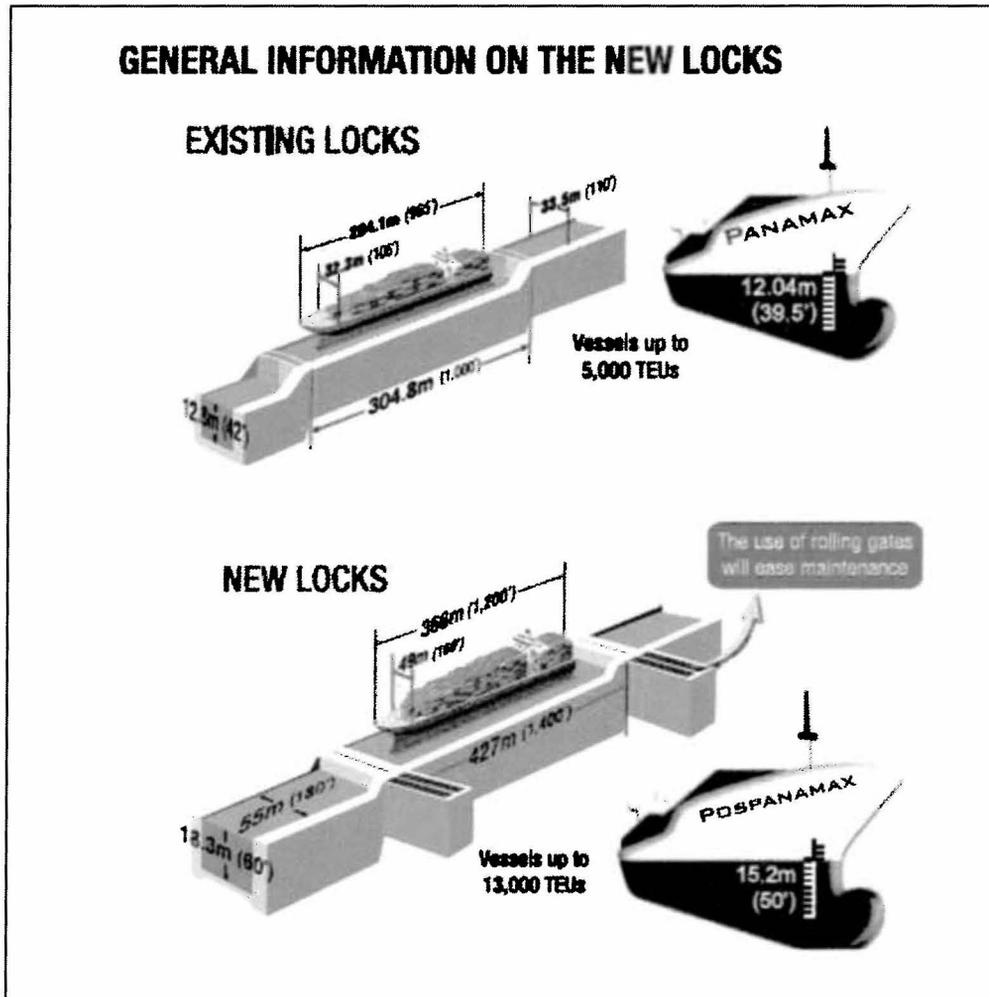
The Panama Canal opened in 1914, providing a connection between the Atlantic Ocean and Pacific Ocean across the Isthmus of Panama. The 51-mile canal greatly improved the global maritime system, with vessels no longer having to travel around the tip of South America to reach Asia. Ownership of the canal was transferred from the United States to Panama in 1999, resulting in a change in the business operating model from a public utility to a business enterprise.

The Panama Canal Authority (PCA), which operates the canal, has undertaken an extensive modernization and investment program. The passage of a 2006 referendum provided needed financing for a major expansion of the canal. The objectives of the expansion program include maintaining the competitiveness of the canal and the value of the route, increasing capacity and allowing larger vessels, and reducing water consumption. Other objectives are improving safety and efficiency, and sustaining tonnage and profitability growth.

The new locks being added as part of the expansion will accommodate larger and wider vessels. As Figure 2 illustrates, the maximum vessel size increases from 5,000 20 ft equivalent units (TEUs) to 13,000 TEUs with the expansion. In addition to accommodating these larger post-Panamax vessels, ships of all sizes should experience faster and more reliable transit times due to the decrease in congestion in the locks. Further, the wider locks will be able to accommodate liquefied natural gas (LNG) tankers, which currently cannot use the canal.

The impact of the Panama Canal expansion on global trade and on U.S. ports continues to be widely discussed and analyzed. Numerous proprietary and non-proprietary models are being used in this process. There are different schools of thought on the impacts. Some argue that there will be little change in global logistic patterns. Others argue there will be a shift of larger vessels servicing East Coast and Gulf Coast ports. Still others have suggested that new transshipment centers will be developed in Jamaica or other Caribbean locations. East Coast ports, including New York, Savannah, and Miami, are making significant investments in

deepening harbors and landside infrastructure improvements to accommodate larger vessels in the future.



Source: Panama Canal Authority.

**Figure 2. Panama Canal Expansion—Increase in the Size of Locks and Vessels.**

A number of factors will influence the ultimate impact of the Panama Canal on global logistics. These factors include the tolls charged by the PCA, which have not yet been set, the international location of production facilities for different goods, and the status of the global economy. As discussed in this report, the Panama Canal expansion, coupled with the increase in Texas' population and energy development in the state, provides opportunities for Texas to expand its role as the major export state in the nation. These opportunities are discussed more extensively in Chapter IV.

## **POPULATION GROWTH IN TEXAS**

In addition to the Panama Canal expansion, the continued growth in Texas' population will influence global trade. More people mean more demand for the production of goods, which in turn means more demand for imports, which means more container shipments coming into Texas ports. The Texas State Data Center forecasts the population of the state to increase from approximately 25 million in 2010 to 37 million in 2030 and almost 45 million in 2040. These increases mean an additional 20 million people will be living in the state in 2040. Most of this growth will occur in the urban areas encompassed in the triangle of Houston, San Antonio, Austin, and the Dallas-Fort Worth Metroplex. Population growth is also forecasted for communities along the Gulf Coast.

## **ENERGY EXPLORATION, EXTRACTION, AND REFINING ACTIVITIES**

Texas is the top petrochemical-producing state in the country. Numerous petroleum and petrochemical industries are located at and around Texas' ports. These industries generate large volumes of imports and exports at Texas' ports.

Texas is experiencing a dramatic increase in oil and gas exploration, extraction, and refining. Much of this increase is the result of advancements in drilling technology, primarily horizontal drilling and hydraulic fracturing (called fracking). These technologies have made it possible to develop tight shale fields in significant quantities to be profitable. Fracking is being used extensively in the Barnett Shale gas play in north Texas and the Eagle Ford Shale gas play in south Texas.

Much of the sand and other additions used in fracking are imported through Texas ports. The development of these gas plays is also resulting in the construction of new LNG production facilities focused on exporting LNG. For example, Cheniere has an LNG facility under development in Sabine Pass and a proposed facility in Corpus Christi. Other companies are also moving forward or considering new LNG plants focusing on the export market at the Port of Corpus Christi, the Port of Brownsville, and other areas.

Texas is also the largest producer of wind power in the country, and wind power generation continues to expand in the state. Many of the turbine components, including the large blades and center poles, are imported and exported through Texas ports.

All of these energy developments have impacts on Texas ports from both an import and export standpoint, as well as on the landside transportation system. The truck traffic generated from the development of shale gas plays is straining local, country, and state roadways. TxDOT has established a Task Force on Texas' Energy Sector Roadway Needs to explore these concerns. The movement of wind turbine sections requires overweight and oversized permits and other special considerations.

## **EMERGING GLOBAL TRADE PARTNERS**

Texas and Texas ports are well positioned to serve existing, emerging, and growing international markets. Examples of these markets include South and Central American countries, India, Russia, China, Japan, and countries in Asia and Africa. The Panama Canal expansion does not impact all of these markets, but growth in trade to these countries will influence Texas ports and the landside transportation system.

As an example, Brazil represents one of these emerging trade markets. Brazil is the fifth largest country in the world—both by geographic area and by population. It represents an emerging international economy. Brazil was the U.S.'s eighth largest goods export market in 2011. Texas leads all states in the country with exports to Brazil. In 2010, Texas exported approximately \$4.7 billion worth of goods to Brazil. Texas exports a wide range of commodities to Brazil, including chemical and petrochemical products, petroleum and coal, machinery and transportation equipment, and agricultural produce.

In addition to Brazil, Texas exports goods to numerous other South and Central American countries including Venezuela, Columbia, Chile, Peru, and Argentina. These countries, as well as India, Russia, Japan, and countries in Africa and Asia, represent ongoing growing trading partners for Texas, regardless of the Panama Canal expansion.

## CHAPTER III—OPPORTUNITIES FOR TEXAS IN EXPANDING GLOBAL TRADE

The Panama Canal expansion, along with continued population growth and energy development in the state, represents opportunities to expand Texas' role as a global gateway for the nation. In addition, existing and emerging global markets are well served by Texas ports. By providing a low-cost, reliable, safe, secure, multimodal, and environmentally sustainable supply chain based on sound logistics, Texas can increase exports and imports to create new jobs, further contributing to the state and national economy.

Speakers at the PCSWG meetings provided numerous examples of opportunities for increasing exports and imports through Texas ports from the Panama Canal expansion, population growth, energy development, and new international markets. Additional opportunities have been discussed in recent reports and studies. This chapter highlights the potential growth in exports and imports through Texas ports identified by speakers at the PCSWG meetings and in recent reports and studies.

Representatives from shippers and carriers stressed the importance of flexibility and options in the supply chain. Having options to use multiple supply chains and ports, including those in Texas, was viewed as important. Speakers also noted the importance of reliability, cost, and transit time in supply chain decisions. Reliability was stressed as being as important as, if not more important than, transit times. A longer all-water route serving Texas ports may be viable, as long as reliable and cost-effective service is provided.

### POTENTIAL GROWTH IN EXPORTS

As the leading goods export state in the country, Texas is well positioned to take advantage of the Panama Canal expansion and other opportunities to increase the export of dry bulk, liquid bulk, value added manufacturing and break bulk cargo, and containers to existing and new markets. As highlighted in this section, commodities in these general categories include agricultural products, coal, natural gas, petrochemical and chemical products, military cargo, paper products, consumer goods, and other products.

#### Dry Bulk

The expansion of the Panama Canal provides opportunities to increase the export of dry bulk commodities, including grains, coal, and other commodities to existing and emerging global markets. A few examples of opportunities relating to some of these commodities are highlighted below:

- **Bulk Grains.** Expanding exports of corn, wheat, rice, soybeans, and other bulk grains was noted as an opportunity by speakers at some of the PCSWG meetings. A representative from Archer Daniels Midland (ADM) noted that the Panama

Canal expansion should help keep U.S. grain exports competitive. The GIWW may also play an expanded role in future grain exports.

- **Coal.** The potential for increasing shipments of coal through Texas ports and the Panama Canal expansion was discussed at a number of meetings. Speakers noted that opportunities appear to exist to build on current coal exports to China and other Asian destinations. Houston currently has several major dry bulk maritime terminals handling pet coke and coal. It is predicted that these facilities have significant expansion capacity, with room to more than triple their combined facility footprints. Coal exported out of the Port of Corpus Christi is also expected to increase.

### **Liquid Bulk**

The Texas Gulf Coast is home to major oil- and gas-refining facilities. Petrochemical and petroleum products represent the largest export commodities for Texas ports. The Panama Canal expansion and other factors appear to provide opportunities for expanding liquid bulk exports, especially LNG and petrochemical products:

- **LNG.** Currently LNG vessels are not able to use the Panama Canal due to the width limitations in the locks. The new locks will accommodate LNG vessels, thus opening the Asian market to LNG from Texas. Cheniere, Golden Pass Products LLC, and other companies are making major investments in LNG plants along the Texas and Louisiana coast, focusing on exporting LNG. Current projects are located at Sabine Pass along the Sabine-Neches Waterway, the Port of Corpus Christi, and the Port of Brownsville. The LNG facilities represent billion dollar investments to construct and will provide ongoing jobs and income. Golden Pass Products LLC recently received authorization from the U.S. Department of Energy to export domestically produced natural gas as LNG from the Golden Pass LNG terminal in Sabine Pass to nations that have existing Free Trade Agreements (FTAs) with the United States. The \$10 billion project is a partnership of affiliates of Qatar Petroleum International and ExxonMobil.
- **Petroleum and Petrochemical Products.** The Port of Houston Authority in cooperation with the Greater Houston Port Bureau has been conducting a survey of current and planned investments being made along the Houston Ship Channel and surrounding areas. Preliminary results indicate that well over \$30 billion has been committed or planned to be invested in the Houston port region between 2012 and 2015. These investments are predominantly linked to the refining and petrochemical industry, which has seen a resurgence due to the rapid expansion of the Texas energy sector. These investments tie directly to increased maritime trade. For example, in the first 10 months of 2012, chemical tanker and LPG ships calling at the Port of Houston have increased approximately 60 percent

(1058 vessel calls in the first 10 months of 2011 compared to 1695 vessel calls in the first 10 months of 2012). In another example, Dow Chemical Texas Operations has a number of new facilities under construction at Port Freeport. A new chlor-alkali plant valued at \$1.4 billion will begin production in mid-2013 as part of a joint venture with Mitsui. A new propylene production facility is under construction, with a 2015 start-up date. A new ethylene production plant is also being planned, with a 2017 operating date. Approximately 48 percent of the products produced by Dow are exported in deep draft vessels. Phillips 66, in a joint venture with Chevron, is currently constructing two new polyethylene units valued at \$1 billion with production targeted for 2016.

### **General Cargo, Value Added Manufacturing, and Break Bulk Cargo**

The Panama Canal expansion may provide opportunities for expanding exports of general cargo, value added manufacturing, and break bulk cargo. Military cargo, excavators, and offshore drilling rigs represent examples provided by speakers at PCSWG meetings:

- **Military Cargo.** The expansion of the Panama Canal provides opportunities to increase the shipment of military cargo through the ports of Beaumont, Port Arthur, and Corpus Christi. The 842<sup>nd</sup> Transportation Battalion of the U.S. Army's Military Surface Deployment and Distribution Command is located at the Port of Beaumont, which is the number one port in the country for the shipment of military cargo. The Panama Canal expansion will provide the Army with strategic flexibility in the deployment of cargo from the Port of Beaumont. Cargo can be shipped through the canal to destinations in the Pacific, as well as to Europe, South America, Africa, and other destinations.
- **Caterpillar Hydraulic Excavators.** In 2010, Caterpillar began construction of a \$130 million state-of-the-art hydraulic excavator plant at the Port of Victoria. In 2011, Caterpillar added a \$70 million investment to increase the size and the capability of the facility. When fully operational, the facility will produce a total of seven excavator models for markets in the United States and South America.
- **Offshore Drilling Rigs.** A major tenant at the Port of Brownsville, Keppel AmFELS LLC, recently was selected for a \$195 million contract to construct an offshore drilling rig for the Mexican drilling company Perforadora Central. The port is also a major location for ship recycling, with five of the eight ship recyclers in the country, including four U.S. Maritime Administration (MARAD) certified recyclers and the only two U.S. Navy certified ship recyclers in the United States.

## Containers

Numerous commodities are exported in containers from Houston, Freeport, and other Texas ports. Products such as petrochemical products, value added manufacturing products, packaged food products, cotton, pecans, consumer goods, and other commodities may all be exported in containers. The Panama Canal expansion offers opportunities to expand the export of these commodities to existing and new international markets.

- **Cotton.** The Panama Canal expansion is projected to improve the efficiency, distribution, and competitiveness of U.S. cotton exports to China from Gulf and East Coast ports. Faculty at the Texas A&M University Department of Agricultural Economics used a spatial, intertemporal equilibrium model to examine scenarios using different reductions in ocean freight rates due to the Panama Canal expansion. Cotton exports from Texas ports, primarily Houston, and cotton warehouse revenues in the state increased under these scenarios. Depending on the estimated reductions in freight rates, the increase in Texas cotton warehousing revenues could range from \$22 million to \$84 million annually. A representative from Gulf Compress spoke at the PCSWG meeting in Corpus Christi, noting the importance of the export market to Texas cotton growers and the potential increase in exports to China with the Panama Canal expansion. Gulf Compress operates cotton and warehouse distribution facilities in Texas, including a new facility at the entrance to the Port of Corpus Christi's La Quinta Trade Gateway.
- **Resins.** Facilities at the Port of Houston manufacture approximately 20 percent of the world's supply of plastic resin, including polyethylene (PE) and polyvinyl chloride (PVC), which are used in packaging (bags, bins, jugs, and films) and numerous industrial applications (pipes, moldings, gutters, and other products). Resin is the largest container export commodity from the port, representing 38 percent of the port's total container exports in 2011. Due to the ready supply of low-cost feed stock resulting from shale fracturing, major investments are being made to expand and develop additional resin manufacturing capacity. It is expected that as these facilities come online, resin container exports will increase by as much as 30 to 40 percent over the next few years.

## POTENTIAL GROWTH IN IMPORTS

Most of the attention on the Panama Canal expansion has focused on potential changes in the shipment of containers from Asia. Currently, container ships call primarily on West Coast ports. The Panama Canal expansion will allow the larger post-Panamax vessels to call on Gulf Coast ports. A number of factors will influence the potential shift in trade routes, including the

tolls for using of the Panama Canal, the global economy, Asian manufacturing locations, and shipper preferences.

The Port of Houston is the largest Texas port, with approximately 96 percent market share in containers by total TEUs in 2011. Further, the Port of Houston, with approximately 1.9 million containers, accounted for approximately 67 percent of all Gulf Coast container traffic in 2011. These imports include a variety of consumer products, food and drink commodities, automobiles and machinery, and raw materials for manufacturing. Speakers at the PCSWG meetings noted that Texas ports, especially Houston, should anticipate increases in container traffic with the Panama Canal expansion and other factors. Speakers stated that as long as Houston and other Texas ports provide reliable and competitive service, container shipments through the Panama Canal and other parts of the world should increase, especially to serve the growing population base of the state and region.



## **CHAPTER IV—SUMMARY OF PREVIOUS STUDIES AND PLANS**

Studies and plans over the past 10 years have examined different aspects of the freight system in Texas, including ports, railroads, highways, and intermodal facilities. TxDOT sponsored Research Project 0-6801, Synthesis of Port Related Freight Improvement Studies, to summarize the key elements addressed in these studies, especially those related to landside access to ports. The results of this review were summarized in a research report, and a searchable Excel spreadsheet was developed containing information on the identified landside access projects. The spreadsheet includes information on the project type, the issues addressed, estimated cost, funding sources, and other related characteristics. The major studies examined in that project are highlighted in this chapter.

### **REVIEW OF PREVIOUS STUDIES AND PLANS**

Approximately 50 previous studies and plans were reviewed in the synthesis. These included studies sponsored by TxDOT, as well as those completed by ports, MPOs, cities and counties, federal agencies, and other groups. A total of 27 of these studies and plans specifically focused on Texas and included the identification of needed waterborne freight, rail, roadway, and intermodal projects. The key elements addressed in these reports are summarized in this section. The reports are presented by the topic areas of the Panama Canal, waterborne freight, general freight, and rail.

#### **Panama Canal**

- Cambridge Systematics, Inc. Potential Effects of the Panama Canal Expansion on the Texas Transportation System. October 2011.

The purpose of this report was to help TxDOT summarize and envision the possible impacts and issues of the Panama Canal expansion on Texas transportation. It notes that the Panama Canal expansion will likely have significant impacts on many Texas ports. The report also discusses infrastructure needs and possible methods to address the infrastructure, along with operational and policy issues associated with the expansion.

- Texas Transportation Institute. Panama Canal Dry-Bulk Market Segment Peer Review. July 2003.

This report presents a peer review of a project examining the Panama Canal's potential market, vessel transit and fleet size, economic value, marketing strategy, and forecasts canal transits, cargo, and toll revenue.

- Center for Transportation Research and Texas Transportation Institute. Selected 2012-2014 Trade Flows and Texas Gulf Ports: Panama Canal and South American Markets. TxDOT Project 0-6690. In progress.

This project is examining trade between the United States, South America, and Asia as a growing opportunity for Texas ports, which may be in a position to capture a larger share of Asian and South American imports, expanding Texas export markets, and Texas ports serving as global hubs. The first year of this study examined a range of trade and marine transportation factors. U.S. trade with South American and Asian markets is being researched in a Policy Research Project (PRP) project and documented in a first-year report. Concurrently, two specific technical areas—port channels and vessel operating costs—are being examined. The PRP and technical work integrates to form the basis for a second-year work plan addressing strategic issues related to future South American and Asian trade volumes handled at Texas deep water ports, the role played by the expansion of the Panama Canal, and the impact of increased trade on the Texas transportation system.

### **Waterborne Freight Studies**

- Cambridge Systematics, Inc. TxDOT Waterborne Freight Corridor Study. July 2010.

This study identified possible deficiencies in the landside and waterside portions of the Texas freight system. It was undertaken to help provide a base for TxDOT to develop system-level solutions for the freight needs and issues around Texas ports. Issues and chokepoints were identified and discussed.

- Cambridge Systematics, Inc. TxDOT Waterborne Freight Corridor Study, Task 1: Evaluation Criteria and Solution Packages. November 2011.

The goal of this report is to provide TxDOT and the public with a vision of changes to improve the waterborne freight system in Texas. It includes a possible implementation plan for TxDOT and its partners. The document lists the infrastructure, operational, and policy solutions developed to alleviate critical bottlenecks and other problem areas throughout Texas' freight system. These include the state's marine terminals, navigable waterways, inland highways, and rail systems. The document presents a "solution package," and describes the five-step process to examine potential projects and solutions.

- Cambridge Systematics, Inc. TxDOT Waterborne Freight Corridor Study, Task 3: Waterborne Freight Performance Measures. November 2011.

This report seeks to guide TxDOT's planning, investments, and decision making through 2017. This portion of the study provides background on the various types of waterborne performance metrics that were suggested in other reports and used by federal and state agencies. A recommendations and next steps section offers preliminary measures for the Texas waterborne

freight system. The report also identifies additional analysis needed to incorporate other items into the TxDOT planning process.

- Cambridge Systematics, Inc. TxDOT Waterborne Freight Corridor Study, Task 5: Port and Waterway Funding and Financing Options. November 2011.

This document identifies possible funding and financing options for projects and strategies listed throughout the other portions of the study. It includes potential options for funding the previously listed projects. It also includes a discussion of current port and waterway funding and describes federal- and state-level programs to fund and finance various projects.

- Cambridge Systematics, Inc. TxDOT Waterborne Freight Corridor Study, Phase II. November 2011.

This report presents possible infrastructure and operational approaches to address bottlenecks and other needs at or near Texas' ports. It also discusses the estimated costs and benefits of various approaches. It presents a potential phased implementation strategy for consideration by TxDOT and various stakeholders. Information on the problem areas, issues, solutions, costs, and current status is presented.

- The Texas Department of Transportation. Texas Ports 2011-2012 Capital Program. 2011.

This report presents the various funding requests for port transportation and economic development projects submitted by each of the eligible ports. The report was provided to the governor, lieutenant governor, speaker of the House of Representatives, and Texas Transportation Commission. The identified projects, which do not represent a comprehensive listing of all capital needs at Texas ports, account for approximately \$672 million in funding.

- Texas Transportation Institute. Analysis and Recommendations on Protecting Waterways from Encroachment. August 2010.

This project investigated hazards to navigation encroachments in the Texas portion of the GIWW originating from shore. It includes recommendations for mitigating these hazards in the future. The study included the development of a guidebook for permittees and a guidebook for developers on the types and quantity of structures that should be permitted along the GIWW. The guidebooks should help guide "smart" development with regard to navigation through better cooperation between governmental agencies on permitting development and a focus on the agglomeration, clustering, and density of development on the waterway. The guidebooks should also help increase cooperation between developers, governmental agencies, and the barge industry in maintaining the GIWW for its primary use of moving goods effectively and efficiently to promote and support Texas and U.S. commerce.

- Texas Transportation Institute. Short Sea Shipping Initiatives and the Impacts on the Texas Transportation System: Technical Report. December 2007.

This report examines the potential effects of short sea shipping development on the Texas transportation system. The report identifies several triggers, which, if they were to occur, could abruptly change the level of short sea shipping activities in the region. The report indicates that even with a doubling of current short sea shipping volumes, the effects on the Texas highway and rail systems would most likely be insignificant, with the possible exceptions of the ports of Freeport and Brownsville.

- Texas Transportation Institute. Analysis of Start-Up Cross-Gulf Short Sea Shipping Activities with Mexico since 1990: Problems and Opportunities. August 2004.

This report examines activities since 1990 in one subset of short sea shipping, the U.S.-Mexico cross-Gulf services. The report summarizes the services that have been attempted, the obstacles encountered, and possible policies to encourage the success of future ventures.

- Texas Transportation Institute. Development and Application of a Methodology to Identify Mexico-U.S. Cross Border Trade with Potential for Diversion to Short Sea Shipping Operations. November 2006.

This project examined the potential for short sea shipping to divert a portion of the trade that is currently being moved by land between Mexico and the United States. The report notes the need for further research to identify specific supply chains that have characteristics and volumes that make them candidates to divert from land cross border to short sea shipping between Mexico and the United States.

- Kruse and Texas Transportation Institute. America's Locks and Dams: A Ticking Time Bomb for Agriculture? December 2011.

This report discusses the surface transportation system in the United States and its effect on agriculture's ability to compete in domestic and world markets. It examines the rapidly deteriorating condition of the nation's lock and dam infrastructure and how that affects the waterborne transportation system that enables U.S. agricultural producers to continue to compete. It explores the effects of a catastrophic failure of lock and dam infrastructure and the economic effect it would have. The research examined six locks (in Ohio, Illinois, and the Upper Mississippi River) in more detail, based on economic importance and physical condition.

- Kruse and Bierling. The Effect of the New Security Paradigm on Port Infrastructure Development and Finances. October 2005.

This report provides an overview of the financial aspects of port infrastructure development, the implementation of new security measures, and the relationship between them at nine Texas ports. The history of the Port Security Grant Program through August 2005 is summarized, and the financial performance of the ports during the study period (FY 1994-

FY 2004) is presented. It examines the funding approaches used to finance asset acquisition and construction, and analyzes both the profitability of Texas ports in general terms and the potential effect of new security-related expenses on port finances. The use of security fees to recoup some of the security costs is explored, as are other potential “financing” mechanisms.

- Kruse and Harrison. NCFRP Report 5: North American Marine Highways. July 2010.

This report discusses the North American Marine Highways (NAMH) Initiative. It examines several aspects of this initiative, including activities since 1990, shipper requirements and vessel considerations, legislation to encourage NAMH, future development obstacles, financing, and other considerations.

- Siegesmund et al. An Analysis of the Value of Texas Seaports in an Environment of Increasing Global Trade. February 2008.

This report discusses an economic impact exercise for all Texas ports, updating a similar study conducted a decade earlier. It also provides TxDOT with information for incorporating the most recent marine port impacts into the state transportation planning process. Most of the larger Texas ports had undertaken economic impact studies. The project provided both a forecast of container growth at Texas terminals and an estimate of the economic impact of Texas ports on the U.S. economy.

- Kruse et al. A Modal Comparison of Domestic Freight Transportation Effects on the Public. December 2007.

This report discusses several aspects of the Inland Waterway System (IWWS). It discusses several emissions, congestion, and safety issues, as well as other concerns. Additionally, it examines the significance of the IWWS and the impact it has on rail and highway transportation.

- Kruse et al. Potential Policies and Incentives to Encourage Movement of Containerized Freight on Texas Inland Waterways. October 2008.

This report examines the need for increased utilization of marine freight options and the challenges involved in accomplishing this goal. It also describes the potential benefits from increasing the utilization of marine freight options. It includes a summary of relevant programs in Europe and in other states. The capacity and efficiency of the GIWW and examples of activities taken by Texas ports to encourage more domestic waterborne freight shipments are presented. The report recommends several steps TxDOT could pursue in the short term to encourage increased waterborne shipments along the coast.

## **General Freight Studies**

- Amadeo Saenz, Jr. Trade Transportation Activities Report. January 2009.

This report summarizes freight activities in various regions in Texas. It includes the Pharr District Regional Freight Study, which discusses possible or planned changes to the rail system in the area.

- Cambridge Systematics, Inc. H-GAC Regional Goods Movement Study. December 2011.

This study identified improvements and strategies for increasing person and freight mobility, while mitigating the negative impacts on the community (e.g., congestion and safety). Overall, the objectives of the study were to document existing and emerging freight, industry, and logistics movements that impact the demand, locate problem areas and bottlenecks, and create strategies to improve mobility, reliability, and safety for the region's freight transportation.

- Harrison et al. Emerging Trade Corridors and Texas Transportation Planning. September 2009.

This report describes the major trends in intermodal shipping influencing Texas intermodal trade corridors. Key supply and demand forces that underpin intermodal service and routing options are provided. Intermodal development from a technological and shipping industry perspective is described, including the impacts of the global economic recession beginning in late 2007. An overview of Texas trade patterns is also presented. A review of current and future corridors used for handling international intermodal trade illustrates the comparative strengths and weaknesses of different routing options for intermodal cargo shipping. Finally, suggested infrastructure and economic milestones driving changes in trading patterns are presented as they relate to the Texas economy and its transportation system.

- Texas Transportation Institute. The Future of Texas Freight: Roles, Forces, and Policies. TxDOT Strategic Research Program Research Brief. June 2011.

This white paper examines the roles, forces, and policies affecting transportation in Texas. It identifies potential strategic issues for consideration by TxDOT in formulating goals related to goods movement.

## **Rail Studies**

- The Texas Department of Transportation. Houston Region Freight Rail Study. June 2007.

This report examines deficiencies in the Houston freight rail network. It discusses the issues with the current system and presents methods to accommodate and capitalize on future freight movements in the region. It identifies improvements that may provide relief to residents

and the traveling public affected by delays, interruptions, and noise attributed to the movement of freight in the region. It also identifies alternatives that may improve regional freight rail capacity by enhancing efficiency and railroad operations. The report identifies \$3.4 billion in transportation improvements throughout the region.

- The Texas Department of Transportation. Texas Rail Plan. November 2010.

This report presents policies, directions, and a vision for rail for the state. It is intended to assist in meeting federal and state regulations. The plan is coordinated with other statewide planning documents. The development of the rail plan was guided by TxDOT's strategic plan and coordinated with the Statewide Long-Range Transportation Plan. Key components include an inventory of the freight and passenger rail infrastructure and an examination of state rail system needs. The final component prioritizes the various programs and financing strategies to achieve the goals of Texas' rail system.

- Jacobs and the Texas Department of Transportation. A Regional Freight Study of the Corpus Christi and Yoakum Districts, Phase I Report. May 2010.

This is the first of two documents prepared for the Corpus Christi and Yoakum Districts. It presents the findings from studies completed by TxDOT examining freight movement into, out of, or through the two districts. The overall purpose of this Phase I document is to help inventory the existing rail network, model the freight movements, and identify various bottleneck and safety issues within the two districts.

- Jacobs and the Texas Department of Transportation. A Regional Freight Study of the Corpus Christi and Yoakum Districts, Phase II Report. May 2010.

This is the second of two documents prepared for the Corpus Christi and Yoakum Districts. The Phase II report identifies potential rail and roadway projects for the districts. The projects focus on improving freight movement in the regions and improving the efficiency of the regions.

### **Other Related Studies**

- Frawley et al. Landside Freight Access to Airports: Findings and Case Studies. May 2011 and Guidebook on Landside Freight Access to Airports. February 2011.

These two reports examined landside freight access to airports in Texas. Many of the findings related to design elements, pavements, signings, and operations are relevant for landside freight access to ports. These documents should be considered in designing and operating roadways accessing ports in the state.



## **CHAPTER V—TXDOT PROJECTS TO STRENGTHEN TEXAS' POSITION IN GLOBAL TRADE**

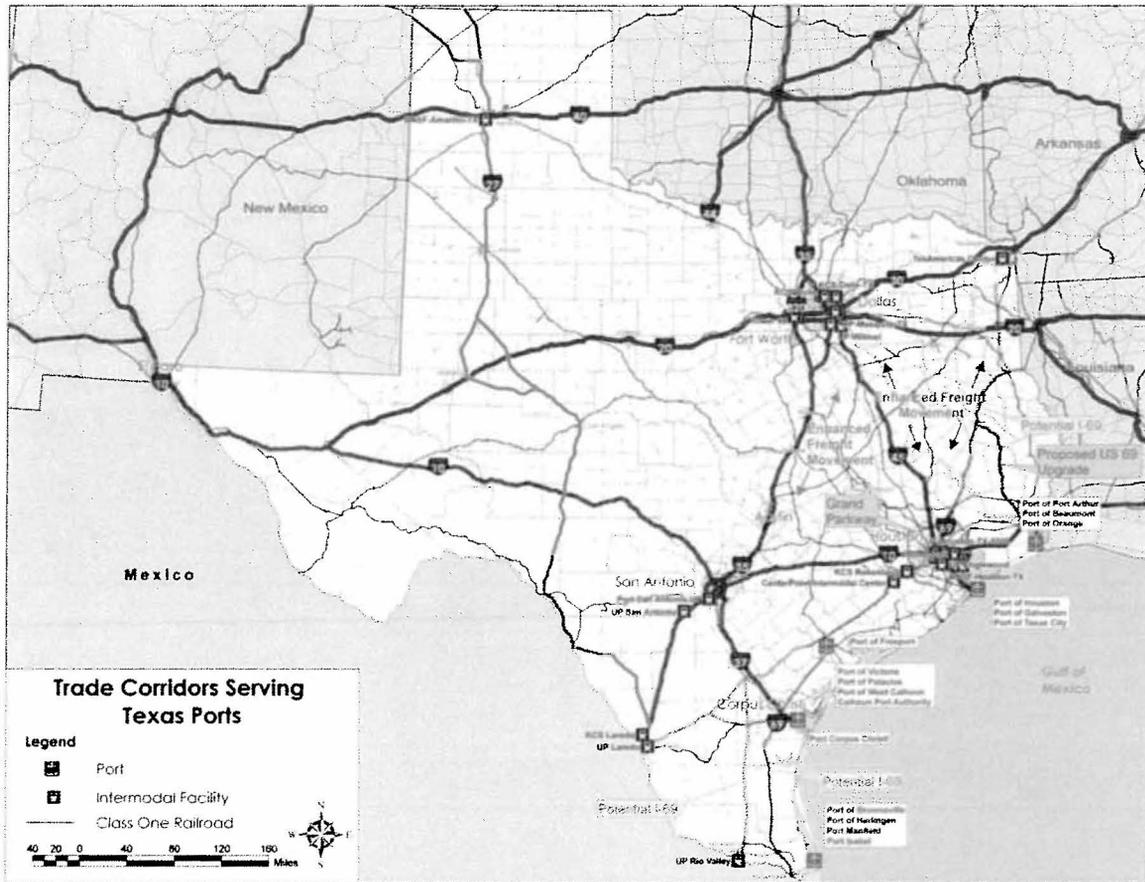
A number of sources were used to identify TxDOT projects to further strengthen Texas' position in global trade. The projects identified in the review of previous studies and current plans discussed in Chapter IV provided a starting point. The presentations by Marc Williams of TxDOT at the PCSWG meetings highlighted current information on TxDOT projects and plans. Comments from speakers at the meetings highlighted additional project needs. Follow-up communication with TxDOT district and division personnel, as well as staff from other agencies, provided additional information on current and planned projects. While not exclusively linked to the Panama Canal expansion, these projects would enhance freight movement in major trade corridors, into and out of Texas ports, and to distribution centers and intermodal facilities. The projects will be of benefit in positioning the state to expand its global trade profile.

The TxDOT projects identified through these sources are presented in this chapter. The roadway corridors connecting Texas ports with the state, region, and country are summarized first. Projects connecting ports to these main trade corridors are discussed next by the general port geographic areas of Beaumont and Port Arthur; Houston, Galveston, and Freeport; Victoria; Corpus Christi; and Brownsville and Harlingen.

### **MAJOR INTERSTATE AND STATE HIGHWAY TRADE CORRIDORS**

Figure 3 illustrates the major interstate and state highway corridors serving Texas ports. These trade corridors provide connections from the ports to the major urban areas in the state, the region, and the country. The major existing and planned interstate and state highway corridors supporting Texas ports are highlighted:

- I-35 extends from Laredo to the Oklahoma state line. It connects the ports of Brownsville, Harlingen, Port Isabel, and Port Mansfield via I-69 and I-37, and the Port of Corpus Christi, via I-37 to San Antonio, Austin, the Dallas-Fort Worth Metroplex, and the central United States. I-35 is heavily traveled, with many segments on the TxDOT 100 most congested roadway list. I-35 carries high volumes of trucks. The section of I-35 from the Williamson County line to Hillsboro is undergoing a \$2.1 billion reconstruction. When completed, this section will include three lanes in each direction, improved geometrics, and state-of-the-art traveler and traffic information systems.



Source: TxDOT.

**Figure 3. Major Interstate and State Highway Corridors Serving Texas Ports.**

- I-45 connects the ports of Galveston, Houston, and Texas City to the Dallas-Fort Worth Metroplex. I-45 is also a well-utilized facility, by both passenger vehicles and trucks. It is also a major hurricane evacuation route from Houston and southeast Texas. TxDOT plans to undertake a corridor planning study to examine options to enhance freight movements between Houston and the Dallas-Fort Worth Metroplex. For example, Dallas County Judge Clay Jenkins discussed the potential of a pilot project allowing heavier trucks on I-45 between Houston and UP's Dallas Intermodal Terminal in south Dallas at one of the PCSWG meetings. The railroads are also looking at options to improve freight movements between Houston and the Dallas-Fort Worth area.
- I-10 extends the length of Texas from the Louisiana state line east of Beaumont to the New Mexico state line west of El Paso. It provides east-west connections for the ports of Beaumont, Port Arthur, Orange, Sabine Pass, Houston, Galveston, and Texas City. The Houston to San Antonio and the Houston, Beaumont, and

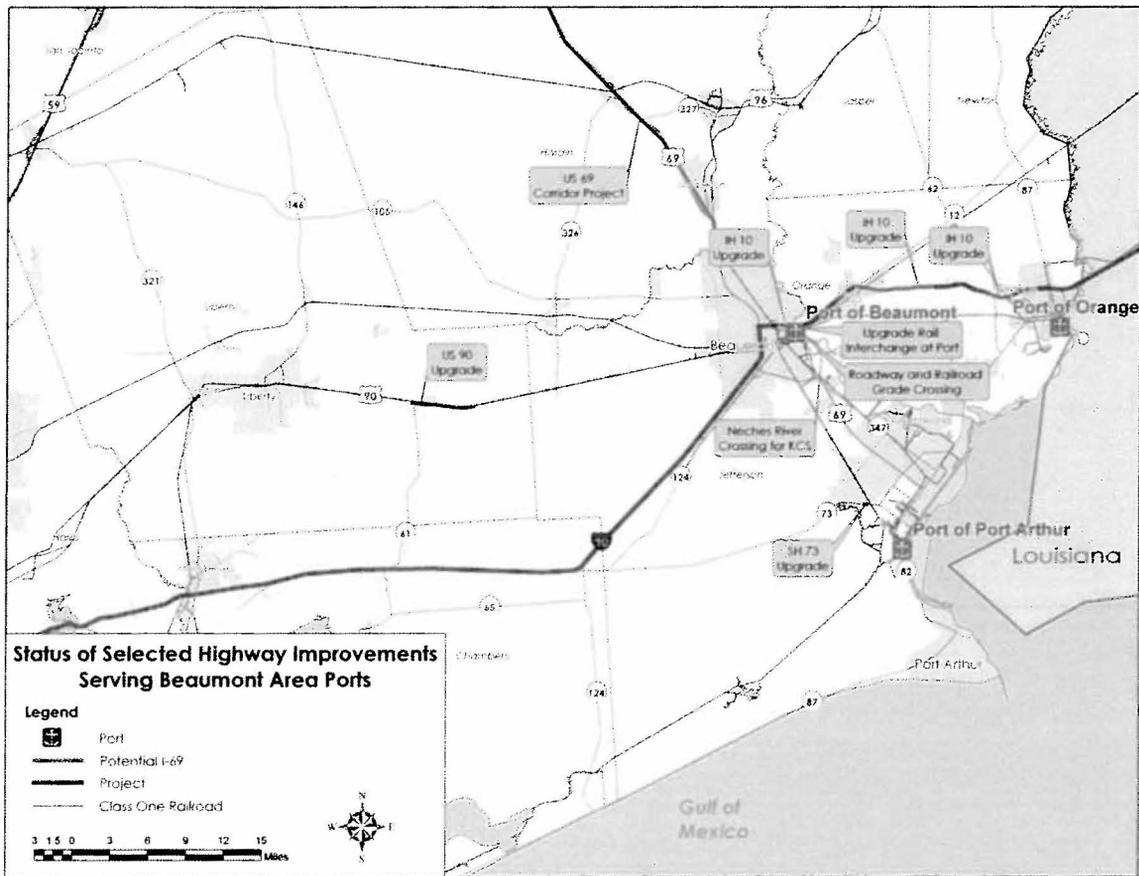
Louisiana sections are important links for port-related truck traffic. I-10 is heavily traveled and is especially congested in the Houston area during the peak periods. Major improvements were recently made on I-10 West in the Houston area.

- I-69 is a proposed national interstate extending from Texas to Michigan. The proposed route of I-69 in Texas will include existing highways as much as possible. These highways include US 59, US 77, US 84, US 281, and SH 44. TxDOT is using five segment committees to gain input from the public and groups in the areas. Following the recommendations of these committees, current sections of existing freeways are being designated as I-69 to help establish the interstate in Texas. In addition the existing right of way is being utilized to the greatest extent possible. Serving as a connection between international border crossings and most of the Gulf Coast ports along the Texas Gulf Coast, the development of I-69 will be of benefit to freight movement in the state, Texas ports, and the state's role as a leader in global trade. The Houston-Galveston Area Council (H-GAC) and Houston-area stakeholders noted the need to examine a southern reliever route for I-69 that would provide improved connectivity to ports and help reduce urban congestion.

## **PORT AREA TXDOT LANDSIDE PROJECTS**

Figures 4 through 8 present the maps highlighting the projects in the different port areas used at the PCSWG meetings. Figure 4 presents the projects in the Beaumont and Port Arthur area. Figure 5 illustrates the projects in the Houston, Galveston, and Freeport area. Figure 6 presents the projects in the Victoria area. Figure 7 shows the projects in the Corpus Christi area, and Figure 8 highlights the projects in the Brownsville and Harlingen area. General information on the projects in each area is also provided. The need for these projects was identified prior to discussions concerning possible impacts of the Panama Canal expansion. The projects would benefit the movement of freight, including increasing exports and imports through Texas ports, as well as accommodating growth in trade resulting from the Panama Canal expansion.

As illustrated in Figure 4, TxDOT projects in the Beaumont and Port Arthur area focus on upgrades to I-10, US 90, and SH 73. Other projects include upgrading the Port of Beaumont rail interchange, the US 69 project, a new roadway/railroad upgrade crossing, and the Neches River Crossing Feasibility Study. These projects are highlighted below.



Source: TxDOT.

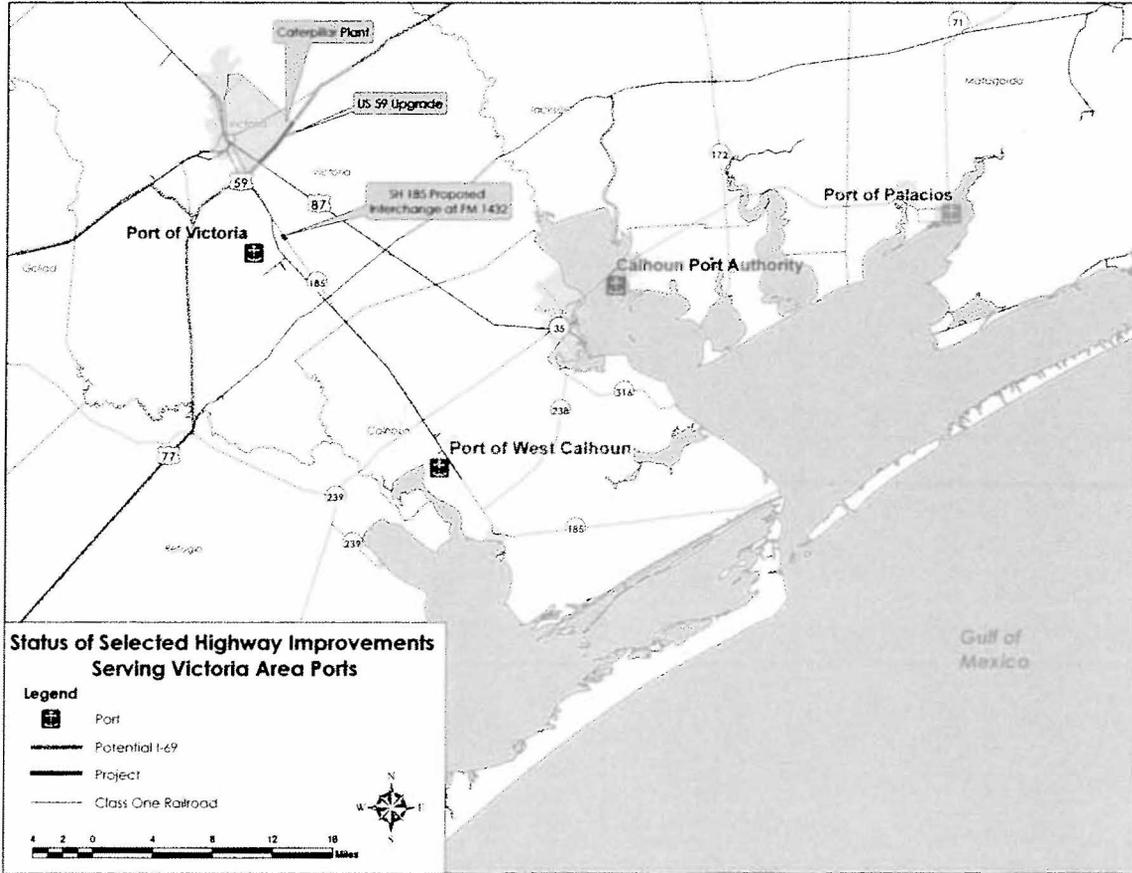
**Figure 4. Beaumont and Port Arthur Area TxDOT Projects.**

- I-10 is being upgraded. A project to replace the Neches River Bridge was let in February 2012. A widening project starting east of Vidor is slated to be let in the fall of 2013. Reconstruction of I-10 west of Orange is nearing completion.
- Upgrading a section of US 90 from a two-lane roadway to a four-lane roadway to the west of Beaumont is scheduled to be let in the summer of 2013.
- A railroad grade separation on SH 73 near the Port of Port Arthur is proposed but does not have funding yet.
- Projects in the Port of Beaumont include the Port of Beaumont rail interchange upgrade and a new roadway and railroad grade crossing.
- Environmental studies are being conducted on the US 69 corridor project in Hardin, Tyler, and Jasper Counties. This 54-mile four-lane highway would be on a new alignment, possibly an abandoned railroad corridor. It represents an estimated \$464 million project that would serve as a major trade corridor.



- The American Association of State Highway and Transportation Officials (AASHTO), Federal Highway Administration (FHWA), and the Transportation Commission approved the I-69 designation on a 35-mile section from I-69/US 59 North I-610 to the Liberty County line.
- Completed projects in the Houston area include the Deer Park and Pasadena Junction rail extension, the Barbours Cut Terminal road expansion, and the US 90 upgrade from I-610 to Beltway 8.
- Environmental studies are underway on widening and upgrading US 59 from SH 99 to the Fort Bend/Wharton County line, and environmental work is beginning through Wharton County.
- The estimated letting of the direct connector reconstruction of the US 59/I-610 interchange is the fall of 2018.
- Multiple grade separations on SH 146 are underway, as are upgrades on sections of I-45 (SH 146/SH 6 downtown to Beltway 8) and SH 36 (widening to four lanes).
- Segment D and Phase I of Segment I-2 of the Grand Parkway are open to traffic. Segment E is under construction. Phase 2 of Segment I-2 is currently under design. A developer was recently selected for Segments F-1, F-2, and G. Other segments are at various stages of development.
- US 288 is in the beginning stages of a public/private partnership procurement, and additional funding has recently been allocated to the US 290 project.
- A \$45 million project on SH 36 (Brazoria County) is part of the TxDOT Houston District's ongoing efforts to widen SH 36 from two to four lanes from Port Freeport north toward Fort Bend County. In the coming years, the district plans to widen SH 36 to four lanes all the way to US 59.

Figure 6 presents TxDOT projects in the Victoria area. These projects will benefit the Port of Victoria and the Calhoun Port Authority, as well as the Port of Palacios and the Port of West Calhoun. The following TxDOT projects are underway in the area.

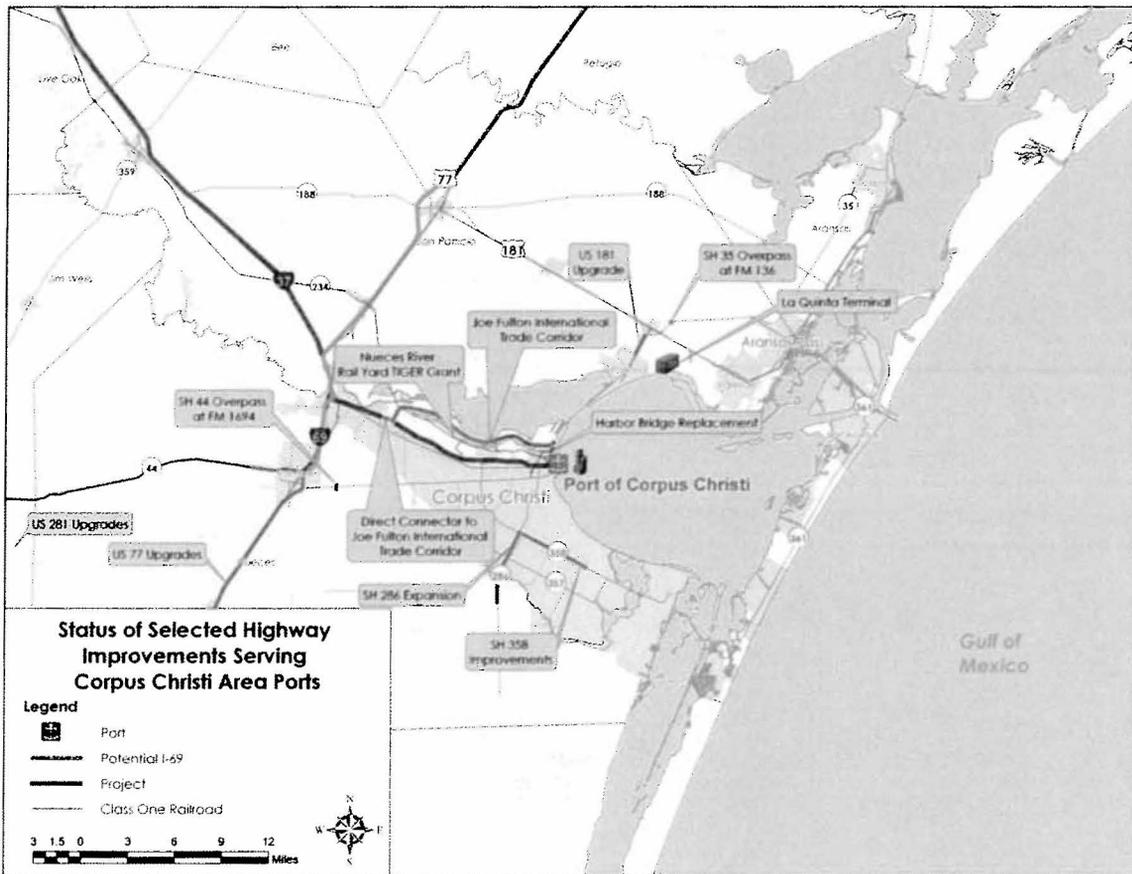


Source: TxDOT.

**Figure 6. Victoria Area TxDOT Projects.**

- US 59 is being upgraded to interstate standards from Loop 463 to US 87. This improvement will facilitate access to the new Caterpillar plant. It also makes progress in meeting interstate standards for I-69 designation. Also underway on US 59 are project development services related to the development of I-69 in Wharton County.
- The SH 185/FM 1432 interchange is being studied by the MPO for possible improvements.
- Approximately \$4 million has been allocated to the TxDOT district for safety and maintenance work for roadways impacted by energy developments.

Figure 7 illustrates the major TxDOT projects in the Corpus Christi area. As described below, a number of major projects are underway on US 77, US 281, and state highways. The Joe Fulton International Trade Corridor and the Nueces River Railyard were also noted by John LaRue of the Port of Corpus Christi in his presentation. The rail projects are described in Chapter VI. The US 181 Harbor Bridge replacement was also noted as an important project for accommodating post-Panamax vessels in the future.

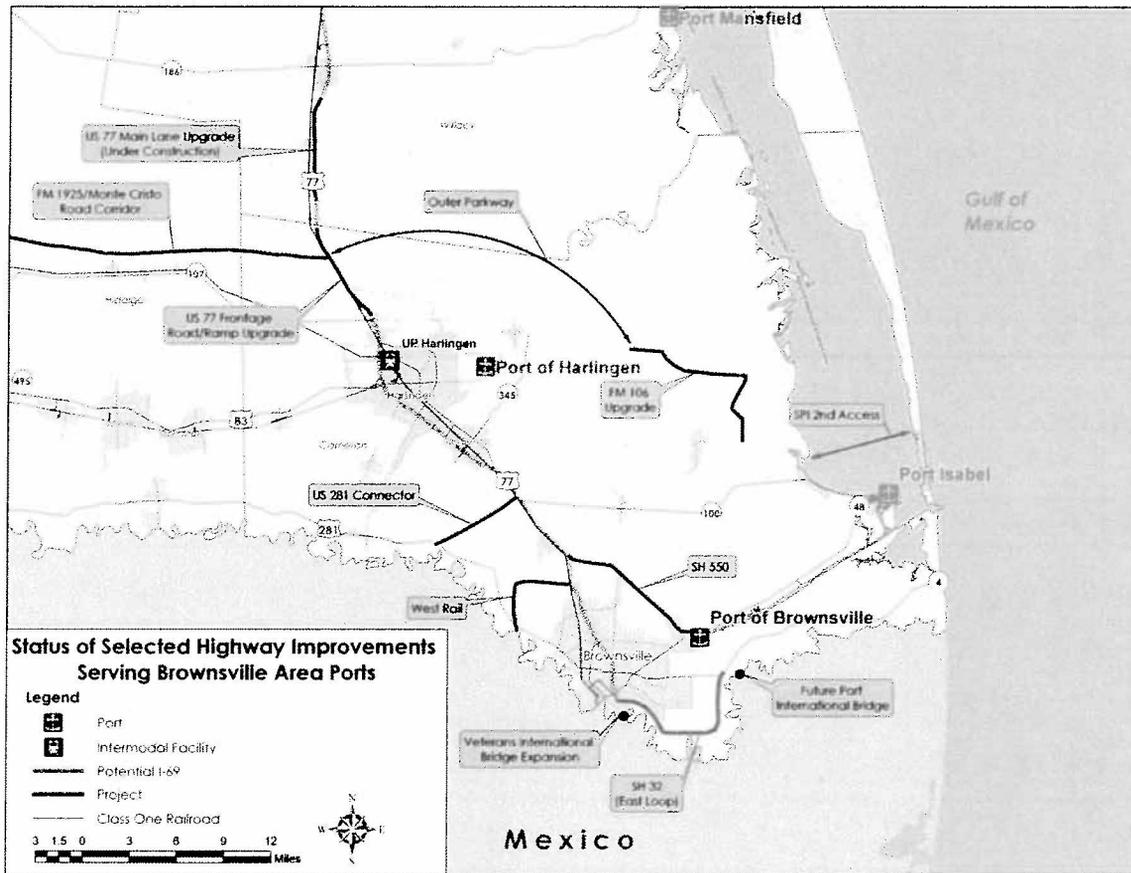


Source: TxDOT.

Figure 7. Corpus Christi Area TxDOT Projects.

- A number of improvements are being made to US 77 as part of the designation to I-69. A 122-mile Environmental Assessment and Development Plan was approved in July 2012. A project to construct the main lanes from SH 44 to FM 892 was let in July 2012. A project to construct the main lanes and overpasses from FM 892 to CR 28 is scheduled to be let in July 2013. A design/build project approach is being used from Kingsville to Driscoll.
- A number of projects are underway on US 281. The overpass at FM 1554 in Alice was let in July 2012. The Premont Relief Route Environmental Assessment is underway, as is a planning and feasibility study/interstate evaluation.
- Other projects underway include the SH 44 overpass at FM 1694 and the SH 286 expansion, which involves constructing new freeway lanes. Improvements to SH 358, including Phase IIA ramp and operational work, are scheduled for 2017. The SH 35 overpass at FM 136 is under construction. Another project, which is not funded yet, is the US 181 overpass between Portland and Gregory.
- The US 181 Harbor Bridge replacement represents a major project in the area. Environmental documents and schematics are currently being prepared. The Joe Fulton International Trade Corridor includes a number of projects. The Joe Fulton Direct Connector to I-37 is complete.
- Approximately \$10 million has been allocated to the TxDOT district for safety and maintenance work for roadways impacted by energy developments.

As illustrated in Figure 8, a number of projects are underway in the Brownsville and Harlingen areas. These projects serve the Port of Brownsville, the Port of Harlingen, Port Isabel, and the international bridge crossings into Mexico. Many of these projects represent the coordinated efforts of TxDOT, the Cameron County Regional Mobility Authority (CCRMA), the Hidalgo County Regional Mobility Authority (Hidalgo RMA), the ports, and other agencies and groups.



Source: TxDOT.

**Figure 8. Brownsville and Harlingen Area TxDOT Projects.**

- A number of projects are underway on US 77. The main lanes and overpass from FM 1018 to FM 3168 are under construction. The 122-mile Environmental Assessment and Development Plan was approved in July 2012. The SH 107/FM 508 interchange ramp upgrades and frontage road conversions represent other projects. As a result of MAP-21, I-69 designation efforts are underway.

- The SH 550 toll road from US 77/83 to the new Port of Brownsville entrance represents a CCRMA and TxDOT project, as does the SH 32 (East Loop) new roadway from US 77/83 to the Port of Brownsville.
- The extension to FM 106 to General Brandt Road is scheduled for letting in July 2013.
- Longer-term projects include a second access to South Padre Island and on Outer Parkway, the FM 1925/Monte Cristo Road Corridor, the West Rail UP railway relocation project, the Veterans International Bridge Expansion, and the US 281 Connector.



## **CHAPTER VI—PORTS, THE GIWW, RAILROADS, PIPELINES, AND OTHER PROGRAMS AND POLICIES TO ENHANCE TEXAS’ POSITION IN GLOBAL TRADE**

A multimodal transportation system—including ports, the GIWW, roads, railroads, and pipelines—is needed to further strengthen Texas’ position in global trade and potential benefits to Texas from the Panama Canal expansion. The state is well served by these transportation modes, but improvements in existing facilities and new capital investments have been identified in previous studies to address capacity concerns and bottlenecks. While not all projects are specifically linked to the Panama Canal expansion, all would help support potential opportunities from the Panama Canal expansion, as well as to meet the needs of the state’s growing population and energy sector. Additional programs and policies can support these modes and better position the state to expand its role as the nation’s export leader, as well as increasing imports. Ports, railroads, pipelines, and many programs and policies are beyond TxDOT’s jurisdiction. The department may play a facilitating and coordinating role in some of these activities, however.

The status of existing channel widening and deepening projects at Texas ports, the existing rail system, and possible rail improvement are summarized in this chapter. An overview of the pipeline system in the state is also represented. A more extensive assessment of possible pipeline needs was beyond the scope of this project. The chapter also includes a discussion of possible programs, policies, and strategies to enhance the benefits of the Panama Canal expansion and other opportunities facing the state.

### **PORTS**

Texas ports play a critical role in the state’s transportation system and are key to the state’s economy. Figure 9 illustrates the major commercial ports in the state and the GIWW. Texas’ ports complement, rather than compete, with each other. Although the petroleum, petrochemical, and agricultural sectors form the base for many ports, the various ports tend to serve different functions, markets, and niches. For example, the Port of Houston handles approximately 65-75 percent of Gulf container traffic, the Port of Beaumont is the primary port in the country for the shipment of military cargo, the Port of Victoria serves primarily barge traffic, the Port of Texas City handles primarily liquid products, and tenants at the Port of Brownsville are leaders in constructing offshore oil rigs. The ports offer unique benefits, present different opportunities, and have different landside transportation needs.

Table 3 presents information from USACE on the depths of Texas commercial ports. The ports of Houston, Corpus Christi, Texas City, Freeport, and Galveston currently have 45 ft depths. Five ports have harbor and channel-deepening projects moving through the federal approval process. The ports of Beaumont and Port Arthur, which are served by the Sabine-Neches Waterway operated by the Sabine-Neches Navigation District (SNND), received a signed Chief's Report for improvements to 48 ft in July 2012. The SNND is currently awaiting funding through the congressional process. The Port of Corpus Christi submitted a draft Limited Reevaluation Report for a 52 ft port depth to the Southwest Division of USACE in July 2012. Port Freeport is anticipating a Chief's Report in December 2012 for an improved depth of 50-55 ft. The Port of Brownsville is in the process of developing the justification for a depth of 45-52 ft, with a Chief's Report anticipated in August 2014.

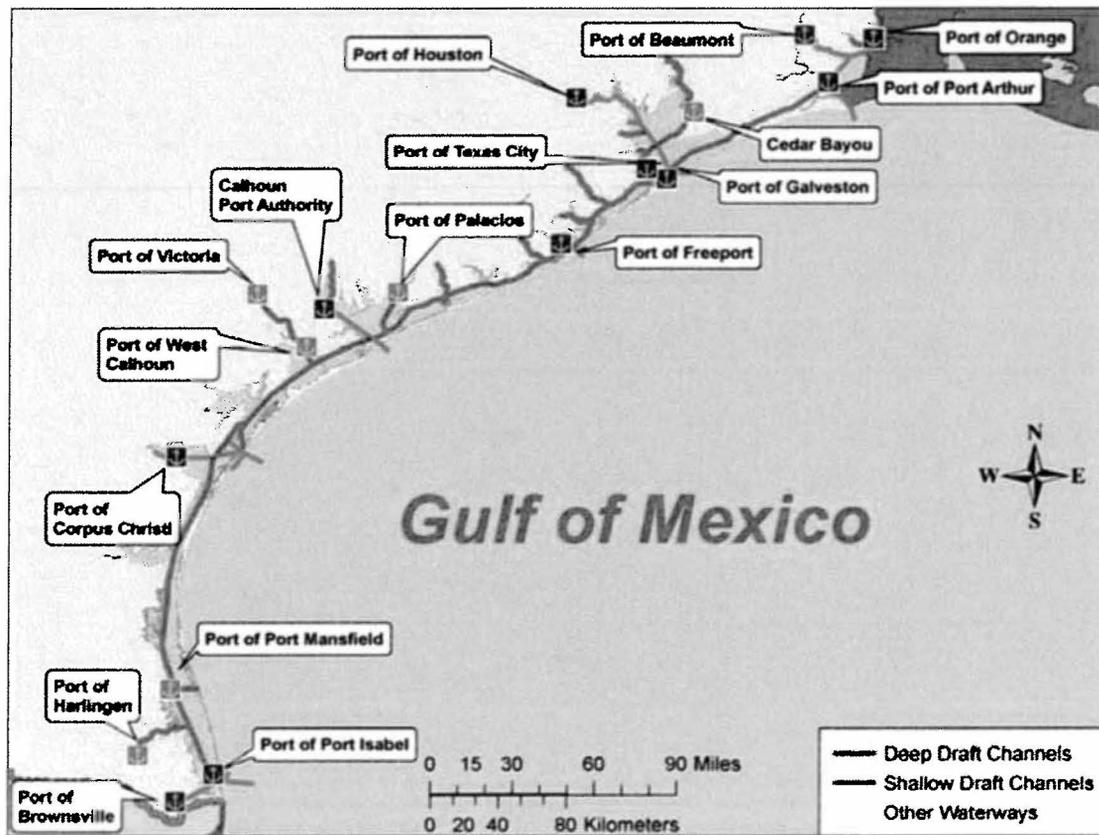


Figure 9. Texas Commercial Ports and the GIWW.

**Table 3. Depths of Texas Ports Examined in This Project.**

Texas Ports*	Authorized Depth (ft)	Under Study	
		Improved Depth (ft)	Status
Houston (2)	45	45	Construction Completed in June 2005
Beaumont (4)	40	48	Chief's Report Signed July 2011
Corpus Christi (6)	45	52	Draft LRR to SWD July 2012
Texas City (10)	45	45	Construction Completed in June 2011
Port Arthur (25)	40	48	Chief's Report Signed July 2011
Freeport (27)	45	50-55	Chief's Report December 2012
Galveston (41)	45	45	Construction Completed March 2011
Matagorda (54)	38	38	No improvements forecasted
Brownsville (78)	42	45-52	Chief's Report August 2014
Victoria (89)	12	12	No improvements forecasted

\*National ranking of port is in parentheses.

Source: U.S. Army Corps of Engineers.

In addition to these projects, Texas ports fund ongoing dredging and maintenance, as well as improvement projects. For example, Port Freeport is pursuing a \$35 million project to widen the Freeport harbor entrance channel from 400 ft to 600 ft. A variety of local funding sources are being used on the project, which will allow two-way traffic for certain vessels and will accommodate wider vessels, including LNG tankers.

The Texas Legislature took initial steps in 2001 to address port capital needs. Legislation was passed creating Chapter 55—Funding of Port Security, Projects, and Studies within the Texas Transportation Code. The chapter established the Port Authority Advisory Committee, the Port Access Account Fund, and the Capital Program. The Texas Transportation Commission appoints the seven-member Port Advisory Committee, which is responsible for developing the annual Capital Program containing the projects and funding requests submitted by the state's public ports. The Port Access Account Fund provides the mechanism for cost sharing between the state and a port on a 50-50 basis for the projects included in the Capital Program.

The annual Capital Program prepared by the Port Authority Advisory Committee is submitted to the governor, lieutenant governor, speaker of the House of Representatives, and Texas Transportation Commission. The number of ports submitting projects, the number of

projects, and the requested funding has varied by year. There were 87 projects submitted by 15 ports in the 2010-2011 Capital Program. With the 50 percent local matching fund requirement, these projects accounted for approximately \$279 million in state funds. The 2011-2012 Capital Program included 81 projects submitted by 16 ports, totaling approximately \$336 million in state funding. The 2013-2014 Capital Program included 51 projects submitted by 10 ports, totaling approximately \$239.9 million in state funding. These projects represent only a small portion of the ports' capital programs.

The projects in the Capital Program include improvements to docks and warehouses, port security, rail, and off-system roads. New infrastructure and deepening and widening feasibility studies are also included in the Capital Program. No funding has ever been allocated by the legislature to the Port Access Account Fund, however. As a result, no projects have been funded through this mechanism. It appears that the lack of funding may result in some ports not submitting requests on a regular basis.

Table 4 presents the transportation projects included in the Texas Ports 2013-2014 Capital Program, which are limited to those that meet the legislative language. A total of 12 transportation projects, with a total estimated cost of \$131.7 million, were included in the 2013-2014 Capital Program. These projects represent only a small percentage of the capital investments being made by ports in transportation, docks, and other infrastructure improvements.

**Table 4. Transportation Projects Included in the 2013-2014 Texas Ports Capital Program.**

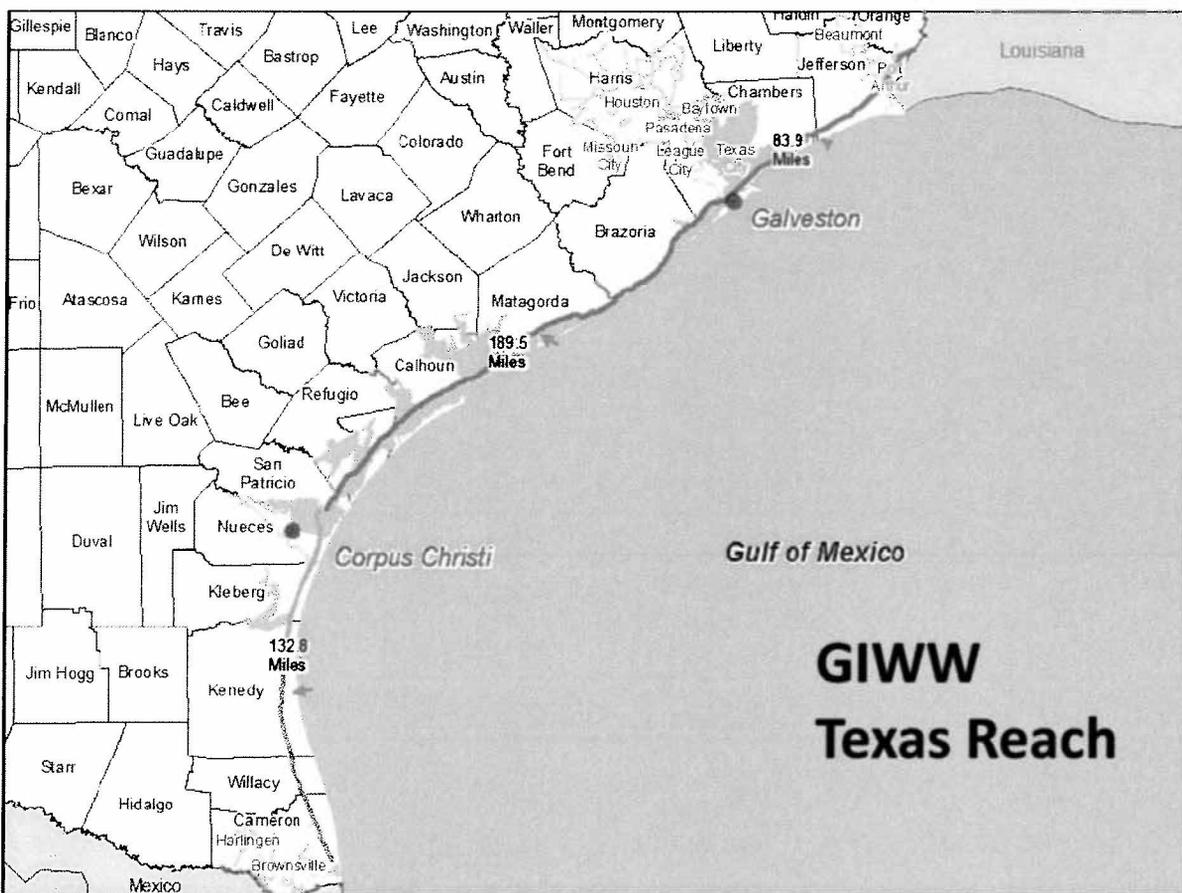
<b>Area</b>	<b>Project</b>	<b>Project Description</b>	<b>Estimated Total Cost (Millions)</b>
Beaumont	Orange County railroad overpass	Construct railroad overpass	\$9.0
Beaumont	Kansas City Southern Railway Company (KCS) railroad bridge improvement	Upgrade and double truck KCS railroad bridge across Port of Beaumont ship channel	\$16.0
Brownsville	Rail access at docks	Construct rail improvements at Cargo Docks 15 and 16	\$2.2
Corpus Christi	Nueces River railyard improvements, Phase II	Improvements to Nueces River railyard	\$28.8
Corpus Christi	Realignment of interchange yard	Realign existing interchange yard	\$11.2
Corpus Christi	Rail and road improvements at La Quinta Terminal	Rail and road improvements to multi-purpose dock and terminal	\$20.0
Galveston	41 <sup>st</sup> Street Harborside entrance	Secure easements and construct entrance from Harborside Drive/ SH 275 to Old Port Industrial at 41 <sup>st</sup> Street	\$1.5
Galveston	Internal traffic circulation	Construct roads and rehabilitate railroad crossings to ensure safety and to improve internal traffic circulation	\$5.0
Houston	Reconstruction of High Level Road	Reconstruction of High Level Road from I-610 feeder road to Gate 2 Road	\$20.0
Port Arthur	Rail extension and enlarge staging area	Extend rail and enlarge truck staging area	\$6.5
Port Arthur	Rail extension to Industrial Park South property	Extend rail line to Industrial Park South property	\$5.5
Port Arthur	Road improvements	Improve road surface between rail and roadways	\$6.0

**Source:** 2013-2014 Texas Ports Capital Program.

### **GULF INTRACOASTAL WATERWAY (GIWW)**

The GIWW is part of the nation’s Inland Maritime Transportation System. The GIWW is 107 years old and spans over 1000 miles from Brownsville, Texas, to St. Markso, Florida. As illustrated in Figure 10, the GIWW includes 423 miles in Texas. It connects Texas ports and links them with ports in Louisiana, Mississippi, Alabama, and Florida. It provides a key link for Texas waterborne freight. Texas accounts for approximately 63 percent of the traffic on the GIWW. In 2010, approximately 73 million tons of cargo, valued at \$28 billion, was transported on the GIWW in Texas. Approximately 87 percent of this cargo was petroleum or petrochemical

products. The GIWW is the nation's third busiest inland waterway, behind the Mississippi River and the Ohio River.



**Figure 10. Gulf Intracoastal Waterway.**

The navigable channel of the GIWW is generally 125 ft wide and 12 ft deep. Many sections are not being maintained to the 12 ft depth, however, due to funding limitations for needed dredging. Combinations of barges, called tows, are authorized to travel at a width of 108 ft. Because of narrow widths, tidal conditions, and weather, tows must often utilize waters outside the authorized channel to pass and navigate difficult bends.

The GIWW is maintained by USACE, providing federal funds to dredge, operate, and maintain the structures and navigability of the waterway. The 1975 Texas Coastal Waterway Act, codified as Texas Transportation Code, Chapter 51, established TxDOT as the local non-federal sponsor of the GIWW. The department's primary responsibility is to provide lands, easements, rights of way, relocations, and necessary disposal areas for maintenance and operation of the GIWW.

TxDOT has sponsored research projects on different aspects of the GIWW and waterborne freight. Topics addressed in these studies include containerized freight movement, short sea shipping, the value of Texas seaports, and protecting waterways from encroachment.

Other projects examined policies and incentives to encourage the movement of containerized freight on Texas inland waterways, as well as waterborne freight corridors.

These studies, other TxDOT projects, and speakers at the PCSWG meetings identified issues associated with the GIWW. One issue is inadequate funding for USACE to maintain the depth of the channel and to make other needed improvements. The Galveston District of USACE has been receiving approximately \$24 million to \$27 million in annual funding for dredging maintenance of the GIWW. The district has the need and the capacity for approximately \$60 million annually to support dredging to maintain the 12 ft depth of the GIWW. Addressing this need provides an important opportunity for USACE, Gulf Coast ports, users of the GIWW, and TxDOT to work in partnership to establish a strategy for funding and maintaining the GIWW.

Encroachment from housing and commercial development on the GIWW represents another issue. USACE is establishing revised, realistic setback policies to assist in preventing encroachment. Another issue is that the dimensions and structures of the GIWW do not adequately support the state of barge transportation today. There is also a need for additional mooring structures at numerous locations. Additionally, the Brazos River floodgates and the Colorado River locks are over 50 years old and are only 75 ft wide, which creates inefficiencies by requiring barge chains to be broken down and barges moved through individually. Cost estimates for these improvements have not been identified.

The GIWW enhances the competitiveness of Texas ports. It will continue to play an important role after the expansion of the Panama Canal. The recent Eagle Ford Shale development is resulting in increases in GIWW barge shipments. Additional use of the GIWW would also avoid overburdening the surface transportation system. As the non-federal sponsor of the GIWW in Texas, TxDOT's support is critical to providing maritime representation and focus.

PCSWG members discussed the importance of the GIWW to freight movement in Texas. It was suggested that the GIWW is the sleeping giant—it does not get much visibility but is a key element of the freight-waterway system. The need for adequate funding for dredging and critical improvements was discussed, along with the role TxDOT could play in addressing these needs.

## **RAILROADS**

The rail network in Texas is critical to the port system. Railroads bring raw materials and products to ports for export and transport imports to inland markets. The three Class I railroads operating in Texas—the BNSF Railway, UP, and KCS—all serve some ports. BNSF and UP operate over 93 percent of the Class I track mileage in the state. In addition, some ports are served by a dedicated switching railroad or operate their own on-site railroads, linking to the Class I railroads.

The location of the major rail lines and intermodal facilities are illustrated in Figure 3 in Chapter V. The intermodal facilities and hubs in the Houston area and the Dallas-Fort Worth

Metroplex serve not only Houston ports, but ports in other parts of the country, and play important roles in the U.S. rail system.

A number of railroad improvements have been identified in previous studies and plans. The Texas Rail Plan, the TxDOT Waterborne Freight Corridor Study, the TxDOT Houston Region Freight Study, the Port Capital Plans, the H-GAC Regional Goods Movement Study, and other studies identified a number of rail improvement needs. As noted previously with the roadway projects, these rail projects were identified previously to address capacity needs, bottleneck issues, and other concerns. They are not linked to the Panama Canal expansion. Undertaking these projects will assist in meeting future opportunities associated with population increases and energy developments in the state and the Panama Canal expansion, however.

A number of these projects focus on railroad grade crossing improvements to address safety, capacity, and congestion. The majority of these projects are in the Houston area, where numerous automobile-train collision hot spots and safety and impedance situations exist. These projects were identified prior to extensive discussion of the Panama Canal expansion and potential impacts on Texas.

The following projects currently underway or planned were noted by TxDOT personnel and other speakers at the PCSWG meetings:

- **Double-Tracking the Single-Track Bridge near the Port of Beaumont.** TxDOT is currently conducting a freight movement feasibility study investigating the possibility to double-track the single-track bridge owned by KCS in the vicinity of the Port of Beaumont. The project would improve operations for UP and BNSF trains along the major west to east route.
- **Additional Rail Line at West Belt Junction.** This planned \$13.7 million project would construct a second 4000 ft rail line parallel to the existing UP rail line at West Belt Junction (along Hardy Road near Crosstimbers Road) in north Houston. The additional rail line would significantly improve existing rail operations.
- **The Nueces River Rail Yard at the Port of Corpus Christi.** This rail yard, which is one element of a larger rail modernization master plan, received a \$10 million TIGER grant in 2012 for siding and storage tracks. Other elements of the rail modernization plan are anticipated through cooperative arrangements among the ports, TxDOT, railroads, the Nueces County Rural Rail District, the San Patricio Rural Rail District, industries, and other groups.
- **West Rail.** This project will relocate the Union Pacific Railroad (UPRR) line from the Rio Grande River to US 77/83 north of Brownsville. It was developed through a partnership between TxDOT, Cameron County, CCRMA, and the City of Brownsville. The improvements, which include construction of a new international rail bridge and approximately 6 miles of new single rail track from the new bridge to US 77/83, will eliminate 11 at-grade crossings within

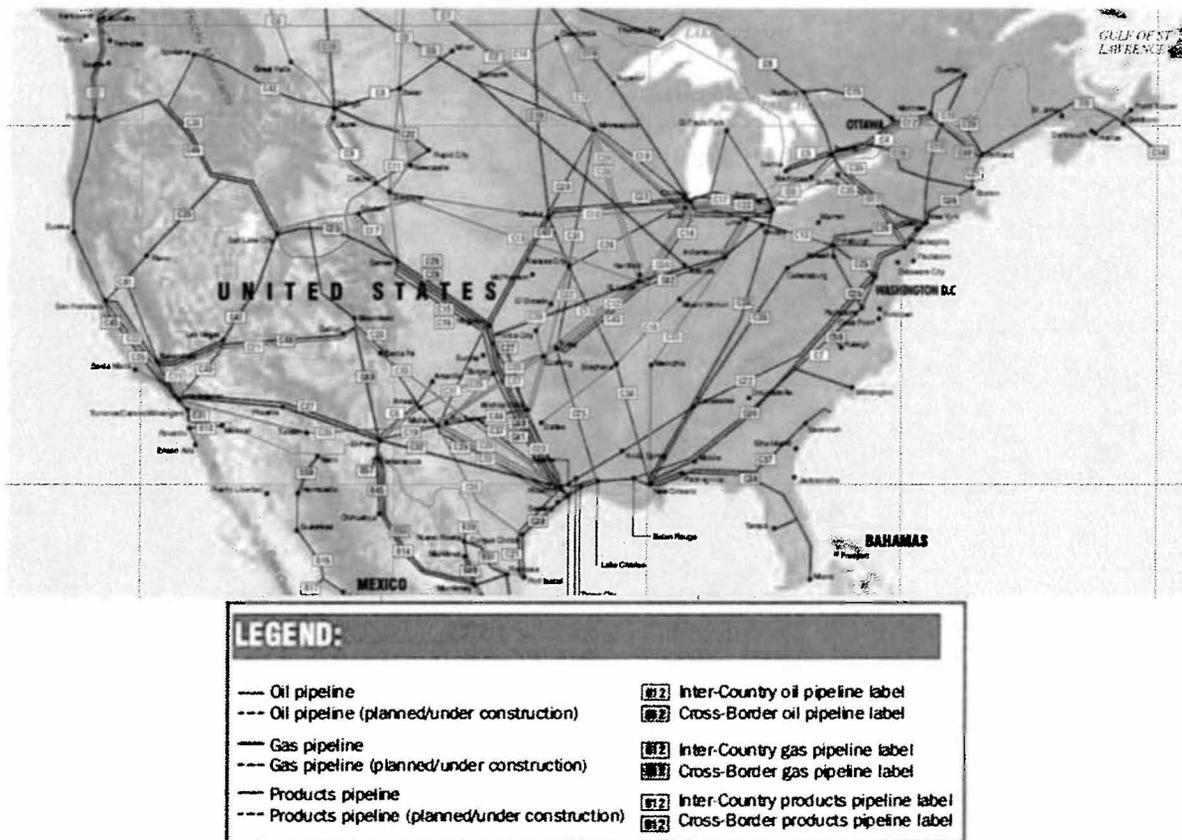
Brownsville. The project is currently under construction and approximately 71 percent complete with a construction cost of \$24.8 million. Once this new rail line is complete, it will provide a direct connection from Mexico to the Port of Brownsville.

- **Port of Houston Authority Barbours Cut Intermodal Facility.** The Port of Houston Authority's intermodal facility at Barbours Cut has been planned and developed to facilitate increasing container trade by rail. The intermodal terminal is available for customers using either the Bayport or Barbours Cut container terminals. The facility is currently operating at 40 percent capacity and is ready to accommodate growth. The Port of Houston Authority has also planned an intermodal facility at the Bayport container terminal, which stands ready for development as soon as there is market demand.
- **Gulf Coast Rail.** UP has noted that capacity needs to be added to its Houston-Brownsville route to accommodate traffic growth to and from the ports of Brownsville, Corpus Christi, Victoria, and Freeport. This includes structural improvements to the Algoa-Brownsville line and its bridges to provide weight-carrying capacity for 143-gross-ton rail cars (286,000 lb). BNSF has trackage rights authority over this entire route, and KCS uses a portion of it. In addition to upgrading the weight limitations for the entire line, initial needs also include a second track on the UP line between Angleton and Algoa and on the BNSF line shared with UP between the T&NO Junction in Houston and Alvin. Another pressing need is to add a siding on the UP line between Freeport and Angleton to handle increasing traffic to and from Port Freeport and the important chemical shippers in the Freeport area. Consideration should also be given as part of any line capacity project that there is sufficient rail staging capacity at or near the ports.

## PIPELINES

Pipelines are the unseen freight transportation mode. The United States has the largest network of energy pipelines of any country in the world. Pipelines are used to transport oil, natural gas, and refined products from producing areas to refineries, processing plants, and ports, and on to marketplaces throughout the country.

Pipelines are a critical part of the multimodal transportation system in Texas. As Figure 11 illustrates, pipelines connect to most of the Texas ports, including to docks and storage facilities at some ports. An examination of the pipeline system was beyond the scope of this project, except as information was provided by speakers at PCSWG meetings. A brief summary of pipelines in the United States and Texas is provided in this section as background.



Source: U.S. Army Corps of Engineers.

**Figure 11. Pipeline Connections to Texas Ports.**

There are two general types of energy pipelines: oil pipelines and natural gas pipelines. The oil pipeline network includes both crude oil lines and refined products lines. Crude oil is collected by gathering lines in producing areas, including Texas, Wyoming, Louisiana, and Oklahoma. It is estimated that there are 30,000-40,000 miles of gathering lines in the United States, which are small pipelines of 2-8 inches in diameter that collect crude oil from onshore and offshore wells. These gathering lines connect to larger trunk lines, which are typically 8-24 inches in diameter. There are also larger trunk lines measuring 48 inches in diameter. As Figure 11 shows, many of these trunk lines are oriented to the Houston and Beaumont areas. There are approximately 55,000 miles of crude oil trunk lines in the United States.

The second group of oil pipelines carries refined petroleum products, including gasoline, jet fuel, home heating oil, and diesel fuel. Refined product pipelines range in size from 8 inches to 42 inches in diameter. There are approximately 95,000 miles of refined product pipelines. These pipelines deliver refined petroleum products to storage tanks at large fuel terminals. The Gulf Coast also has many refined product pipelines.

The natural gas pipeline system is organized slightly differently. Natural gas is collected by small gathering pipeline systems and moved to gas processing plants. There are

approximately 20,000 miles of natural gas gathering lines in the country. Impurities are removed at the processing plants, and large cross-country transmission pipelines—both onshore and offshore lines—carry the natural gas throughout the country. There are approximately 278,000 miles of natural gas transmission lines. Main lines are used to connect the transmission lines with cities, where smaller lines connect to homes and businesses.

Oil and gas pipelines are owned and operated by different companies and groups. Royal Dutch Shell, British Petroleum (BP), ExxonMobil, and other large oil companies operate pipeline systems serving large regions of the country. There are also companies specializing in operating pipelines that are not involved in other aspects of the oil business. Companies owning and operating power plants, chemical plants, or other related businesses often operate small pipeline systems to service their needs. Natural gas pipelines are owned and operated by a mix of large, regional, and small companies and municipal gas systems. The railroads also have taken on a major role in transporting crude oil. In particular, railroads are transporting crude oil from the Bakken Shale Oil Field in North Dakota to Houston and Galveston.

## **OTHER PROGRAMS AND POLICIES**

A number of programs, projects, strategies, and policies that public and private sector groups could undertake to increase exports and imports through Texas ports were identified during discussions at the PCSWG meetings. Working together, state and federal agencies, ports, MPOs and RMAs, cities and counties, shippers and carriers, and other groups can support needed infrastructure improvements, increase the use of existing facilities, provide a coordinated promotion of the state's transportation system, and present a unified voice with federal funding sources and other groups. Examples of these programs, projects, strategies, and policies are highlighted in this section:

- As noted previously, the Texas Legislature established the Port Access Account Fund in 2001. It has never been funded, however. Examining potential revenue sources to fund the account and identifying those sources that appear most viable would be a beneficial step.
- Consideration could be given to providing incentives for use of the GIWW. These incentives could focus on shipments serving Texas and Gulf ports, as well as shipments between Texas ports destined for international markets. A study examining possible incentives, funding sources, and program elements would be a beneficial first step.
- Texas should build on existing programs at the Office of the Governor—Economic Development and Tourism promoting international trade by developing and implementing a “Texas Global Gateway” marketing and information program focusing on shippers and carriers. The Trade and Export component of the Texas Wide Open for Business™ initiative at the Office of the Governor—Economic

Development and Tourism provides resources for businesses in Texas interested in developing and expanding exports. Links are provided to other programs, including Export.gov, the International Trade Administration (ITA) and the National Export Initiative, the Export/Import Bank of the U.S. (EX-IM Bank), the U.S. Small Business Administration (US SBA) Office of International Trade, the U.S. Commercial Service's U.S. Export Assistance Center in Texas (USEAC), the U.S. Department of Agriculture Foreign Agent Service (USDA FAS), the Texas District Export Councils (DECs), the Office of the U.S. Trade Representative, the U.S. International Trade Commission, and other agencies and organizations. The "Texas Global Gateway" would expand on these efforts by providing a one-stop source for information on all transportation modes in Texas, as well as other programs of interest to international clientele. It would provide a unified and comprehensive approach for promoting Texas on a national and international scale with shippers and carriers and other groups responsible for exports and imports. A first step would be to develop the Texas Global Gateway concept in more detail and identify the funding levels needed to support such a program.

- TxDOT can serve a central coordinating role among Texas ports, counties, cities, and other groups to bring the importance of sufficient and reliable funding for ports, the GIWW, and landside transportation infrastructure to the attention of federal authorities. Key to this success is building a consensus approach in the Texas Congressional Delegation.
- Explore the potential use of public-private partnerships for financing, designing, constructing, and operating port and landside transportation improvements.

## CHAPTER VII—FINDINGS, RECOMMENDATIONS, AND ACTIONS

This chapter presents the findings, recommendations, and actions from this research project and the work of the PCSWG. The overarching finding is discussed first, followed by findings, recommendations, and actions related to short-, mid-, and long-range TxDOT highway infrastructure projects. Findings, recommendations, and actions are also identified related to developing a Texas freight plan, the GIWW, ports, rail, and promoting the state with shippers and carriers through a Texas Global Gateway concept.

The overarching finding from the study is that the Panama Canal expansion—coupled with continued population growth in Texas, energy sector developments, and the emergence of new trading partners throughout the world—represents opportunities to expand Texas’ position as a global gateway for the nation. By providing a low-cost, reliable, multimodal, and environmentally sustainable supply chain, the state can increase global trade, create new jobs, and expand the economy of the state and nation.

- Texas should invest in freight transportation infrastructure.
- Freight transportation infrastructure investments grow commerce.
- Commerce grows the tax base of the state.

To increase global trade and economic development, Texas must develop processes that provide a transportation system focused on commerce, including Texas ports, the GIWW, the roadway system, the rail system, and the pipeline network. It is critical that Texas accelerate investments in freight transportation infrastructure to grow commerce and increase the tax base of the state.

### TXDOT HIGHWAY INFRASTRUCTURE PROJECTS

**Finding 1**—TxDOT, working with its partners, has numerous projects in different stages of planning, design, and construction that address critical transportation needs in the state. As described in Chapter V, many of these projects focus on key trade corridors and connections to Texas ports. Working with available funding and recognizing that significant priorities exist throughout the state, TxDOT should strive to advance these projects in a timely fashion to address freight flow, safety, security, congestion, and environmental issues, and to strengthen Texas’ position in global trade.

**Recommendation 1.1**—All of the projects identified in Chapter V are important and should be pursued. The following short-, mid-, and long-term projects are highlighted by the PCSWG as specific opportunities that are especially important to expanding Texas’ position in global trade. Advancing these projects within the recommended time frames is presented as a goal for TxDOT and other agency partners.

*Short-Range (1-3 Years)*

- Complete the SH 550 toll road between US 77/83 to the new Port of Brownsville entrance, including interchange connections between SH 550 and US 77/83.
- Continue the I-69 route designation efforts and work to upgrade priority segments of designated highways to interstate standards to serve as I-69, consistent with the recommendation of the I-69 citizen advisory committees.
- Initiate development and construction of Segments H and II of the SH 99/Grand Parkway, providing a connection between I-69/US 59 and the Port of Houston.
- Initiate development and construction of mobility improvements along SH 288 south of downtown Houston, including segments in Harris and Brazoria Counties. The SH 288 corridor is an important connection between the Port of Freeport and the Houston metropolitan area.
- Improve pavement, drainage, and operational conditions along SH 73 between Winnie and Port Arthur and along SH 87 within the Port Arthur area.
- Conduct a planning study in coordination with H-GAC to assess opportunities to provide relief options for I-69 south of Houston to improve port access, reduce congestion, and facilitate hurricane evacuations. The study should consider improved connections to I-69 east and west of the Houston area, as well as to SH 146 along the Houston Ship Channel and Galveston Bay.
- Develop strategies to improve freight flow along the I-45 corridor between the Houston and Dallas-Fort Worth metropolitan regions. Consider options for improved rail service along with enhanced and more efficient truck freight mobility.
- Examine strategic opportunities to link the Ports-to-Plains Corridor, which is proposed to extend from Laredo through west Texas to Denver, Colorado, with Texas deep water ports to help improve transportation services between Texas ports and agricultural and energy-producing regions of Texas and North America.
- TxDOT districts should work closely with local port operators and other stakeholders to identify needs for safety and congestion improvements in response to growing and evolving truck traffic demand serving the ports. For example, increased truck traffic serving the Port of Victoria with energy sector shipments can cause lines of vehicles to extend onto adjacent state highways serving the port area.
- Develop funding and maintenance strategies to address energy sector impacts on state and county roads to ensure safe and efficient freight flows between energy-producing areas of the state and Gulf Coast ports.

*Mid-range (4-8 Years)*

- Complete priority segments to widen and upgrade SH 146 to an expressway between NASA Road 1 in Harris County and State Loop 197 in Texas City/Galveston County. This highway segment serves traffic operating between the ports of Houston, Texas City, and Galveston.
- Complete I-10 upgrades in the Beaumont area, including the Neches River Bridge and the widening project to six lanes east of the KCS Railroad at Vidor and reconstruction/future expansion efforts along I-10 west of Orange. Provide railroad grade separation on SH 73 near the Port of Port Arthur.
- Complete upgrading and widening priority segments of SH 36 in Brazoria and Fort Bend Counties to provide improved highway service between I-10, I-69/US 59, and Port Freeport.
- Initiate interchange improvements along SH 185 at FM 1432 to better serve truck traffic at the Port of Victoria as identified by the Victoria Metropolitan Planning Organization.
- Complete I-69 connection along US 77 from I-37 to the Port of Brownsville.
- Work to support the SH 32/East Loop under development by CCRMA to provide a new oversize/overweight freight route connecting the Port of Brownsville with the Veterans International Bridge and the I-69/US 77/US 83 corridor.

*Long-Range*

- Upgrade the US 69 corridor through Hardin, Tyler, and Jasper Counties to provide a four-lane roadway. These improvements will enhance safety and freight mobility along this route and provide a connection between I-69/US 59 and the ports at Beaumont, Port Arthur, and Orange.
- Completion of the full length of I-69 through the state is anticipated to be a long-range project; however, continued efforts should be made to address priority segments and enhance freight service to ports and international border crossings.
- Complete improvements to upgrade and widen the north end of SH 146 in Harris County, as well as the southern portion of Segment I-2 of SH 99/Grand Parkway in Baytown/Chambers County in order to provide for a continuous expressway facility through the Port of Houston area and extending to Texas City.
- Complete improvements to upgrade and widen SH 36 in Brazoria and Fort Bend Counties to provide a continuous four-lane highway between I-69/S 59 and Port Freeport.

- Replace the US 171 Harbor Bridge in Corpus Christi to potentially enhance both highway and maritime service to the port.
- Undertake possible improvements to I-45 based on the corridor planning study recommendations for enhanced freight mobility.
- Improve intermodal transfer freight mobility between the Port of Brownsville and the U.S./Mexico border, including the potential development of a new international bridge (currently permitted) south of the Port of Brownsville.

**Action 1.1**—TxDOT, working with partner agencies, should continue to actively pursue these projects, including examining the use of innovative financing methods.

## **DEVELOPMENT OF A TEXAS FREIGHT PLAN**

There is a need for a comprehensive and coordinated statewide freight planning program encompassing all modes within TxDOT. Freight activities are currently conducted by many divisions and districts within TxDOT. Recognizing the critical need to address freight within TxDOT in a multimodal and system-wide approach, TxDOT is expanding its freight planning capacity and capabilities with a newly created statewide freight coordinator position. A key purpose of this position is to elevate, integrate, and institutionalize freight into TxDOT's transportation planning process, as well as to develop and administer a comprehensive and multimodal statewide freight planning program.

**Recommendation 2.1**—MAP-21 encourages state departments of transportation to develop a state freight plan and establish a freight advisory committee. Projects that are included in a state freight plan are eligible for a larger federal funding share. Rather than the normal 80 percent federal and 20 percent state/local funding split, projects included in a state freight plan are eligible for a 90 percent federal and 10 percent state/local funding split. TxDOT should develop a Texas Freight Plan, using the information presented in this report, especially the summary of short-, mid-, and long-range projects identified in previous studies and plans, as a base for the development of the plan. Additionally, TxDOT should convene a State Freight Advisory Committee, considering PCSWG members and other stakeholder interests for membership.

**Action 2.1**—TxDOT should convene a State Freight Advisory Committee by transitioning the PCSWG into that role to help TxDOT develop a Texas Freight Plan. Additional members should be considered to ensure that freight stakeholders from all modes and various user groups are represented on the advisory committee.

**Action 2.2**—TxDOT, with the assistance of the advisory committee, should develop a Texas Freight Plan using the information in this report as a starting

point for the plan. Additional information on air freight, pipelines, and other topics will be needed in the development of the plan.

**Action 2.3**—In developing the Texas Freight Plan process, TxDOT should examine the need for additional freight-related projects to expand Texas' position in global trade.

**Action 2.4**—TxDOT should periodically report progress on implementing the PCSWG recommendations to the State Freight Advisory Committee.

## **GIWW**

**Finding 3**—The GIWW represents an important component of the Texas and U.S. maritime system. The GIWW is maintained by USACE. Ensuring that adequate funding is available to dredge, operate, and maintain the GIWW, as well as make needed capital improvements in the Brazos River floodgates and the Colorado River locks, is important. Maintaining the GIWW from real estate encroachment and increasing the use of the GIWW are also important.

**Recommendation 3.1**—As the local non-federal sponsor of the GIWW in Texas, TxDOT should work in partnership with USACE, ports, users of the GIWW, and other groups to ensure the GIWW is maintained to a 12 ft depth and needed capital improvements are made. A strategy for adequately funding maintenance and operation of the GIWW should be developed.

**Action 3.1**—TxDOT should meet with USACE and other groups to develop and implement a funding strategy to adequately maintain and operate the GIWW.

**Recommendation 3.2**—TxDOT should continue to work with USACE, counties, cities, and developers to prevent real estate encroachment on the GIWW.

**Action 3.2**—TxDOT should continue to work with USACE on a comprehensive outreach program to educate communities, developers, and the public on USACE's revised setback policies and the importance of preventing encroachment on the GIWW. Community meetings, workshops, brochures, and websites represent possible elements of a comprehensive outreach and education program.

**Recommendation 3.3**—TxDOT, USACE, ports, and other groups should identify and implement strategies, policies, and programs to increase the use of the GIWW.

**Action 3.3**—TxDOT, USACE, ports, and other groups should assess different methods to increase use of the GIWW, including promotions, incentives, demonstration projects, and other approaches.

**Action 3.4**—TxDOT, USACE, ports, and other groups should implement the most promising approaches and monitor and evaluate the results.

## PORTS

**Finding 4**—Texas ports are a critical economic engine for the state and nation. Maintaining, improving, and developing new port infrastructure, including channels, harbors, turning basins, terminals, and landside access are key to the economic competitiveness of Texas ports. Ensuring that Texas ports are deep and wide enough to meet current and future shipping demands is imperative.

**Recommendation 4.1**—The ports, working with USACE, TxDOT, the Texas Port Association (TPA), and other partners, should continue to pursue deepening projects.

**Action 4.1**—TxDOT should increase the visibility of port and maritime interests at the state level by establishing a Maritime Division within the department. Additionally, considering the recommendations of the PCSWG, the TxDOT Maritime Division and the Texas ports should work together to strategically align their related activities, including enhancing the functions of the Port Authority Advisory Committee.

**Action 4.2**—Texas' ports should continue to pursue deepening projects.

**Action 4.3**—Ports, the TxDOT Maritime Division, and other partners should develop and present a coordinated and unified approach in seeking federal support and other funding.

**Action 4.4**—Ports and the TPA, working with TxDOT and the legislature, should seek funding for the Port Access Account Fund and the Port Capital Program.

## RAIL

**Finding 5**—The rail network in Texas is a key element of the multimodal transportation system serving Texas ports. Rail improvement projects at specific ports and rail capacity and safety projects were identified in previous studies and plans, and by speakers at the PCSWG meetings. These projects are all important for enhancing Texas' position in global trade.

**Recommendation 5.1**—TxDOT should work with the railroads, Texas' ports, and other stakeholders to support needed rail capacity projects to accommodate increases in imports and exports. Railroads, working the ports, TxDOT, MPOs, and other groups should pursue needed rail improvement projects. The TxDOT Rail Division can play a role in facilitating this process as part of the anticipated detailed analysis of projects included in the Texas Rail Plan. The Texas Freight Plan should also address needed rail projects in the state.

**Action 5.1**—The TxDOT Rail Division should facilitate this process and provide assistance with the Texas Freight Plan.

**Recommendation 5.2**—The current rail projects underway at the Port of Beaumont, the Port of Corpus Christi, the Port of Brownsville, the Port of Houston, Port Freeport, the Port of Galveston, and other ports should continue to be developed. These projects help to more efficiently move goods in and out of the ports on rail and relieve highways of freight congestion.

**Action 5.2**—The TxDOT Rail Division should provide assistance as needed to facilitate the development of the port-related rail projects.

## INFORMATION AND PROMOTION

**Finding 6**—The Office of the Governor-Economic Development and Tourism promotes trade and exports through the Texas Wide Open for Business™ initiative. The opportunity exists to build on these efforts with a “Texas Global Gateway” marketing and information program targeted at international shippers and carriers and other important stakeholders. Developing and maintaining an ongoing program that highlights all transportation modes and the competitive advantages of the state would be beneficial to all groups in expanding Texas’ position as a global gateway for the nation.

**Recommendation 6.1**—Build on existing activities of the Texas Wide Open for Business™ initiative at the Office of the Governor-Economic Development and Tourism by developing and implementing a “Texas Global Gateway” marketing and information program. The “Texas Global Gateway” concept would provide a one-stop, unified, coordinated, and comprehensive source of information on all transportation modes in Texas for use in promoting the state with shippers and carriers and other international clientele. The program would also be coordinated with the federal agencies noted in Chapter VI, including the ITA, EX-IM Bank, US SBA, USDA FAS, the Office of the U.S. Trade Representative, the U.S. International Trade Commission, and other agencies. A coordinated strategy to promote Texas ports with international trading partners through contacts and trade missions could also be considered as part of the program.

**Action 6.1**—A first step would be to develop the concept more fully by identifying the elements of the “Texas Global Gateway,” as well as funding levels and funding sources to implement and operate the program. TxDOT and the Office of the Governor-Economic Development and Tourism could take the lead with this activity.



## **Appendix A—List of Speakers at Panama Canal Stakeholder Working Group Meetings**

### **Austin—June 29, 2012**

Bill Meadows, Texas Transportation Commissioner  
Jeff Austin, III, Texas Transportation Commissioner  
Rob Harrison, Center for Transportation Research, University of Texas at Austin

### **Corpus Christi—August 1, 2012**

Mayor Joe Adame, City of Corpus Christi  
Judge Samuel “Lloyd” Neal, Jr., Nueces County  
David Fields, Gulf Compress  
Marc Williams, Texas Department of Transportation  
Judge Terry Simpson, San Patricio County and Corpus Christi Metropolitan Planning Organization  
John LaRue, Executive Director, Port of Corpus Christi  
Jennifer Stastney, Executive Director, Port of Victoria  
Pete Goetzman, Archer Daniels Midland  
John Hallmark, Osprey Lines

### **Houston—August 27, 2012**

Matt Tejata, Air Alliance Houston  
Al Navarro, Citizen  
Representative Armando Walle, 140th District in north Houston  
Bruce Carlton, National Industrial Transportation League  
Colonel Christopher W. Sallase, Commander, U.S. Army Corps of Engineers, Galveston District  
Colonel Leonard Waterworth, Executive Director, Port of Houston Authority  
Phyllis Saathoff, Interim Executive Director/CEO, Port Freeport  
Captain John Peterlin, Senior Director of Marketing and Administration, Port of Galveston  
Sue Collins, Liquid Logistics Director, Styrolution America, LLC  
Ron Beeson, Global Logistics Manager, The Lubrizol Corporation  
Tony Davis, Senior Vice President of Distribution and Logistics, Academy Sports  
Ian Cairns, Vice President, Terminal Link Division, CMA CGM  
Michael Casey, Global Logistics Senior Manager, Halliburton  
Captain Bill Diehl, U. S. Coast Guard (Retired), President, Greater Houston Port Bureau

### **Beaumont—August 28, 2012**

Judge Jeff Branick, Jefferson County  
Mayor Becky Ames, City of Beaumont  
John Durkey, Southeast Texas Plant Managers Forum  
Chris Fisher, Executive Director, Port of Beaumont Navigation District  
Larry Kelly, Deputy Port Director, Port of Port Arthur  
Jason French, Cheniere Energy

Clayton Henderson, Sabine-Neches Navigation District (SNND)  
Colonel Mike Arnold, U.S. Army Surface Development and Distribution Command  
Marc Williams, Texas Department of Transportation

**Fort Worth—September 7, 2012**

Ted Prince, Ted Prince & Associates, LLC  
Jake Bessembinders, Senior Business Director—Intermodal, Union Pacific  
Steve Boecking, Alliance Texas  
Kent Wilkinson, Vice President, Natural Gas Ventures for Chesapeake Energy Corporation  
Brad Walker and Luis Crespo, Endeavor  
Dallas County Judge Clay Jenkins  
Marc Williams, Texas Department of Transportation  
Steve Roop, Freight Shuttle International and Texas A&M Transportation Institute

**Brownsville—September 14, 2012**

State Senator Eddie Lucio, Jr.  
Jim Stark, Executive Director, Gulf Intracoastal Canal Association  
Jim Kruse, Texas A&M Transportation Institute  
Eduardo Campirano, Port Director and Chief Executive Officer, Brownsville Navigation District  
Jody Sumrall, Gulf Coast LNG, LLC  
Pete Sepulveda, Cameron County Regional Mobility Authority  
Mario Jorge, Texas Department of Transportation  
Marc Williams, Texas Department of Transportation

Telephone Call with Steve Stewart, Gulf Winds, September 19, 2012

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16. Abstract <p>This project assists the Texas Department of Transportation (TxDOT) in assessing the potential impacts of the Panama Canal expansion on Texas ports and the landside transportation system. TxDOT formed a Panama Canal Stakeholder Working Group (PCSWG) to help examine these impacts and possible opportunities for expanding global trade. The PCSWG held a series of meetings to obtain input from shippers and carriers, ports, metropolitan planning organizations (MPOs), regional mobility authorities (RMAs), industry groups, and other organizations. In addition to the Panama Canal expansion, the PCSWG discussed opportunities to expand global trade related to the growth of the state's population and developments in the energy sector. This report summarizes the results of these meetings, along with an examination of current and planned roadway, port, and rail projects. Short-, mid-, and long-term TxDOT transportation improvements, other projects and policies that will better position the state of Texas to take advantage of the Panama Canal expansion, and other opportunities to enhance Texas' role in global trade are presented.</p>					
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## **DISCLAIMER**

This research was performed in cooperation with the Texas Department of Transportation (TxDOT) and the Federal Highway Administration (FHWA). The contents of this report reflect the views of the author, who is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official view or policies of FHWA or TxDOT. This report does not constitute a standard, specification, or regulation.

**Potential Effects of the Panama Canal Expansion  
on the Texas Transportation System**

final  
report

*prepared for*

**Texas Department of Transportation**

*prepared by*

**Cambridge Systematics, Inc.**

*with*

**Center for Transportation Research - University of Texas**

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*final report*

# Potential Effects of the Panama Canal Expansion on the Texas Transportation System

*prepared for*

Texas Department of Transportation

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# 1.0 Summary

- The Panama Canal is currently undergoing an expansion project that will allow larger ships (10,000 or more Twenty-Foot Equivalent Units (TEUs)) to pass through, and will increase the Canal's annual capacity by more than 75 percent when completed in 2014.
- After the Panama Canal opens (projected for 2014), it is projected that the number of containerships and bulk carrier transits will actually fall as larger ships displace smaller ones. Yet the total cargo - in TEU or Panama Canal/Universal Measurement System (PC/UMS) tons - will increase.
- While the demand for trade freight movement through the West Coast is expected to remain substantial in coming years, the West Coast ports face physical constraints to their expansion, as well as a growing number of labor and community restraints. This may result in significantly more cargo being brought into Texas ports; in particular, from cargo diverting from the increasingly congested West Coast ports.
- In 2008, Texas ports handled 61 percent of all foreign imports to U.S. Gulf Coast ports (261 million tons) and 40 percent of all U.S. Gulf Coast exports (92 million tons).<sup>1</sup> The Panama Canal Authority has estimated total volumes transiting the new Canal will reach 508 million tons in 2025<sup>2</sup>. Even if this growth is just evenly distributed, Texas ports can expect to receive an additional 6.6 million tons of cargo arriving from the Pacific via the Canal, and to export an additional 15.0 million to destinations in the Pacific. In reality, shifts from West Coast ports could increase this share substantially.
- One indicator that suggests that more traffic will flow through the Panama Canal to the Gulf and East Coasts is comparing the planned capacity at ports in Asia and on North America's West Coast. During the next five years, approximately 40 million TEUs of capacity are planned at eight major Asian intermodal export terminals. By comparison, less than 4 million TEUs of capacity are planned for West Coast ports, including the port at Prince Rupert in British Columbia. This uneven growth suggests that Gulf and East Coast ports will benefit from the limited capacity at West Coast ports.
- Despite the current economic slowdown, carriers have continued to place orders for 10,000 TEU plus containerships, which will initially service Asia-Europe strings. These vessels will displace existing 6,000 to 8,000 TEU ships

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<sup>1</sup> American Association of Port Authorities (AAPA).

<sup>2</sup> Panama Canal Authority, 2006.

will be relocated to routes served by the Canal, including Asia to the Gulf, South America, and South Atlantic ports.

- The expansion is likely to have significant impacts on many Texas ports - some of which may develop feeder services connecting them to larger hubs. In advance of the Panama Canal's expansion, some of Texas' largest ports - including Port of Corpus Christi, Port of Galveston, and the Port of Houston - are undertaking major capacity enhancement projects to enhance their ability to attract a portion of the Canal's new traffic.

## 2.0 Introduction

The Panama Canal is currently undergoing an expansion project that will allow larger ships to pass through and will increase the Canal's annual capacity by more than 75 percent. The expansion is scheduled for completion in 2014 and, due to the importance of the Canal in global trade, the expansion is likely to have wide-ranging impacts.

This technical report is designed to help the Texas Department of Transportation (TxDOT) more fully understand the potential impacts that the Panama Canal expansion may have on the Texas transportation system and provide guidance on how best to address the associated infrastructure, operational, and policy issues in statewide planning activities. This report builds on previous efforts of the Department in understanding and addressing potential Panama Canal impacts, most notably the Impacts of the Panama Canal on Texas Ports and Highway Corridors (TxDOT Government and Public Affairs Division, 2006) and the Texas Waterborne Freight Corridor Study Phase I Final Report (TxDOT Transportation Planning and Programming Division, 2010).

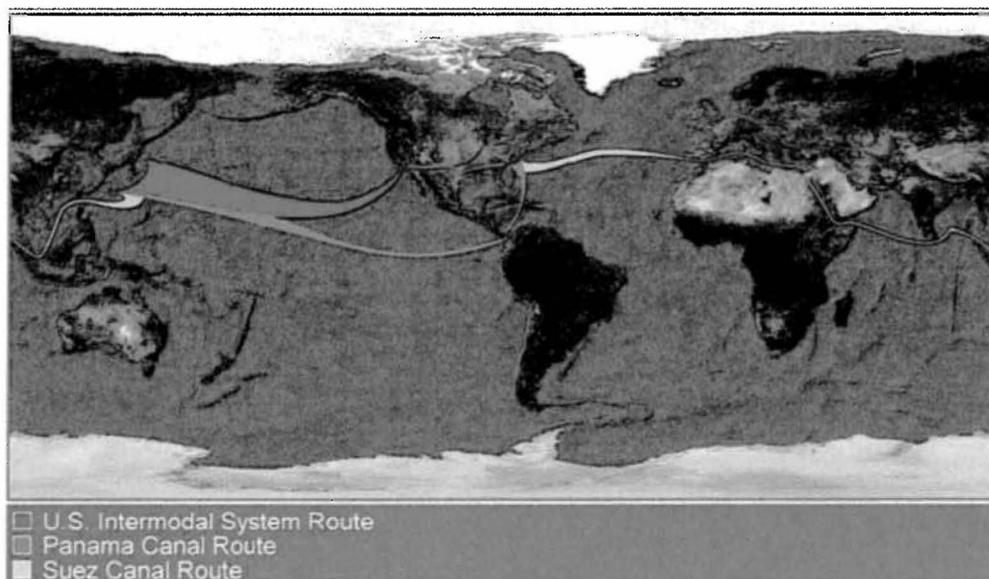
The remaining sections of this report describe:

- **Panama Canal Overview and Background**, including updated Canal pricing and fee information;
- **Potential Impacts on the Texas Transportation System** due to increases in demand resulting from the Panama Canal expansion;
- **Capacity Enhancement Projects at Texas Ports**, including land development and port access improvement activities; and
- **Implications for Texas Stakeholders**, including the key impacts of the Panama Canal's expansion on Texas and recommendations for TxDOT and Texas ports to take advantage of these changes.

## 3.0 Panama Canal Overview and Background

The Panama Canal is one of three common routes, along with the Suez Canal and the U.S. intermodal system shown in Figure 3.1, connecting Asian-based manufacturers and exporters with major consumer markets on the U.S. Gulf and East Coasts.

Figure 3.1 Common Asia – U.S. Trade Routes



Source: Panama Canal Authority, 2006.

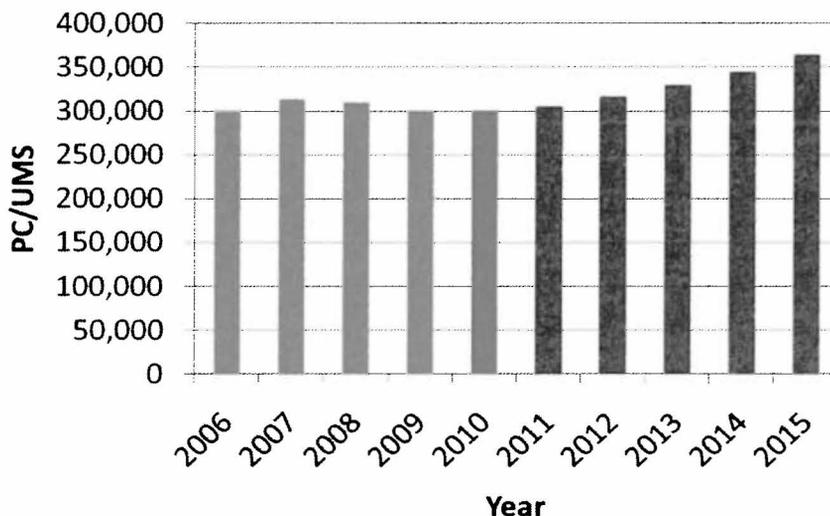
### 3.1 DEMAND

The demand for Panama Canal transits comes from a variety of users ranging from individual vessel owners to large steamship companies operating global liner schedules<sup>3</sup>. This demand is expressed in a number of ways, each contributing an insight into how freight is flowing through the canal. First, the current capacity is limited by the dimensions of the locks, the depth of connecting channels, the availability of fresh water, and the efficiency of the system that forms transits into eastbound and westbound blocks for processing through the system.

<sup>3</sup> Liner schedules serve ports on a weekly basis calling and leaving at specific days and times. This type of service requires a number of ships to operate the service.

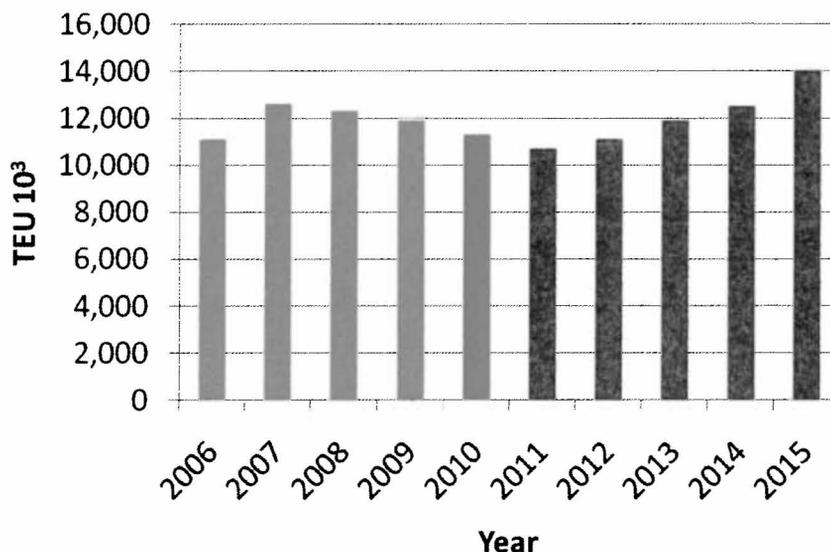
Steamship companies operating routes using the Canal have already used naval architectural designers to fit the dimensions of the old locks and create so-called Panamax ships. Currently, more than 50 percent of the transits are made by Panamax designs exploiting the dimensions, especially width, of the locks. The maximum sustainable capacity of the current canal is now estimated at between 330 million and 340 million PC/UMS tons per year. However, in 2007 when the number reached 313 million (95 percent of absolute capacity), congestion was growing and negatively impacting total passages. Bulk shippers who use regular fees faced many delays that made them unwilling to serve certain markets. Figure 3.2 gives actual (green), estimated (orange), and predicted (blue) volumes in PC/UMS tons from 2006 to 2015.

**Figure 3.2 Panama Canal Tonnage, 2006 to 2015**



Canal demand also is expressed in containers (twenty-foot equivalent unit (TEU)), which is of interest to TxDOT, precisely because a container requires a multimodal freight transfer that typically starts or finishes its journey being trucked on state and Federal highways. When port personnel talk to TxDOT, it is often in the context of containers and the highway routes to and from the container terminal. Figure 3.3 gives actual, estimated, and predicted annual container volumes - in TEU - from 2006 to 2015. In the period 2014 to 2015, it is predicted that container volumes will grow 12 percent after the new locks are operational - growing throughput by an additional 1.5 million TEU.

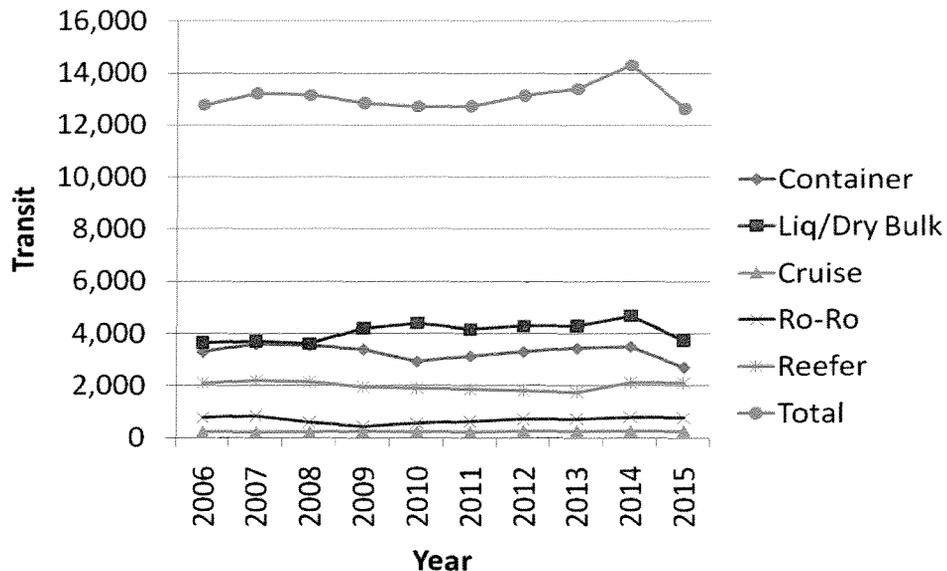
**Figure 3.3 Panama Canal Total TEU, 2006 to 2015**



The third measure of demand is transits – the numbers of different ships using the canal in any one year. Figure 3.4 gives the key ship types for Texas Gulf ports: containerships, liquid and dry bulk carriers, cruise ships, and roll-on/roll-off (ro-ro) and reefer, together with the total transits during 2006 through 2015, using actual, estimated, and predicted values. First, cruise, ro-ro and reefer numbers remain fairly constant, though some larger cruise ships will use the new locks. Ro-ros and reefers are specialized ships and may not be quickly replaced,<sup>4</sup> so their prediction numbers are modest. The number of containerships and bulk carrier transits actually falls, as larger ships are substituted for current smaller ones. Strong orders for the 10,000 TEU plus containership class now being delivered to steamship companies suggest that numbers of the displaced 6,000 to 8,000 TEU ships will be relocated to routes served by the Canal, including Asia to the Gulf, South America, and South Atlantic ports.

<sup>4</sup> Perhaps they may not be replaced in any great numbers at all. There is much discussion on the future of dedicated refrigerated ships, given the wide variety of refrigerated containers now available on many routes.

**Figure 3.4 Panama Canal Transits: Total and by Key Ship Type**



The main conclusion is that the new locks will at first stimulate existing operators to move up to larger ships when there is sufficient demand. Therefore, the predictions suggest that the total numbers of vessels transiting the canal will initially decline after the new locks are opened, although total cargo – in TEU or PC/UMS tons – will increase.

## 3.2 PRICING

The Panama Canal Authority (ACP) sets rates for passage based on ship type, size (capacity), cargo carried, and whether the vessel owner pays a “regular fee” (and is subject to delays), or a higher fee, which guarantees a time slot in the bidirectional system. As discussed earlier, ship types are classed by their design: containers, grains, liquid bulk, other dry bulk, cruise, ro-ro, reefer, general cargo, and others. When the Canal functioned under U.S. authority, the pricing rule was based on a cost-plus method, with some exceptions based on apparent social welfare factors.<sup>5</sup> ACP has been slowly rationalizing the fee structure since the Canal moved back to Panamanian authority. It recognizes the financial support given by the State of Panama by pricing the facility at a market basis to generate revenue for the government – not unlike the Suez Canal Authority, which has also abandoned the cost-plus method. The fee structure is still not wholly

<sup>5</sup> Small ships (some Panamanian) pay fees well below cost plus when the lock operations, opportunity costs and the cost of lost water used by the locks are taken into account.

consistent with a market-based method and, therefore, produces a wide range of fees levied in any one year, as shown in the box below.

### Fee Structure

Ships are first classified by type as noted above, whether the ship is loaded or empty; and whether or not the vessel is a containership, cruise ship, or cargo carrier. For containerships, the capacity of the vessel is expressed in TEUs. However, that term can be misleading, as ships are rated both on a nominal basis, where each TEU is loaded to 14 metric tons; and on their capacity when normal commercial conditions are in place. In this latter state, the container mix comprises empties and a range of loads depending on the commodities carried.

This raises the TEU measure significantly as demonstrated by ships, such as the Emma Maersk, which can carry more than 14,000 TEUs. Fifteen years ago, a typical Panamax ship (the largest ship that can fit through the Panama Canal) had a nominal capacity of around 3,500 TEUs. This increased to a current value in excess of 5,000 TEUs, in part by stacking more containers on deck. The ACP wants to ensure that the fee structure reflected both the actual TEUs carried, as well as the volumetric capacity of the ship.<sup>6</sup>

If the Canal had based its fee system solely on cargo carried, it would be potentially disadvantaged by the trade imbalance between Asia and the United States, in which many ships return to Asia only partially loaded. The rate effective on May 1, 2009 was \$72.00 USD per TEU of capacity, a value that is currently under review. The toll is lower for cruise and container ships carrying no cargo (“in ballast”), which in May 2009 was \$57.60 USD per TEU of capacity. Further planned rate increases have been repeatedly delayed due to the global economic slowdown.

Passenger vessels (cruise ships) exceeding 30,000 tons pay a rate based on the number of passengers that can be accommodated on a berth/passenger basis. The per-berth charge is currently \$92 for unoccupied berths and \$115 for occupied berths. This charge, which began in 2007, has greatly increased tolls on the larger cruise ships, while those under 30,000 tons, or less than 33 tons per passenger, are charged on the same “per-ton” schedule as freighters.

#### **Panama Canal Fees**

In 2008, the most expensive regular toll was levied in May, when the *Disney Magic* paid \$331,200, while the highest fee for a priority passage was \$220,300 (additional) paid by a Panamax oil tanker to bypass a queue of almost 100 ships delayed by maintenance activities at the Gatun locks. Avoiding a wait of seven days suggests that the opportunity cost of cargo exceeded \$30,000 a day for this cargo.

<sup>6</sup> Leach, Peter, “Panama Canal Freezes Tolls, Proposes New Structure,” Journal of Commerce Online, April 28, 2010.

Finally, most cargo ships pay a fee based on a PC/UMS net ton basis, where one ton is equivalent to a volume of 100 cubic feet. The calculation of tonnage for commercial vessels is quite complex but forms the metric reported by ACP for all noncontainerized passages. As of fiscal year 2008, this toll is \$3.90 USD per ton for the first 10,000 tons; \$3.19 USD per ton for the next 10,000 tons; \$3.82 USD per ton for the next 10,000 tons; and \$3.76 USD per ton thereafter. As with container-ships, a reduced toll is charged for freight ships “in ballast.” The magnitude of the fees for passages through the new locks is, at this time, unknown, but they will almost certainly be derived from a market-based method, incorporating the state of the global economy, price of fuel, and the fees charged for similar sized ships by the Suez Canal Authority.

## **4.0 Potential Impacts on the Texas Transportation System**

The U.S. Gulf Coast and East Coast ports, including those in Texas, should benefit from the projected increased in Panama Canal traffic. Exactly how much traffic moves through the widened Panama Canal to ports in Gulf and East Coast will be determined by the capacity of the U.S. West Coast ports to handle the projected growth in trade with Asia. The more trade handled through West Coast ports, the less trade that will be routed through the Canal to Gulf Coast and East Coast ports; and conversely, the less through the West Coast, the more through the Gulf and East Coast.

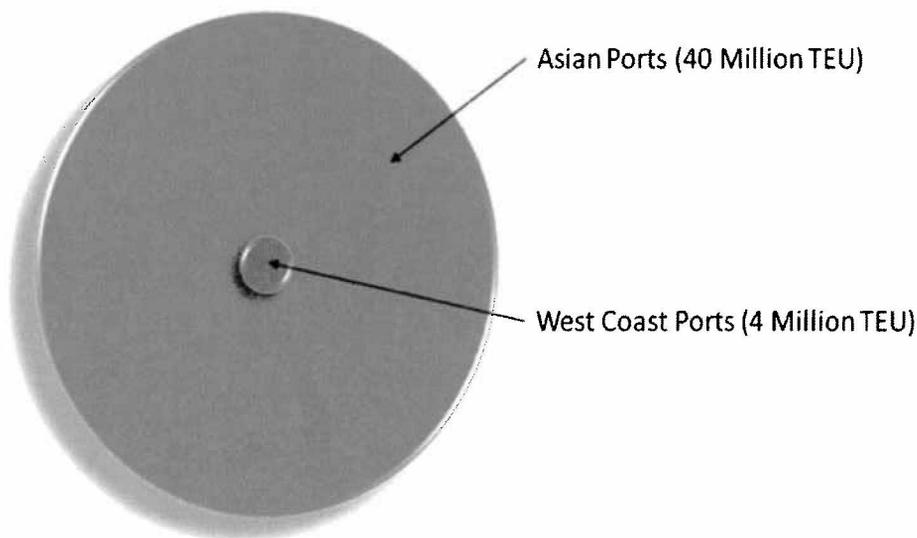
### **4.1 TRADE WITH ASIA**

While the demand for trade freight movement through the West Coast is expected to be substantial in coming years, the West Coast ports face physical constraints to their expansion, as well as community demands that the volume of port-related truck and rail movements and their associated congestion, noise, and air pollution impacts be reduced.

One indicator that suggests that more traffic will flow through the Panama Canal to the Gulf and East Coasts because of limited capacity at West Coast ports is the planned capacity at ports in Asia and on North America's West Coast. During the next five years, approximately 40 million TEUs of capacity are planned at eight major Asian intermodal export terminals. By comparison, less than 4 million TEUs of capacity are planned for West Coast ports, including the port at Prince Rupert in British Columbia (see Figure 4.1).

Not all the capacity of the Asian ports will be dedicated to trade with the Americas and the recession will slow plans for capacity expansion; however, the comparison suggests that the U.S. West Coast ports may not accommodate all the anticipated trade, and that a significant portion of that trade could divert to the Panama Canal to reach Gulf and East Coasts markets.

**Figure 4.1 Planned Container Capacity at Asian and North American West Coast Ports**



Prior to 2006, shippers sending Asian containerized imports to the U.S. strongly relied on Southern Californian terminals – particularly those at Long Beach and Los Angeles – and Class 1 railroads which, in turn, saw unprecedented growth between 1990 and 2005. Around 2006, a greater number of shippers began to use other trade corridors to move containers to the large metropolitan markets of the Midwest and northeastern U.S., causing the Southern California ports to lose market share.<sup>7</sup> Shipper concerns over rising charges at the Californian terminals, coupled with strong pushback from communities<sup>8</sup> unwilling to face the predicted future volumes of TEU,<sup>9</sup> further stimulated interest in competitive trade corridors. TxDOT responded to this shift by sponsoring a 2006 study<sup>10</sup> examining trade corridors for Asian imports to Texas using the Los Angeles-Houston intermodal service as the base, and compared it with the proposed new maritime gateways and corresponding border crossings at Punta Colonet, Topolobampo/

<sup>7</sup> Zelasney, J., “Gateway at a Glance: Southern California”, Cargo Business News, September 2009.

<sup>8</sup> These concerns are recognized in planning under the general head of *Environmental Justice*.

<sup>9</sup> U.S. DOT in 2002 forecasted that TEU volumes would reach 70 million TEU at a time when current volumes were around 17 million TEU.

<sup>10</sup> Harrison, R., N. Hutson, and J. McCray, *A Review of Asian Trade Corridors Serving Texas*, TxDOT Project 50-5A006, CTR, September 2006.

Presidio, Manzanillo/Laredo, Lazaro Cardenas/Laredo, Panama Canal, and finally Suez-North Atlantic port of entries.

It was estimated, using a basic cost model, that Southern California would remain the main corridor for deliveries to Texas, unless the import industry<sup>11</sup> continued to add costs to containerized freight movements within the port hinterland. The Panama Canal came next, followed by the Port of Lazaro Cardenas on the Mexican pacific coast. It was argued that if Asian trade grew as predicted then all trade corridors would be needed to carry the traffic most suited to the commodities; and that a variety of trade corridors serving Texas was better than depending on one single corridor, even when this was feasible.

A more recent document by Drewry shipping consultants<sup>12</sup> examines the issue from a different perspective. First, it views the entire U.S. and not just Texas ports. Then it asks, "At what geographic point does the Southern California and transcontinental rail bridge become uncompetitive vs. an all-water Panama Canal service?" Three cost/containership models – West Coast 8,000 TEU ship vs. East and Gulf 6,400 TEU ship and East and Gulf 8,000 TEU ship – were used to derive a through rate cost value for both imports and exports to various U.S. cities. The work seeks the cost inflection point when the advantage moves from the West Coast to the Panama Canal.

Table 4.1 gives the values for imports, and Figure 4.2 plots the cities where Panama service is lower than West Coast service, as indicated in Table 4.1. The results are striking and indicate that a large part of the current U.S. population can be served by larger containerships using the new Panama Canal locks, given a moderate market-based fee structure. The results are estimates and are subject to the assumptions and costs chosen to drive the models. But even accepting this caveat, it appears that the Canal will prove to be a strong contender for Asian trade serving not only the East Coast, but also most of Texas and the Midwest after 2014.

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<sup>11</sup>Importers, forwarders, labor rates, terminal fees like Pier Pass and fees like the TEU fee on the Alameda corridor levied whether the box was full or empty.

<sup>12</sup>*U.S. Transpacific Intermodal Today and Tomorrow*, Drewry Shipping Consultants Ltd., 2008.

**Table 4.1 Through Rate Cost Comparison – Import**

Import Destination	West Coast 8,000 TEU Ship vs.			
	East and Gulf 6,400 TEU Ship		East and Gulf 8,000 TEU Ship	
	Container Sizes			
	20 Feet	40 Feet	20 Feet	40 Feet
Atlanta	\$595	\$580	\$665	\$720
Chicago	\$185	\$270	\$255	\$410
Cincinnati	\$185	\$120	\$255	\$260
Cleveland	\$85	\$70	\$155	\$210
Columbus	\$460	\$370	\$530	\$510
Dallas	-\$65	-\$255	\$1	-\$115
Detroit	\$85	\$220	\$155	\$360
Indianapolis	\$630	\$670	\$955	\$810
Kansas City	\$335	\$70	\$405	\$210
Louisville	\$885	\$670	\$955	\$810
Minneapolis	-\$15	-\$55	\$55	\$85
Memphis	\$260	\$70	\$330	\$210
Saint Louis	\$1,070	\$875	\$1,140	\$995

Source: Drewry Supply Chain Advisors.

Note: Positive numbers favor East Coast and Gulf routing.

**Figure 4.2 Panama Canal Competitive Markets, Post-2014**



The Drewry study reported a strengths, weaknesses, opportunities, and threats (SWOT) analysis, which has been enhanced to compare the Southern Californian land bridge to Texas to using an all-water route through the new Canal locks. This is shown in Table 4.2 below. Several issues are clearly seen in this table; notably the large, unresolved, set of landside weaknesses (air quality, labor, access, dray activities, and environmental justice) in Southern California, the favorable opportunities for the Panama Canal-Gulf route, and the wide variety of ships and commodities served by the Panama Canal combine to lower average costs for all passages. This policy-based analysis suggests that the Gulf ports should benefit from the new locks on commercial, social welfare, and economic grounds.

**Table 4.2 Californian Ports vs. Panama Canal: A SWOT Analysis**

West Coast vs. Panama Canal Service to Texas: Strengths, Weaknesses, Opportunities, and Threats		
	Panama Canal/Gulf	Southern California/Texas
<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Serves Regional Markets</li> <li>• Support from Brazilian trade</li> <li>• Public Support for Port Growth</li> <li>• Direct and Hub-Spoke operations</li> <li>• Access to two Mega-Regions</li> <li>• Not dependent on containers</li> </ul>	<ul style="list-style-type: none"> <li>• Californian Market</li> <li>• Shortest Asian Route</li> <li>• Efficient Trans-Con Rail Service</li> <li>• Fastest transit time Asia-TX</li> </ul>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>• Channel Depth</li> <li>• Longer Routes</li> <li>• Few dedicated container terminals</li> </ul>	<ul style="list-style-type: none"> <li>• Capacity Constraints</li> <li>• Environmental Justice Issues</li> <li>• Labor Cost and Surcharges</li> <li>• Cold Ironing Requirements</li> <li>• Congestion Impacts Logistics</li> </ul>
<b>Opportunities</b>	<ul style="list-style-type: none"> <li>• Mega-Regional development</li> <li>• Growing South American Markets</li> <li>• Panama Canal</li> <li>• Midwest Markets</li> </ul>	<ul style="list-style-type: none"> <li>• California Economy</li> <li>• Inland Ports</li> </ul>
<b>Threats</b>	<ul style="list-style-type: none"> <li>• Panama Canal Fees</li> <li>• Fuel Costs</li> <li>• Houston Congestion</li> </ul>	<ul style="list-style-type: none"> <li>• Six Competing Corridors</li> <li>• Panama Canal</li> <li>• Growth of India</li> </ul>

Source: Drewry, 2008; and R. Harrison, 2010.

## 4.2 PANAMA CANAL ROUTES POST 2014

The ability of the Panama Canal Authority to stay on the multistage, critical path construction schedule<sup>13</sup> suggests that the new locks will be opened in 2014 – the centennial year of the Canal. Two observations can be made about routes that will be operating at that date. First, many will not change in the short to medium term, 2016 to 2020. This is particularly true for imports if the U.S. economy recovers slowly. Where the demand justifies higher cargo volumes, steamship companies will move to larger ships at some cost inflection point. The Drewry work suggests that two inflection points are 6,400 and 8,000 TEUs for the current Panamax containership.<sup>14</sup> The displacement of ships within that broad class by the 10,000-plus TEU ships now entering service on the Pacific and Suez routes suggests that steamship companies will have available vessels to put on the Panama routes, if justified by demand.

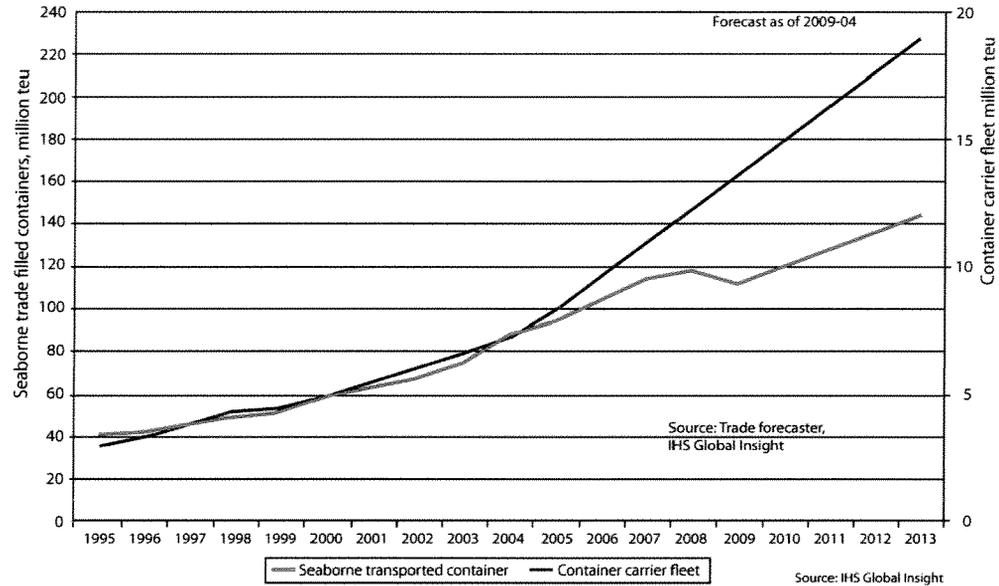
The marine shipping sector remains weak and is still struggling with the consequence of new ships, ordered when demand was high, now being delivered by shipyards. Data taken from a 2009 Global Insight webinar described the situation that the industry faced at the peak of the overcapacity crisis. Figure 4.3 shows the historic balance between supply and demand, which began to become unstable in 2006; the post-2009 gap between the container fleet capacity and projected demand clearly illustrates the difficult situation. The second observation is that, if routes change because of larger ships, the shape of the routes – particularly the number of port calls – may diminish. The final section considers some of the key characteristics of post-2014 Canal routes.

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<sup>13</sup>On schedule and under budget at June 2010.

<sup>14</sup>The current limit is around 5,200 TEUs.

**Figure 4.3 Historic Global Demand and Supply (1995 to 2008) and Predicted Demand and Supply (2009 to 2013) for the Container Sector**



Source: HIS Global Insight.

### 4.3 HUB AND SPOKE, DIRECT SERVICE, AND LOAD CENTERS

Due to the cost, time, and supply chain implications of modal selection, shippers are generally conservative when it comes to switching transportation modes. Therefore, as a general rule, shippers will change routes and ships incrementally and carefully. Economies of scale can profoundly reduce ton per mile cargo costs, irrespective of cargo type or mode. Trains, planes, and ships have all benefited over the past two decades from economies of scale, although there are consequences to routes as modal units get bigger. The most profound, as applied to ships, is that they call at fewer ports. Simply stated, ships make money when they are sailing, and lose it when in port. If larger ships use the new locks, they will stop less frequently if they are to be profitable.

This opens an interesting debate as to the form this takes. Some contend that such ships would hub in the Caribbean, and smaller feeder vessels would complete the routes to Gulf ports<sup>15</sup>. The benefits of this system centered on reducing sailing distance across the Gulf, taking advantage of off-shore, low-cost, 24/7

<sup>15</sup>Harrison, R., and M. Figliozzi, "Impacts of Containership Size, Service Routes, and Demand on Texas Gulf Ports", TxDOT Report 2833-3, CTR, University of Texas at Austin, December 2001.

port operations; and concentrating on the trade lanes carrying high volumes of trade, such as from South America. Furthermore, smaller vessels could serve a wider variety of Gulf ports currently limited by channel depth<sup>16</sup>. More recently, direct service to key ports like Houston appears commercially feasible based on the 6,000 to 8,000 TEU ship class – technically not a true Mega-ship. The tipping point between hub and spoke and direct service is demand. If a Gulf port is a true load center – which none is at the moment – direct service is viable. Load centers have several key characteristics:

- They are the gateways to regions, not states;
- They generate high volumes of trade, which, in the case of containers, exceeds 4 million TEUs; and
- They have strong landside connections linking multiple modes, and they can offer steamship companies a fast turnaround to keep ships sailing.

As such centers emerge in the next two decades in the U.S. Gulf and South Atlantic, direct service will grow. At this moment, route development following the new Panama Canal locks is speculative and imprecise. TxDOT should maintain scrutiny on how the marketing of steamship companies changes from 2013 onwards in the build up to the opening of the expanded Panama Canal for business.

## 4.4 ADDITIONAL TEXAS FREIGHT

Clearly, due to the many uncertainties described previously, it is impossible to determine with certainty how much additional freight movement in Texas will result from the expansion of the Panama Canal. However, it is possible to estimate the amount of freight moving within the State that has arrived at Texas ports from the Pacific via the Canal, and the amount of freight being exported from Texas that is likely to pass through the Canal on the way to its final destination.

According to the ACP, approximately 84 million tons of cargo transited the Panama Canal from the Pacific to the Atlantic, while approximately 123 million tons transited the Canal from the Atlantic to the Pacific in 2009. Of this, the Gulf Coast handled approximately 21 percent of the Pacific-Atlantic cargo (17.7 million tons) and roughly 50 percent of the Atlantic-Pacific cargo (61.1 million tons). This is in contrast to U.S. ports on the East Coast and on the Great Lakes, which handled roughly 35 percent of the Pacific-Atlantic freight (28.9 million tons) and 15 percent of the Atlantic-Pacific freight (18.8 million tons).

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<sup>16</sup>The 11,000 TEU ship needs a 50-foot channel – only Texas City has a permit for such a channel at this time.

In 2008, Texas ports handled 61 percent of all foreign imports to U.S. Gulf Coast ports (261 million tons) and 40 percent of all U.S. Gulf Coast exports (92 million tons).<sup>17</sup> Assuming Texas ports have an equivalent share of freight transiting the Panama Canal, it is estimated that, in 2009, Texas ports received approximately 10.8 million tons of freight that had passed through the Panama Canal (Pacific to Atlantic), and exported approximately 24.4 million tons of freight that passed through the Canal (Atlantic to Pacific).

Given the top commodities transiting the Canal in 2010, as shown in Table 4.3, the estimates of Texas' waterborne freight moving through the Canal appear reasonable, based on Texas' strong export base and commodity mix. The top commodities moving through the Canal from Atlantic to Pacific – particularly grains, petroleum products, and chemicals – are among Texas' top waterborne exports.

**Table 4.3 Top Commodities Transiting the Panama Canal by Tonnage**  
*Fiscal Year 2010*

Commodity	Atlantic to Pacific		Commodity	Pacific to Atlantic	
	Tons (1,000s)	Percentage of Total		Tons (1,000s)	Percentage of Total
Grains	37,943	31%	Containerized Cargo	30,022	24%
Petroleum and Petroleum Products	26,222	21%	Petroleum and Petroleum Products	8,617	7%
Containerized Cargo	20,932	17%	Miscellaneous Minerals	7,866	6%
Chemicals	8,580	7%	Ores and Metals	6,764	6%
Coal and Coke (excluding Petroleum Coke)	8,072	7%	Chemicals	3,775	3%
<b>Total</b>	<b>122,870</b>		<b>Total</b>	<b>81,946</b>	

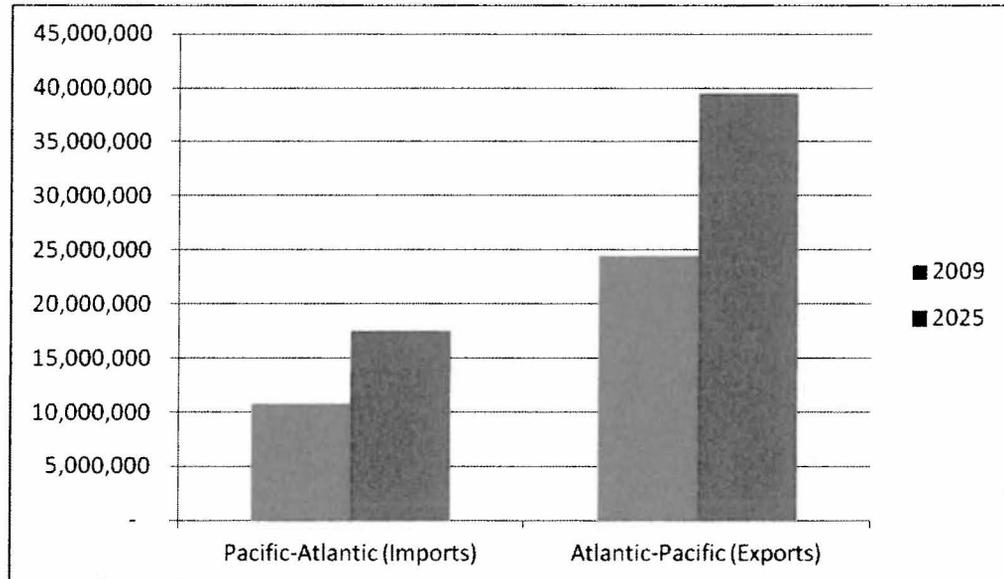
Source: Panama Canal Authority.

The ACP estimated that with expansion, total volumes transiting the Canal would rise from a total of 279 million tons in 2005 to 508 million tons in 2025,<sup>18</sup> a 3.0-percent annual growth rate. If this growth is evenly distributed, Texas ports can expect to receive an additional 6.6 million tons of cargo arriving from the Pacific via the Canal, and to export an additional 15.0 million to destinations in the Pacific (see Figure 4.4).

<sup>17</sup>American Association of Port Authorities (AAPA).

<sup>18</sup>Panama Canal Authority, 2006

**Figure 4.4 Estimated Panama Canal Tonnage Originating or Terminating in Texas by Transit Direction, 2009 and 2025**



## 5.0 Capacity Enhancement Projects at Texas Ports

In advance of the Panama Canal's expansion, some of Texas' largest ports are undertaking major capacity enhancement projects to enhance their ability to attract a portion of the Canal's new traffic. For more detailed information on these investments, see TxDOT's Waterborne Freight Corridor Study Phase I Final Report.

### 5.1 LAND DEVELOPMENT ACTIVITIES

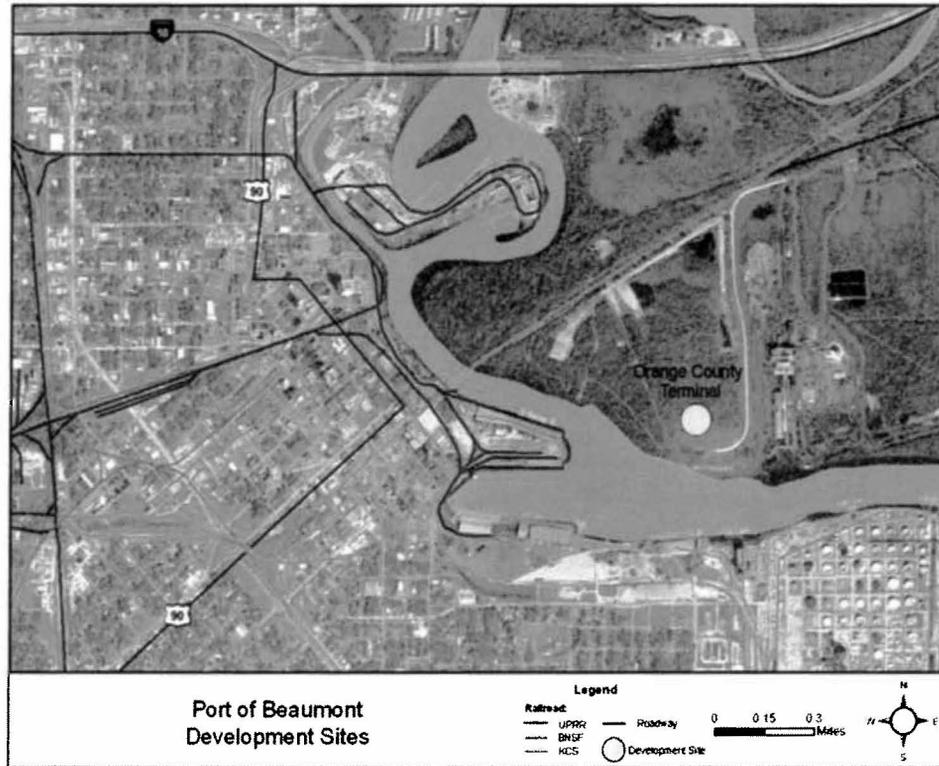
One requirement for successful waterborne trade is the availability of land to handle growing freight needs and existing or potential access to deepwater navigation channels and proximity to major roadway and railroad corridors. Texas ports and local partners are making investments in order to position themselves to capture increasing trade volumes. These investments, and how shippers respond, will impact the volume and types of goods moving through the system, and the specific logistics network shippers and operators will rely upon for efficient transport of commodities from origin to destination. It is, therefore, important to understand, at a high level, the types of land development activities. This section discusses major land development and expansion activities at the Ports of Beaumont, Corpus Christi, Freeport, Galveston, Houston, Orange, and Victoria given that these port facilities are likely to see the most direct impact of the Panama Canal's expansion. The findings in this section are built off of consultant research, and interviews and conversations with port officials.

#### Port of Beaumont

Situated 84 miles east of Houston in Jefferson, the Port of Beaumont is undertaking a number of key development activities and investments to enable rail lines to better serve importers and exporters, and minimize logistics costs associated with limited access to highways and freight railroads (Figure 5.1). Key investments include:

- Triangle Marine Industrial Park - A 400-acre site development with 1,700 feet of water frontage and a 90-acre turning basin, located just east of the confluence of U.S. 287/96/69 and SH 347. The site includes a 23-acre rail yard and one mile of track paralleling the alignment of the KCS Beaumont Subdivision.
- New \$22 million wharf in Orange County, directly across from its main terminals on the west side of the Neches River.

**Figure 5.1 Land Development Patterns near the Port of Beaumont**



Source: HNTB.

**Figure 5.2 Completion of Orange County General Cargo Wharf**



Source: Google Earth, 2011.

## **Port of Corpus Christi**

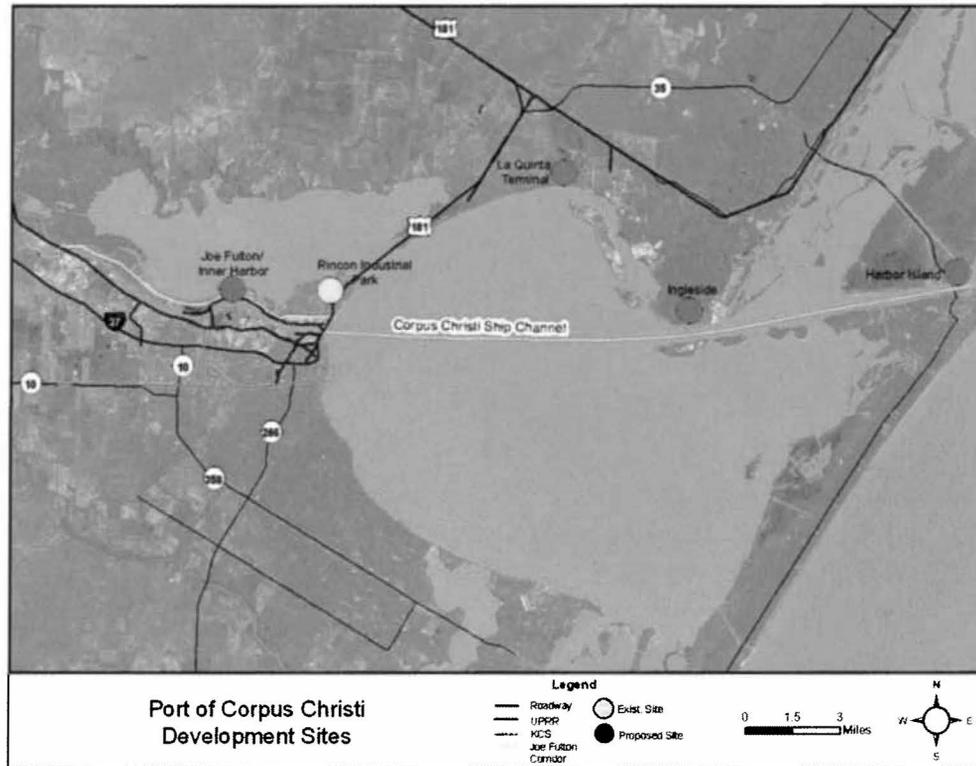
Plans for the La Quinta Trade Gateway project on the north side of Corpus Christi Bay represent the highest profile land development initiative at the Port of Corpus Christi. This project centers on the La Quinta Multi-Use Terminal, which is being pursued by the Port as part of its long-term plan to offer diversified business and facility opportunities. The terminal is currently envisioned to handle containers, military cargo, and steel and project cargo.<sup>19</sup> Development of the multi-use terminal would position the Port as the only container port along the Western Gulf of Mexico. In July of 2011, the U.S. Army Corps of Engineers approved plans to deepen the channel serving La Quinta from the originally approved 39 to 45 feet.<sup>20</sup> Congress had originally authorized the channel extension in 2007. Full build-out of the terminal would include light industrial, warehousing, and distribution facilities to process and transport container goods between the Port and urban centers. A planned 75-acre, on-dock rail yard with more than 5,000 feet of track could lead to significant increases in rail traffic over the Union Pacific (UP) railroad Kosmas subdivision, and the connection UP railroad Brownsville subdivision. La Quinta would enable railroad lines to serve importers and exporters in South, West, and Central Texas, as well as in Northern Mexico and the Central United States with competitive prices, as well as provide shippers with low cost, cross dock, and distribution center operations (Figure 5.3).

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<sup>19</sup>“Corpus Christi to Build La Quinta Terminal,” *Journal of Commerce Online*, January 8, 2010.

<sup>20</sup>“Corps Approves Corpus Christi Channel Expansion,” *Journal of Commerce Online*, July 28, 2011.

**Figure 5.3 Land Development Patterns at the Port of Corpus Christi**



Source: HNTB.

### Port Freeport

Located in Brazoria County just three miles from deepwater, Port Freeport currently is investing in land development activities to better serve existing customers and attract a new and more diversified clientele. The initial phase of the Port's Velasco Terminal is significant land development project for the Port. The \$42 million Phase I project comprises of an 800-foot linear berth. Full build-out of the facility (\$225 million) will result in 2,400 feet of linear berth space and 100 acres of developed backland, which is scheduled for completion in 2014 to coincide with completion of the Panama Canal expansion project. Eventually, the annual capacity at the Velasco Terminal could be expected to reach an equivalent of 800,000 to 1 million TEUs. The Kansas City Southern (KCS) railroad's 800-acre intermodal yard in Rosenberg is another major investment likely to improve port access to urban centers and end customers.

### Port of Galveston

Located in Galveston County and owned by the City of Galveston, the Port of Galveston has made coordinating land development activities and investments with the Port of Houston a priority. As part of an effort to promote and develop seaborne commerce in the upper Texas coast, the two ports signed a Memorandum

of Understanding (MOU) for the ports for the joint development and use of portions of Pelican Island as a potential future container-handling facility.

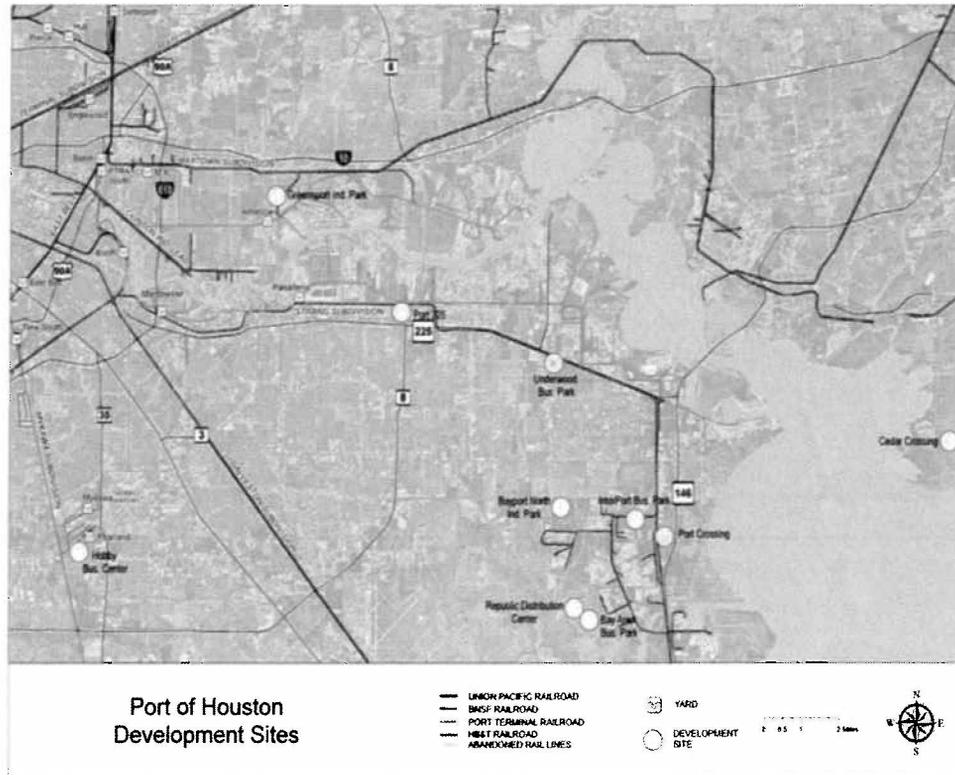
### **Port of Houston**

Land development at the Port of Houston is largely driven by the growth in container traffic coincident to the expansion of container handling facilities at Barbours Cut and Bayport. Trends in new construction of industrial parks and distribution centers reflect the strategic positioning of these facilities near the Port's container operations (Figure 5.4). Sites that will create the most direct increase in traffic on SH 146 and adjoining roadways (e.g., Barbours Cut Boulevard, Red Bluff Road, Bay Area Boulevard, Choate Road, and Port Road) include the following:

- Bay Area Business Park (137 acres);
- Bayport North Industrial Park (130 acres);
- InterPort Business Park (88 acres);
- Port Crossing Commerce Center (300 acres); and
- Republican Distribution Center (191 acres).

In addition to land development associated with existing container terminal operations, future development will be increasingly driven by new demand resulting from the expansion of the Panama Canal, and by the Port's selection of a site for its next container terminal. Currently, the Baytown area is experiencing strong growth in transportation and logistics industries - the area's Cedar Crossing Industrial Park, which is adjacent to the Cedar Bayou navigation channel and is home to the largest Wal-Mart import and distribution facility in the country. Home Depot also has selected this location as its distribution base for the Southwest United States.

**Figure 5.4 Land Development Patterns at the Port of Houston**

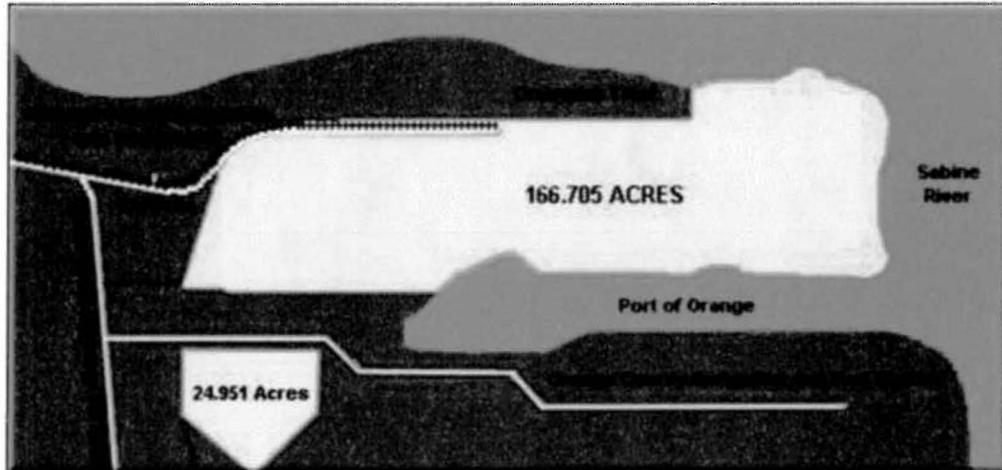


Source: HNTB.

### Port of Orange

The Port of Orange Industrial Park, owned by the Orange County Navigation and Port District, is the primary land development initiative related to waterborne commerce. The site consists of 168 acres and 8,000 feet of water frontage at the southern terminus of the Orange Port Terminal Railway track (Figure 5.5). The Park is intended to reduce transportation logistic costs and delays by handling existing and new import and export customers. Transportation associated with the development of this site would add traffic to local roadways (Childers Road and Border Street) that provide access to SH 87, SH 358, and I-10).

**Figure 5.5 Port of Orange Industrial Park**



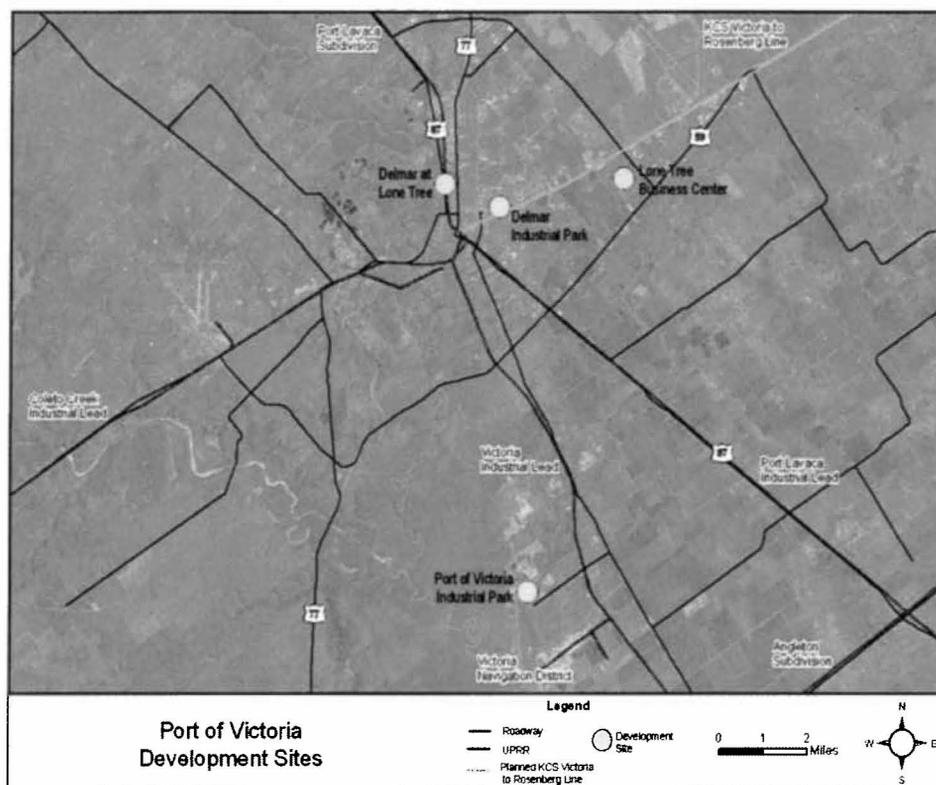
Source: Port of Orange.

### **Port of Victoria**

In 2000, the Port of Victoria Industrial Park was created by the Port of Victoria (Victoria County) to encourage development of land adjacent to and near the Victoria Barge Canal, which connects Victoria to the Gulf Intracoastal Waterway (GIWW) and the deepwater Calhoun Port Authority (previously known as the Port Lavaca-Point Comfort). Nearby industrial park property and acreage for waterfront container on barge operations will accommodate growth in port business associated with recent landside expansion projects and expansion of the canal to match dimensions of the GIWW. Property acquisitions include acreage along FM 1432, which connects with SH 185 for access to the City of Victoria transportation network (Figure 5.6).

Other development sites that will provide additional landside capacity include the Lone Tree Business Center and Delmar Industrial Park positioned near the KCS Rosenberg line that extends from Victoria to the KCS intermodal yard in Rosenberg. In 2010, Caterpillar announced the construction of a hydraulic excavator manufacturing facility in Victoria, Texas, which will employ 500 people when operational in 2014. The 320-acre Lone Tree Business Center is located near Business 59 and Loop 463, which connects to northbound U.S. 77/.S. 87. The smaller 51-acre Delmar Industrial Park is located near U.S. 59 to the east of SH 185.

**Figure 5.6 Land Development Patterns at the Port of Victoria**



Source: HNTB.

## 5.2 LANDSIDE ACCESS STRATEGIES AND ACTIVITIES

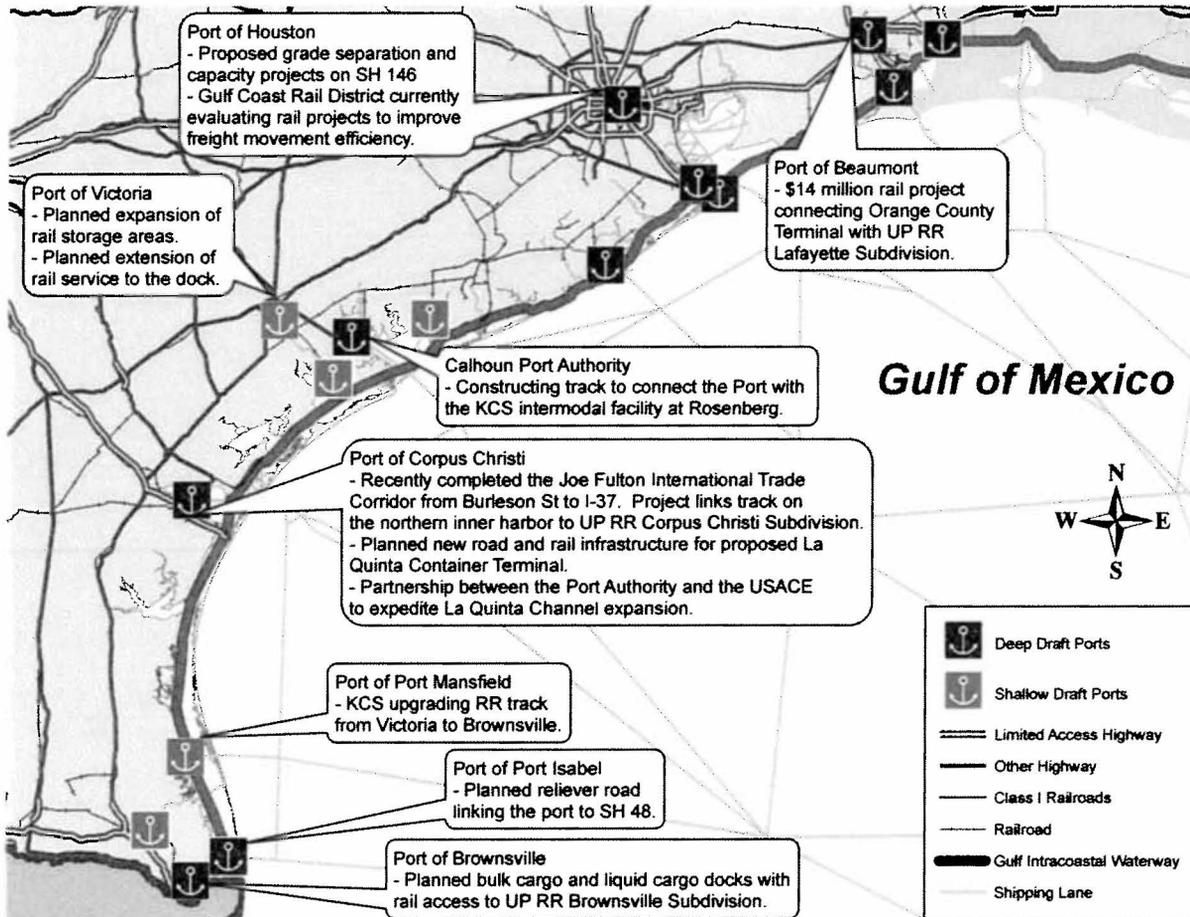
In addition, Texas ports are making investments in landside access improvements designed to alleviate some of the existing constraints and bottlenecks for the movement of goods to and from the ports by both roadway and rail, as well as along the waterway system. These are described below and illustrated in Figure 5.7.

- **Port of Beaumont** - Capital improvements planned for 2010 include a \$14 million rail project to connect the Orange County Terminal with the UP Railroad Lafayette Subdivision to the north.
- **Port of Brownsville** - Plans for a bulk cargo and liquid cargo docks equipped with rail access to the UP Railroad Brownsville Subdivision by way of the North Rail Loop. KCS' rail track upgrade from Victoria to Brownsville to allow for better and more efficient service to and from the Port.
- **Port of Corpus Christi** - Completion of the seven-mile Joe Fulton International Trade Corridor from Burleson Street to I-37 near Carbon Plant Road has extended existing railroad track on the northern inner harbor to a new

connection with the UP Railroad Corpus Christi Subdivision mainline near Viola Yard. In addition, new road and rail infrastructure are being planned for the proposed La Quinta Terminal on the north side of Corpus Christi Bay.

- **Port of Houston** - Several roadway projects are proposed, including grade separation and capacity projects, proposed for SH 146 to reduce port-related congestion at the Ports of Galveston and Houston. In addition, various rail-related improvement projects are under study by the Gulf Coast Rail District to improve the efficiency of freight movements through Houston.
- **Port Isabel** - Plans for a reliever road between the Port and SH 48 that will bypass residential areas and public parks are underway. The results are reduced noise pollution and emissions, and improved quality of life, as well as more efficient movement of freight and goods from and to Port Isabel.
- **Calhoun Port Authority** - Track construction to connect the Port with the new KCS intermodal facility at Rosenberg.
- **Port of Victoria** - The Port plans to expand rail storage areas and extend rail service to the dock.

**Figure 5.7 Port Access Improvement Activities**



Source: TxDOT Waterborne Freight Corridor Study Phase I Final Report.

## 6.0 Implications for Texas Transportation Stakeholders

While the expansion of the Panama Canal is targeted toward serving container traffic – in particular consumer goods originating in Asia and bound for markets on the East Coast of the U.S. – the Canal also is likely to continue carrying a large amount of exported bulk freight from Texas ports to destinations in the Pacific. Though only a handful of ports in Texas serves significant volumes of containerized traffic or will be able to accommodate the very large ships newly able to transit the Canal, the impact of the Canal expansion will not be limited to only those facilities. Rather, the expansion is likely to have significant impacts on many Texas ports – some of which may develop feeder services connecting them to larger hubs, their surrounding communities, and the highways and rail lines that serve them.

Key factors likely to impact Texas as a result of the Panama Canal's expansion include:

- Accelerated growth at Texas ports;
- Higher volumes on intermodal connectors;
- Increased development of distribution and warehouse facilities in port areas;
- More distribution centers focusing on Asian trade;
- New competitive pressures on ports to increase channel depths;
- More extensive communication with other Gulf and Atlantic ports;
- More communication with Caribbean Transshipment hubs;
- Inquiries from Midwest shippers in Texas ports and Texas-based distribution centers;
- Resistance from environmental advocates and/or regulatory agencies to proposed new dredging projects; and
- Air quality and other environmental impacts.

There are several steps that the Texas transportation stakeholders can take in order to maximize the benefits accruing to Texas as a result of the Panama Canal's expansion, including the following:

- **Deepening channels and berths, where necessary, to accommodate larger vessels** – The Port of Houston is one of several Gulf and East Coast ports with the greatest potential to handle post-Panamax vessels; the largest vessels passing through the Canal are likely to call only at the largest ports, while most Texas ports are expected to receive calls from these new mega-ships as

frequently, the Port of Houston has already received light-loaded vessels with capacity of more than 8,000 TEUs.<sup>21</sup>

- **Improving intermodal truck and rail connections between the ports and the major U.S. consumer markets** - Better regional highways and port connector roads (typically, the “last mile” of roadway between the port and the nearest interstate highway) are needed to handle trucks draying containers between the port and local and regional markets, and additional rail capacity and services also will be needed. Capitalization of the Texas Rail Relocation and Improvement Fund would allow the State’s railroads to improve their infrastructure and operations, improving freight mobility and economic competitiveness for shippers. Since its creation in 2001, no funding has been appropriated for the Port Access Account Fund, which was originally set up to enhance port competitiveness and economic development. Yet, if a funding stream can be identified, the fund could serve as tool to coordinate and finance the \$673 million of future capital projects that have been identified by Texas port authorities.<sup>22</sup> In addition, TxDOT should work closely with its district and metropolitan planning organization (MPO) partners, private-sector freight stakeholders, and neighboring states, as appropriate, to identify key bottlenecks on the highway and rail systems that may be exacerbated by the anticipated growth in container traffic derived from both imports and exports caused by the Panama Canal expansion.
- **Responding creatively and effectively to environmental and community concerns regarding the impacts of port activities** - Added freight throughput to the Texas port system will generate many legitimate environmental and community concerns regarding emissions, noise, and changes in land use. Even prior the Canal’s expansion, Texas had seen periods of rapid cargo growth and facility expansion in recent years and is, therefore, in a good position to anticipate the types of issues that will be raised. Given current trends in logistics, Texas could see more distribution centers shifting to 24-hour operation, which will create the potential for community impacts. TxDOT should work with the Port Authority Advisory Committee, other stakeholders in the maritime community, MPOs, districts, and other planning agencies to ensure that potential environmental issues related to the Panama Canal expansion and other global maritime trends are identified and accounted for within the transportation planning process at the statewide, regional, district, and metropolitan levels.
- **Integrating freight and land use decision-making at the local and regional levels** - TxDOT should encourage MPOs and other local planning agencies to

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<sup>21</sup>Leach, P., “Houston’s Future Arrives Early,” Journal of Commerce Online, June 13, 2011.

<sup>22</sup>Texas Ports 2011-2012 Capital Program, Texas Department of Transportation, [ftp://ftp.dot.state.tx.us/pub/txdot-info/library/reports/gov/tpp/tpa\\_report11.pdf](ftp://ftp.dot.state.tx.us/pub/txdot-info/library/reports/gov/tpp/tpa_report11.pdf).

work closely with ports to ensure that land use and master planning activities or strategies are coordinated. TxDOT should identify those areas near ports or freight corridors that are most likely to require future expansion, and inform the public regarding the location of strategic freight corridors in order to lower the potential for incompatible development in these areas. TxDOT should also work with ports, port authorities, motor carrier associations, and local planning agencies to develop a better understanding of how port-related drayage movements affect the performance of the transportation system; the overall mobility of people and goods in and around key port facilities; and how drayage movements are expected to change as a result of the Panama Canal expansion.

- **Developing transloading and marine highway services to feed traffic from the major, deepwater hubs to smaller ports across the Gulf and East Coast** – Most Panama Canal traffic will not be moving in the largest post-Panamax vessels for some time into the future. Much of the traffic will continue to move in smaller vessels that can provide point-to-point service for medium-sized markets. Small and medium-sized Texas ports have the opportunity to maintain or capture this traffic, possibly through employing feeder collection and distribution networks to and from the larger hubs. Texas is well positioned to take advantage of the emerging network of marine highways for domestic maritime shipping. An expansion of domestic short sea services could help to relieve pressure on other modes.

**EXHIBIT B**

AFFIDAVIT OF KATHLEEN C. HUBBARD

BEFORE THE SURFACE TRANSPORTATION BOARD

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FINANCE DOCKET NO. FD-35781

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**PETITION FOR DECLARATORY ORDER  
BY BRAZOS RIVER BOTTOM ALLIANCE**

**Affidavit of Kathleen C. Hubbard**

I, Kathleen C. Hubbard, do hereby declare under penalty of perjury and state the following:

1. My name is Kathleen C. Hubbard, and I live in Bryan, Texas. I am a Committee Member of the Brazos River Bottom Alliance (BRBA), an organization that represents landowners, tenant farmers, small ag-related business owners, and residents of the Mumford Community. My family has owned land in the Brazos River Bottom since the Great Depression. This land has been compared to the land in the Nile River Valley and is arguably some of the richest, most productive cropland in the State of Texas--if not the United States. My family acreage is adjacent to the current footprint of a proposed 1,200-acre (or more) rail infrastructure project to be built by Union Pacific Railroad (UPR). My family rents our land to two brothers who grow various crops. Although at this time, UPR has shared limited information with the landowners in the area, there is a strong possibility that some of my family's land will be condemned for the project. Even if my family's acreage is not condemned by UPR for the project, it is possible that some of the land, if not all, will become unusable for the production of crops and, therefore, my family will not be able to rent the land to our current tenants and will lose the annual rental revenue.
2. The BRBA was formed in July 2012 because of concern resulting from the proposed UPR project. The BRBA currently includes approximately 50 people (many of whom are farmers) who will potentially be adversely affected by the UPR project. BRBA members live on, work/farm, or own land that is positioned to be condemned or land located directly adjacent to the proposed UPR project. The acreage falling within or alongside the proposed project's footprint has been in continuous agricultural production for three (3) generations. Understandably, the landowners have a strong desire to keep the land in their families and pass it down to their children/heirs. Some of the landowners are within a few years of getting their 100-year land designation from the Texas Department of Agriculture but will be denied this honor if the project is built.
3. The Mumford, Texas Community encompasses a thriving agricultural population. It is part of the historic "Brazos Bottom"--an area between the Brazos River and the Little Brazos River--known for its fertile soil. The land is fertile enough to

grow a bountiful variety of crops including peanuts, soy-beans, alfalfa, corn, peaches, tomatoes, sorghum, wheat, and cotton, just to name a few. The land contributes millions of dollars to the local and state economies through agricultural and oil and gas activities.

4. Members of the BRBA are not only concerned about the loss of their land but also the inevitable environmental damage to the area from UPR (including potential contamination of a major water aquifer and the Brazos River), the devastation of their farming businesses and livelihoods, and the degradation of the quality of the lives of the Mumford Community residents.
5. Most of the landowners who are BRBA members have expressly voiced that they will not sell their land to UPR. Instead they are committed to fighting the condemnation of their land as far as the legal process will allow.
6. Members of the BRBA are also concerned about this project because UPR has not been a good neighbor with regard to their existing infrastructure. As reported to me by resident farmers and neighbors, UPR trains currently and historically have blocked existing crossings, sometimes for up to two (2) to three (3) hours, and, thereby, denied access to land bound by the UPR tracks and the Brazos River. Farmers are unable to access their land, especially during summer months which are critical times for crop irrigation. As also reported to me, families living west of the tracks are forced to wait for long periods of time to drive to work or reach their homes at the end of the day. On numerous occasions, school buses are unable to pick up children to take them to school. In fact, UPR trains block the public crossings for such lengthy periods that children have been sighted crawling under rail cars to get to school. Emergency medical service personnel have encountered difficulties reaching individuals in need of emergency care. UPR has made no attempts to remedy these problems, despite frequent and repeated reports of blocked public crossings. In fact, UPR train engineers have intentionally moved trains from one crossing to another to deny access to the brothers who rent my family's land. If UPR expands their infrastructure as proposed, residents, landowners, tenant farmers, and small business owners who service the land fear that access to property bound by the tracks and the Brazos River will become virtually impossible.
7. On information and belief, this project is imminent, I, and other members of the BRBA, understand that the UPR project in Robertson County is expected to be finished in 2015 and that condemnation proceedings will be initiated in the coming months. Already, some landowners are negotiating contracts with Union Pacific to sell their land. It is my understanding that four families who were not members of the BRBA have executed contracts with UPR over the last six (6) months. UPR has purchased approximately 600 acres to date, some of which lies outside of the original project footprint. Also, it is my understanding that UPR is considering expanding the project's footprint.

8. Over the last year, I have made several attempts to reach out to UPR to learn more about this project. For example, in the Summer of 2012, I spoke on the phone with Clint Schelbitzki, Director of Public Affairs for UPR's Southern Region, in Fort Worth, Texas. Mr. Schelbitzki refused my request for a meeting between UPR officials and the BRBA members to answer our questions. He said that matters of a contractual nature were private and that UPR officials would be happy to meet with individual landowners but not with us as a group. I also wrote a letter to John J. Koraleski, UPR's President and Chief Executive Officer, asking for a meeting. Nothing fruitful came from this communication except a letter from Mr. Schelbitzki asking that all future communication be directed through him. Other examples of attempts to contact UPR to get more information are as follows:
  - I called Joe Adams, Vice President for Public Affairs, who works in the company's Spring, Texas office. Nothing fruitful came out of this conversation either.
  - In the Fall 2012, the BRBA wrote Andrew Card, a member of the UPR Board of Directors, asking to meet with him to discuss the UPR project, but Mr. Card denied our request for a meeting.
9. UPR commissioned the Texas Engineering Extension Service, part of the Texas A&M University System, to prepare an economic impact study of the proposed project. All Freedom of Information Act Requests for a copy of this report, which includes the economic impact to agricultural activities in the area, have not produced any meaningful results or information.
10. The UPR project will be located within a quarter of a mile of the Mumford Public School, which has approximately 500 students who attend kindergarten through 12<sup>th</sup> grade. If built, this project will turn a rural farming community, largely populated by minorities, into an industrial site. As a result, the BRBA members have grave concerns about the environmental dangers posed by an industrial operation on the health and well-being of the students who attend this school and the residents of the community.
11. Some of the landowners, tenant farmers, and small business owners are also stockholders in the Westbrook Valley Cotton Gin. If 1,200 or more acres of land are taken out of production because of this project, it is likely that this gin will have to cease operations. The stockholders would not be compensated by UPR for their loss nor would several small business owners (e.g., two aerial crop spraying businesses and others who service the land) who would lose a significant portion of their livelihoods.
12. It is our understanding that UPR has alternate sites for this project that are more suitable in terms of not disrupting agriculture production and having less impact on the environment and on the livelihoods of so many farmers, landowners, and small business owners as well as the quality of life for residents. When I asked

Mr. Adams about the alternate sites, his response was, "The problem with the alternate sites is that we would have to build additional rail lines."

13. I have received reports that, in contrast to the Mumford community, other communities are receptive to a proposed UPR rail infrastructure project. For example, the town of Hearne to the northeast of Mumford is willing to have the project sited within its ETJ and has recommended several sites to UPR. Also, several members of BRBA also own land at Valley Junction to the west of Hearne. This land is not as productive or populated as the land near Mumford. As a result, these landowners are more receptive to a UPR project in the Valley Junction area than in the Mumford area. In short, on information and belief, UPR has options that do not involve destroying the incredibly economically productive land in the Mumford community.
14. Residents of the Mumford community who own homes that would be adjacent to this industrial facility that would operate 24/7 would see their home values decrease by a minimum of 50%. These homeowners would not be compensated for the loss in the value of their homes and would also be subjected to 24/7 lights, dust, and noise generated by this facility.
15. I have heard from certain sources that the proposed UPR rail project will be accepting containers and serve multiple functions for UPR beyond just classification. This information has come from several Hearne residents employed by UPR. In addition a candidate running for the office of State Representative for Texas House District 12, which includes the area of the proposed UPR project, has given me the same information.

The foregoing statements are true and correct to the best of my knowledge.

Executed in BRYAN, Texas, October 23, 2013.

  
Kathleen Hubbard

**EXHIBIT C**

DISCOVERY SERVED ON UNION PACIFIC

BEFORE THE SURFACE TRANSPORTATION BOARD

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FINANCE DOCKET NO. FD-35781

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**PETITION FOR DECLARATORY ORDER  
BY BRAZOS RIVER BOTTOM ALLIANCE**

**REQUEST OF PETITIONERS BRAZOS RIVER BOTTOM ALLIANCE FOR  
PRODUCTION OF DOCUMENTS TO THE UNION PACIFIC RAILROAD COMPANY**

Pursuant to federal regulations, discovery is permitted in this proceeding: “Parties may obtain discovery under this subpart regarding any matter, not privileged, which is relevant to the subject matter involved in a proceeding other than an informal proceeding.” 49 C.F.R. § 1114.21(a); *Denver & Rio Grande Ry. Historical Found. D/B/A Denver & Rio Grande Railroad, LLC* (STB Apr. 30, 2012) (Docket No. FD 35496) (stating that the “Board’s rules specifically provide that parties may obtain discovery—in the form of depositions, interrogatories, requests for documents, and requests for admissions—for any matter, not privileged, which is relevant to the subject matter involved in a formal proceeding”). Rule 49 C.F.R. § 1114.30 allows production requests.

**Definitions**

For purposes of these discovery requests, the follow definitions apply:

1. Document. The term “document” is defined to be synonymous in meaning and equal in scope to the usage of this term in Federal Rule of Civil Procedure 34(a). Document means information that is fixed in a tangible form, such as paper or electronically-stored information; it includes but is not limited to: writings, memoranda, proposals, reports, correspondence, journals, worksheets, e-mails, letters, abstracts, instructions,

drawings, charts, diagrams, schematics, or summaries. A draft of a nonidentical copy is a separate document within the meaning of this term.

2. Concerning. The term “concerning” means relating to, referring to, describing, evidencing or constituting.
3. UPR or Union Pacific Railroad. The term “UPR” or “Union Pacific Railroad” includes the company’s subsidiaries or affiliates, and includes its officers, agents, and other representatives.

### **Instructions**

1. All documents produced by defendants in response to this Request shall be produced as they are maintained in the usual course of business or shall be organized and designated so as to correspond to the Request to which the documents are responsive.

2. Where a claim of privilege is asserted in objecting to any item of this Request, the documents should be produced, except that it is not necessary to produce the portion of the document as to which the privilege is claimed. However, where privilege is claimed, defendants shall set forth a) the date, author, and subject matter of the document; b) the name and title of each person who prepared, received, reviewed, or has or had custody, possession, or control of the document; c) the identity and length of any attachments to the document; and d) the nature of the privilege being claimed or the ground for withholding the document.

3. If any responsive document has been, but no longer is, in the possession, custody or control of the party responding to the Request, the document shall be listed by listing all of the following information: a) the date of the document; b) a description of the subject matter of the document; and c) the name or names and addresses of each person who prepared, received, reviewed or otherwise has or had possession, custody, or control of the document.

4. Unless otherwise indicated, all requests call for the production of documents for the period from January 1, 2007 to and including the date of production.

**Documents to be produced**

Petitioners request discovery upon UPR, with regard to the production of the following documents:

1. Documents concerning or constituting or reflecting the earliest evidence of UPR's plans or desire or need to construct new rail lines in Robertson County, Texas (this is the one request that is an exception to the time limitations of Instruction #4 above).
2. All documents concerning UPR's proposed new rail lines and rail facilities nearby, and within 7 miles of, Mumford in Robertson County, Texas, including all documents that discuss the purpose and effect of the new proposed trackage.
3. All documents concerning the analyses of transportation of goods and traffic along the UP rail lines of IGN (International and Great Northern) and HTC (Houston & Texas Central)—including but not limited to economic studies; traffic volume or capacity studies; or business needs to expand the rail lines—near Mumford in Robertson County, Texas.
4. All documents concerning the traffic and congestion along the UPR rail lines of IGN (International and Great Northern) and HTC (Houston & Texas Central) near Mumford in Robertson County, Texas.
5. All documents concerning the fracking market in Texas and the Bakken Basin as it relates to UPR's business and to the development of new lines in Robertson County, Texas.

6. All documents concerning the coal export market in Texas as it relates to UPR's business and to the development of new lines in Robertson County, Texas.
7. All documents concerning the Mexico manufacturing market as it relates to UPR's business and to the development of new lines in Robertson County, Texas.
8. All documents concerning the expansion of the Panama Canal as it relates to UPR's business and to the development of new lines in Robertson County, Texas.
9. All documents related to UPR's actions to condemn private property within ten (10) miles of Mumford in Robertson County, Texas.
10. Any and all documents related to economic impact studies commissioned by UPR, especially as related to the impact of the agricultural and/or oil and gas activity lost as a result of the proposed project.

Respectfully submitted,

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