

# STRATEGIC PLAN 2014-2020



**PORTCORPUSCHRISTI**

Adopted by the Port Commission of the  
Port of Corpus Christi Authority on December 10, 2013

# Strategic Plan 2014-2020

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Port of Corpus Christi Authority

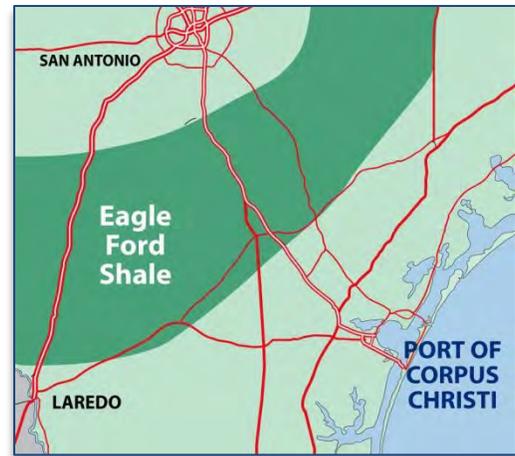
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This Plan was prepared with assistance from a consultant team consisting of Rich Stroot, project manager and rail specialist; Jim Shiner, P.E., infrastructure and real estate assessment; Paul Rolniak and Joe Leto, EAI, Inc., energy industry forecasting; John Hoegemeier, transportation economist; Dave Hallberg, freight trends analysis; Roger Blum, cruise industry consultant; and Don Rodman, communications consultant.

# 1. Summary of Findings and Recommendations

The Port of Corpus Christi Authority and South Texas are faced with a period of fast-paced change, a dramatic shift in some cargo movements and a wave of new industrial development opportunities. This Strategic Plan was designed with input from numerous stakeholders including port industries, port tenants, facility customers, waterfront stakeholders and community representatives. The resulting plan looks at the Port Authority's capabilities, outlook and priorities while outlining a course for the future.



The Strategic Plan is keyed to achieving the PCCA's adopted mission which is to serve as a regional economic development catalyst while protecting and enhancing its existing industrial base. The Port Commission is committed to being proactive in preparing for near-term challenges and long-term opportunities.

This plan is aimed at guiding the path for future development and expansion given the many disruptive challenges and changes being presented to the PCCA by dynamic development of the nearby Eagle Ford Shale and the Permian Basin, the anticipated opening of a newly expanded Panama Canal, and new manufacturing and terminalling operations. Rapid changes are taking place at every corner of the industrial complex and along the waterfront of the Corpus Christi Ship Channel system in Nueces County and San Patricio County. Some caution on the part of the PCCA is emphasized in light of such a dynamic energy and business environment.

The planning team has assessed current PCCA assets and the strengths and opportunities facing PCCA and South Texas. Cargo and transportation trends were reviewed and commodity forecasts were developed. Finally, a dozen strategic objectives were identified along with more than 70 specific implementation initiatives or actions. Each initiative or action has been given a projected calendar year to begin and complete and a designated lead or leaders responsible to achieve an expected result or consequence.

Finally, strategic planning is an ongoing process that recognizes that the future is unpredictable. Sound planning generally generates actions and reactions that tend to upset the expectations on which previous versions of the plan were based. Special attention should be focused on crude oil prices and both regional and global energy markets. Today there are very strong marketplace pressures to make decisions related to dynamic energy production in Texas. These decisions are likely to have very long impacts on public assets at the Port of Corpus Christi.

## SUMMARY OF FINDINGS

1. Keeping future options open is critical in light of the volatile nature of business cycles and disruptive events particularly those in a fast changing energy industry environment.
2. 99% of the waterborne commerce at the Port of Corpus Christi is in the form of bulk liquids and dry bulk materials. These commodities take maximum advantage of local transportation economics. This pattern is not projected to change in the five year planning horizon.
3. Tonnage totals drifted down from 2007 to 2012 as global markets absorbed a major recession, grain exports dropped in the wake of a prolonged Texas and upper Midwest drought, domestic crude oil began partially displacing imported crude, and the demand for gasoline and other refined products continued to decline in the U.S.
4. There was a sharp turnaround that started in 2012 and accelerated in 2013 as outbound crude and natural gas liquids (NGLs) crossing port docks surpassed imported crude oil volumes.
5. Outbound liquid cargo movements have placed very high demand on existing dock space and prompted action on development of several private oil docks and dock conversions.
6. Private companies are moving forward as quickly as practical with planning and permitting of billions of dollars in new or expanded industrial facilities that will generate new waterborne commerce and strengthen the local economy while enhancing the financial position of the Port Authority to continue addressing its economic mission.
7. Continued development of the Eagle Ford Shale and multiple shale plays in the Permian Basin will accelerate growth in South Texas for several more years assuming world oil prices do not drop below the cost of production for an extended period.
8. Total crude/condensate production from the Eagle Ford is at 1 million barrels per day and is forecast to exceed 1.8 million barrels per day by year 2021. There are multiple projections for petroleum movements through the port in 2014. PCCA has opted to use a conservative 15% rate of increase for planning purposes. Total port petroleum movements are expected to increase by an average of about 6% per year through 2022. Growth rates depend in part on how rapidly new private pipelines, tankage and dock capacity comes on line. Growth in tonnage and revenues may also be restricted by lack of available ships and barges.
9. Outbound crude movements are going to other U.S. ports and refineries within the marketplace driven by the federal prohibition of direct export of crude oil. The Jones Act controls movements between U.S. ports.
10. While there has been a significant increase in the number of vessel calls at Corpus Christi, recently developed bottlenecks appear to be opening and customers are adjusting. The addition of three new private oil docks within the Inner harbor in 2014 will further improve conditions. There is a demonstrated need for additional barge mooring areas and a desire by customers to have a public ship layberth added within the Inner Harbor.
11. The Bulk Materials Terminal (BMT) plays an important role in supporting local refineries – all of which produce petroleum coke which must be sent to market. The BMT also is a key transportation link in providing required inputs for South Texas oil and gas exploration and production. Tonnage of inbound commodities including barite and specialty crush-resistant sand used in the hydraulic fracturing process are expected to increase somewhat while outbound commodities are expected to remain at near current levels for the next few years.

Major infrastructure components at the Bulk Terminal are aging and investments in particulate management are needed. Revenues are adequate to support maintenance and required routine upgrades assuming terminal operations are treated as a stand-alone business enterprise. PCCA should in 2014 consider issuing a request for proposals that could lead to privatization of the terminal.

12. Agricultural exports through the two channel-side grain elevators and the bagging operations are closely tied to U.S. and foreign crop yields. Volumes moved through the port vary from year to year in the range of 2 million to 5 million tons. No change in this pattern is expected although ADM, the operator of the Corpus Christi Public Elevator, is diversifying into handling additional commodities.
13. The development of Caribbean transshipment hubs related to expansion of the Panama Canal and growth in trade with Central and South America will enhance the opportunity for additional break bulk and containerized cargo moving through Corpus Christi. This could provide the market conditions for development of a multi-purpose general cargo and container facility on 150 acres adjacent to the new San Patricio Turning Basin at La Quinta Terminal.
14. Break bulk cargoes moving across the PCCA's general cargo docks and private docks have made up less than 1% of port tonnage over the past two decades and future volumes are difficult to project. Movement of wind energy components are expected to rebound in 2014 to 2012 levels but this activity is subject to regulatory uncertainty. Opportunities exist for targeting additional cargoes that could efficiently move through the port's existing general cargo facilities.
15. The expanded Panama Canal will provide new cost efficiencies by accommodating larger Post Panamax size vessels. Corpus Christi will likely participate in these efficiencies with larger ships moving dry bulk commodities, exported liquefied natural gas and grain going to growing markets in the Pacific Basin.
16. Corpus Christi has a rail advantage not available at most Gulf of Mexico ports. The port's Inner Harbor is served by three Class I railroads that encompass systems covering all of the U.S. and Mexico. Rail capacity and operational flexibility in Nueces and San Patricio Counties are increasingly important factors for current and future port customers.
17. PCCA should continue to study the possibility of attracting a cruise ship operator but must recognize the high cost of infrastructure to adequately homeport such a service if a cruise line does show interest in this location.
18. Available land on navigable waters or with easy access to the channel system is becoming extremely limited and this limitation requires a more intense application of highest and best use criteria in decisions going forward.

## **KEY RECOMMENDATIONS**

Top priority should be given to strategies which support bulk cargo movements. That means a fundamental strategy should be dredging and maintaining adequate deepwater channels and building and maintaining docks capable of handling large bulk carriers. Panama Canal expansion will make this even more important in future decades as world trade and the vessel fleet adjust to this new opportunity. Here are some of the key recommendations and programs outlined in the Strategic Plan.

## SHIP CHANNEL

- Maintain the 45-foot ship channel and protect dredge material placement areas.
- Complete deepening of the La Quinta Channel extension (under contract).
- Evaluate widening of the Bay Reach of the ship channel (Port Aransas to Harbor Bridge).
- Evaluate moving forward with deepening the entire channel including the possible phased development to initially serve Harbor Island, Ingleside and La Quinta.

## LAND USE AND INDUSTRIAL DEVELOPMENT

- Make strategic land purchases.
- Continue implementation of a highest and best use land management program.
- Facilitate regional efforts to deal with water supply, electric power and workforce constraints.

## PETROLEUM HANDLING CAPABILITIES

- Provide and improve public facilities as dictated by demand and safety considerations.
- Support existing customers in ways that will increase their competitive position.

## BULK MATERIALS TERMINAL

- Continue facility maintenance and upgrades to sustain service levels.
- Make environmental improvements to reduce air emissions and accommodate potential growth.
- Consider issuing a request for proposals to privatize the terminal.

## DRY CARGO/BREAK BULK

- Pursue an anchor tenant for development of multi-purpose general cargo and container facilities at La Quinta Terminal; move forward with initial facility and dock design in 2014.
- Continue preservation of existing Inner Harbor break bulk handling facilities.

## RAIL FACILITIES

- Continue implementation of the 2012 Rail Master Plan including construction of the Nueces River Rail Yard.
- Investigate options for providing multi-carrier rail services to the La Quinta Terminal and the Robstown Inland Port property.

## BUILDINGS AND FACILITIES

- Develop a long-term Facilities Plan including offices, harbormaster operations, conference center, security and other PCCA buildings to ensure highest and best use of assets.
- Evaluate alternative uses for Cargo Dock 1 and 2 and surrounding property.

## ENVIRONMENTAL STEWARDSHIP

- Enhance bay habitat by implementation of Channel Improvement Project components.
- Continue to implement the Environmental Management System to minimize environmental impacts of port-related operations.

## 2. Current Situation Overview

### 2.1. Background

Exploration and development activity in the Eagle Ford Shale play in South Texas began with a whisper in 2008. Oil production growth in the Eagle Ford started to accelerate in 2010 and has skyrocketed since. This has been the most positively disruptive event in the Corpus Christi Bay region in generations. The Eagle Ford Shale is considered by some to be the largest single economic development in the history of Texas and in 2013 ranked as the largest oil and natural gas development in the world based on capital invested. It is changing the economic landscape and the long-term fortunes of the Port of Corpus Christi and the Coastal Bend Region.



The impact of the South Texas energy bonanza on the Port of Corpus Christi Authority (PCCA) and its operations has been profound. Crude oil imports have declined while outbound shipments of Eagle Ford crude have risen sharply. Existing port industries are expanding and new port-related industries are working to permit and build plants that will take advantage of output from the Eagle Ford and other U.S. shale formations that have turned energy markets upside-down. Expanding industrial activity has resulted in there now being little uncommitted real estate available near the ship channel for new port-related development. The anticipated opening of a newly expanded Panama Canal and swings in global markets add to the Port Authority's planning challenges.

Faced with this sea of uncertainty Port Authority policymakers initiated a strategic planning process that builds on previous plans and years of ongoing capital improvement and business development planning.



Recognizing the importance of producing a strategic plan, the Port Authority and a consultant team have engaged in a process designed to accomplish the following:

- Evaluate the external environment and the forces of change that are likely to present opportunities or threaten existing businesses.
- Provide strategic direction to the Port Authority and a host of interconnected institutions in the counties of the Coastal Bend.
- Define and initiate appropriate implementation actions.
- Assist Port Authority policymakers in better assessing every potential investment, project and real estate decision they face.
- Monitor performance to guide the ongoing planning and program implementation process.

Strategic planning is an ongoing process that recognizes that the future is unpredictable. Sound strategic planning frequently generates new factors that tend to upset the expectations and assumptions that were integral to the previous version of the plan. Due to the volatile nature of

business cycles and disruptive events, the Port Authority’s strategic plan should be updated annually and evolve as a five-year capital planning guide.

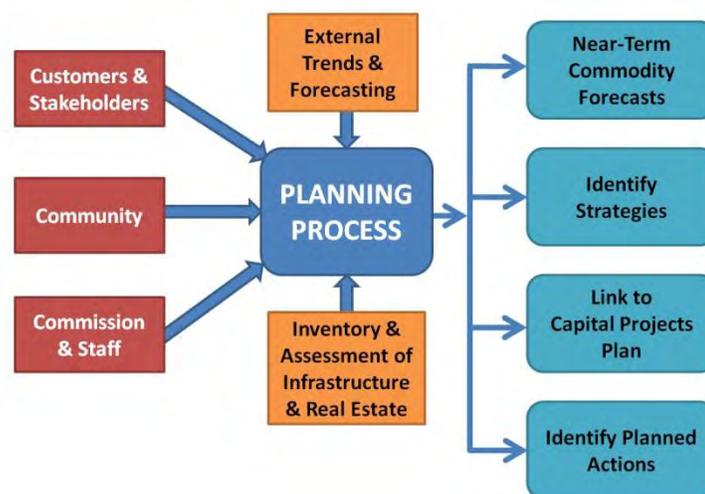
Keeping future options open is critical. It demands that management do what it can now to understand what those future options might be. Real estate decisions made today have much to do with the Port Authority’s options and opportunities in the future. For instance, planning for the highest and best use of property may require the authority to forgo a property lease or improvement that could block a much higher future use. By reserving key sites already owned by the Port Authority and by buying additional sites when appropriate, the Port Commission can act today to better ensure that the public interest will be served in the future.

## 2.2 The Planning Process

A strategic plan is a management tool used to improve the performance of an organization and outlines the organization’s direction and priorities.

The Port Authority undertook this strategic planning process as a cooperative effort involving the port management, members of the Port Commission and a small team of consultants, some of whom have decades of experience in local port-related activities.<sup>1</sup> The Port Commission Planning Committee included commissioners Judy Hawley, Charles Zahn and Al Jones.

### *PCCA Strategic Planning Process*



The planning process included a comprehensive review of changes in the Port Authority’s operating environment over the past five years. Meetings were held with commission members to establish objectives for the planning effort. Port staff members were called upon to use their knowledge to look forward, set objectives and develop strategy recommendations.

The planning effort included a comprehensive outreach effort to include Port Authority customers, waterfront stakeholders and service providers, and community leaders. There were more than a dozen

<sup>1</sup> The consultant team consisted of Rich Stroot, project manager and rail specialist; Jim Shiner, P.E., infrastructure and real estate assessment; Paul Rolniak and Joe Leto, EAI, Inc., energy industry forecasting; John Hoegemeier, transportation economist; Dave Hallberg, freight trends analysis; Roger Blum, cruise industry consultant; and Don Rodman, communications consultant.

meetings with major industries, shippers, marine operators and companies that are in the process of permitting to build new facilities that will generate waterborne commerce. These discussions provided valuable insights regarding such topics as waterway operational issues, facility capacity constraints, potential congestion, regulatory uncertainties, Jones Act marketplace vessel shortages, competitive rail service, potential ship channel improvements and water supply concerns.

## 2.3. Mission Statement

As a public navigation district established by law, the Port Authority is a political subdivision of the State of Texas with district boundaries that include all of Nueces County and San Patricio County. The authority is governed by a seven member commission with three members appointed by Nueces County, one member by San Patricio County and three members by the Corpus Christi City Council.

Without a consensus on what role the Port Authority should play in the community it is difficult to establish well understood, realistic objectives. A clear definition of the Port Authority's purpose and mission are the foundation for setting priorities, making plans and assigning work. A mission statement provides criteria against which to judge actions and serves as a declaration of common purpose that can be understood by those who are part of the organization and others who have an interest in its success. The following is the Port Commission's long-standing mission statement:



**It is the mission of the Port of Corpus Christi Authority to serve as a regional economic development catalyst while protecting and enhancing its existing industrial base and simultaneously working to diversify its international maritime cargo business.**

In pursuit of this mission, the Authority shall be guided by the following basic principles:

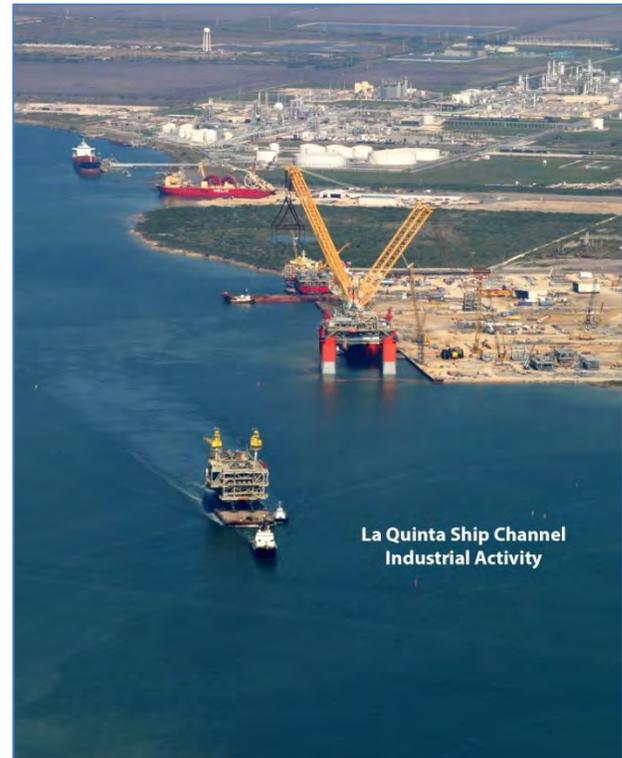
- The Port Authority shall conduct its affairs in a positive, open, and cooperative manner;
- The Port Authority shall operate in a fiscally responsible manner;
- The Port Authority shall be a positive and proactive force in the protection of the region's marine and water related resources;
- The Port Authority shall be committed to serving its customers – present and future.

It is helpful in this context to define who the Port Authority's customers are. Several categories exist including [1] shippers who can move cargo through one of several ports, [2] industries which have made large investments in South Texas and are tied to docks on the Corpus Christi Ship Channel system, [3] PCCA property leaseholders and users of port-owned terminals and rail lines, and [4] the residents of South Texas who look to the Port Authority to provide leadership in delivering the public infrastructure that will encourage economic activity and sustain the region's quality of life.

## PERSPECTIVE ON THE MISSION

Because the Port Authority and the port industrial complex are such important forces in this region, the authority's economic development mission helps chart the destiny of the entire community. Since 1926 when the first commercial business was attracted to Corpus Christi by the newly opened ship channel, the Port Authority has been the single most important medium for converting community resources into career jobs and into investments that remain productive for generations. Economic development is the mission and serving commercial shippers with adequate channels and docks is part of how the mission is accomplished. Economic development means attracting industrial and commercial activity, private capital and waterborne cargo shipments that will create employment opportunities, sustain and upgrade existing jobs, bring new basic dollars to the area, and broaden the tax base that supports all public services.

The core function of the Port Authority is to act in concert with the U.S. Army Corps of Engineers to provide and regularly maintain the deepwater ship channels and shallow-draft waterways that are essential to waterborne commerce. That includes the authority's duty to provide adequate dredge material placement areas to assure that channels can be maintained on schedule and expanded as the demands of world commerce require. Without these channels traversing our shallow bays there would be no Port of Corpus Christi and much of the billions of dollars of private investment in industrial activity in the Bay Area would never have been drawn here.



## LIMITATIONS ON PORT AUTHORITY ACTIVITIES

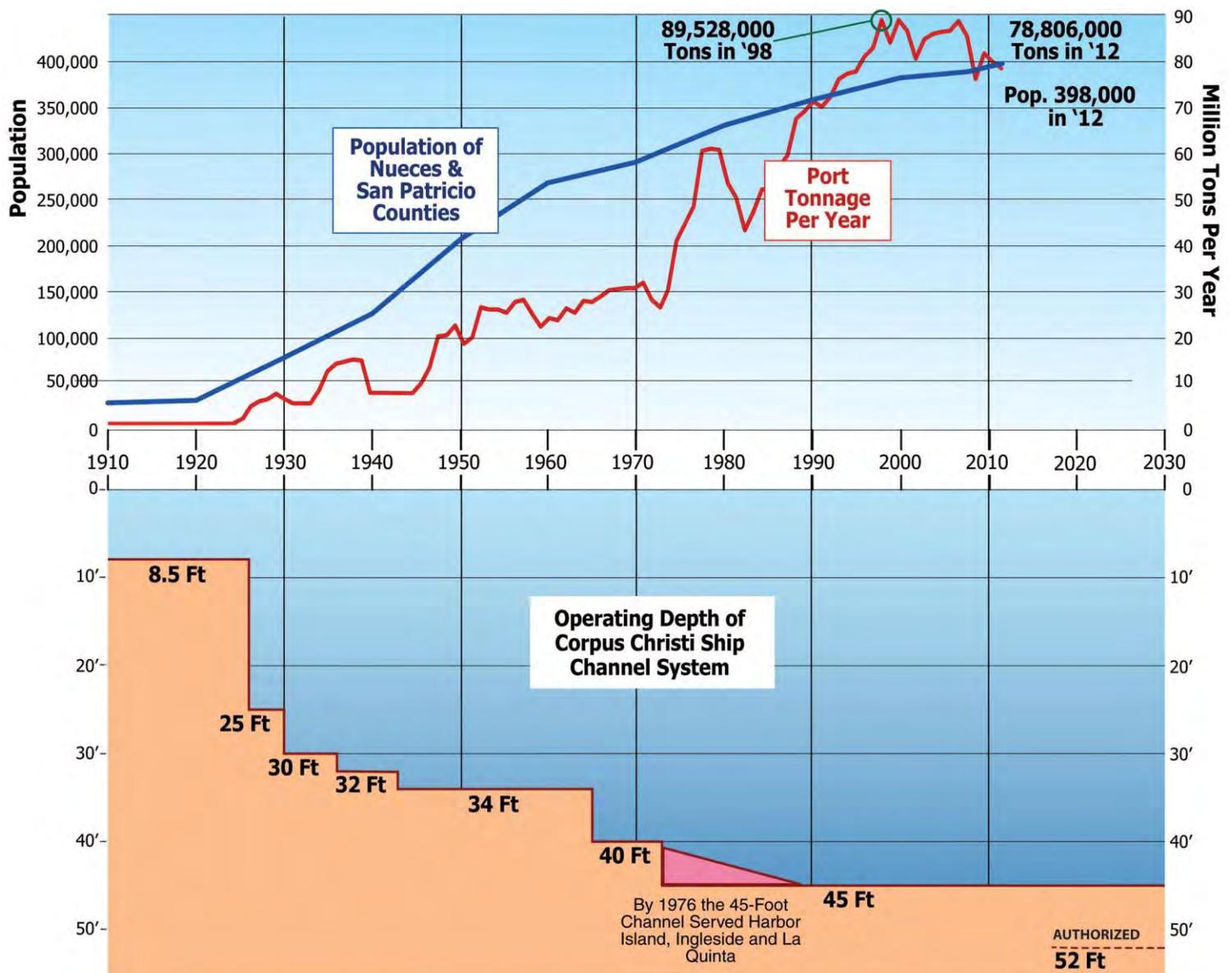
The Texas Constitution and state law places specific constraints on the kind of activities a navigation district (port authority) can pursue. The Port of Corpus Christi Authority is permitted to participate in operation or development of ports and waterways and any facility that is necessary or useful in the development and utilization of a waterway project. The law specifically allows participation in development of wharves and docks, warehouses, grain elevators, storage facilities, port-related railroads and bridges, cargo handling facilities and other facilities useful to navigation-related commerce in the port and on the waterways. The PCCA is authorized by the Legislature to acquire land and has the power of condemnation of property for development of port facilities or necessary for development of port-related businesses. By definition the Port Authority is constrained by state law from undertaking or participating in projects that are not related to the port and associated commerce.

## 2.4. A History of Addressing the Mission

The Port of Corpus Christi is a *place* – a piece of geography that includes an industrial complex sprawling across the landscape from east to west for more than 30 miles. The Port of Corpus Christi Authority, led by the seven-member Port Commission, is an *institution* charged by the local community to lead and make decisions for the very long term well-being of the region. Together these elements represent a remarkable partnership between the federal government, South Texas residents, the State of Texas and private industry.

A brief overview of past events and trends will be presented in this section. Analysis of past success and current conditions often provides the opportunity to "rediscover" sound strategies and to understand the basis for the kind of success that has been achieved by the Port Authority over a period of several decades.

### Historical Trends and Correlations



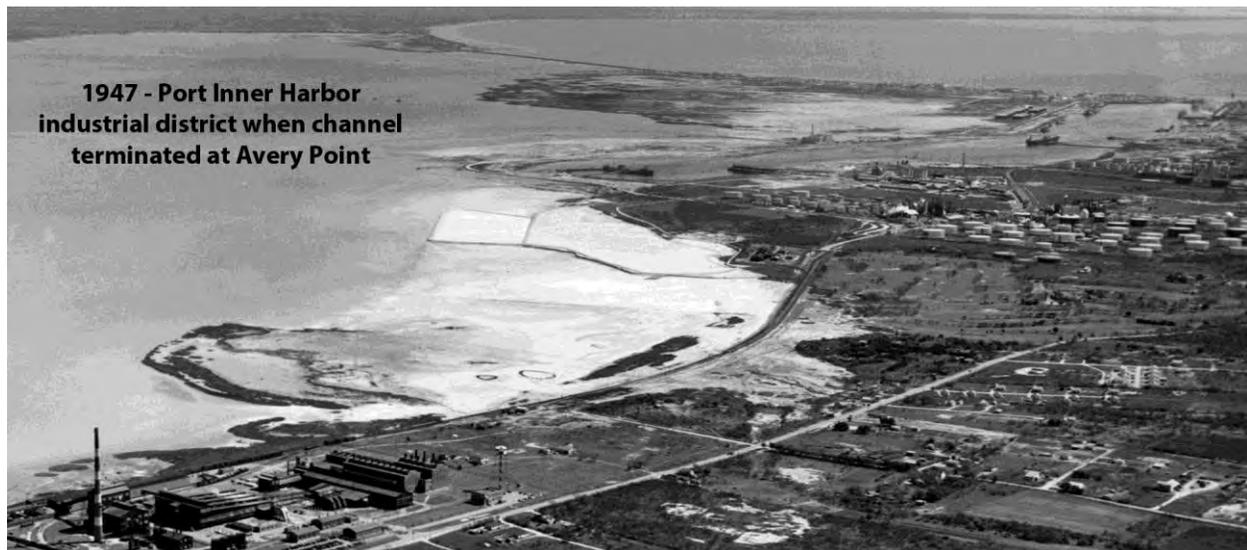
## A HISTORICAL LOOK

The U.S. Congress first recognized Corpus Christi as a port in 1852. For the following 75 years the mission of the individuals leading Corpus Christi was to turn those words into a reality that could make their city THE port for South Texas and Northern Mexico.

Before the channel was dredged and the Inner Harbor was opened in 1926, the region's economy was based almost entirely on agriculture and a small seasonal visitor industry. Natural gas had been discovered at White Point in 1913 but oil had not yet been found in the region nearby.

From the beginning the mission of the Navigation District (now Port Authority) was about inducing growth and strengthening the economic foundations under the struggling community. Before the voters of Nueces County created the Navigation District and provided tax bond funding for facilities in 1922, there was community consensus that the mission of the port would be primarily to get South Texas farm produce to market. The transportation advantages offered by the port would allow more Coastal Bend land to be converted to profitable row crops.

Secondarily it was felt that the port would serve as a gateway to and from Northern Mexico and that it would be of strategic value to the military establishment in Central Texas. It was hoped that all this would create more employment in the transportation services industry. There is no indication that attracting heavy industry was seen as a central part of the mission before 1930.



## BECOMING AN INDUSTRIAL PORT

Once large oil fields were discovered – literally within sight of the new port's Inner Harbor – the community's mission for its Navigation District was quickly revised. Services to agriculture were adequate. Now it was apparent that local resources, including very low cost natural gas, could be combined with the powerful pull of deepwater channels to attract heavy industry that would be permanently located in the community. That meant a new level of economic stability impossible in an agriculture port impacted by bad weather and world markets. These permanent industries would require land and their employees would need housing and all the services of the retail community.

One of the goals from the outset was to make the Port Authority financially self-sufficient. In 1930, the port leadership (including new Chairman Richard King, port attorney Russell Savage, State Rep. W.E.

Pope and Port Director L.M. Adams) implemented a channel extension plan which would help make that possible. Pope won passage of a law allowing navigation districts to buy submerged state land at a cost of \$1 per acre. The Port Authority then acquired submerged land along the shoreline of Nueces Bay where the channel extension would be dredged and conveyed the submerged land between the channel and the shoreline to the upland property owners. The conveyances were subject to deed covenants running with the land requiring the landowner to apply for a franchise for any business wanting to use the channel and to pay the Port Authority half the published wharfage rate on cargo moving over privately-owned docks constructed on the submerged land.

During the 1930s and 1940s it became increasingly understood that general cargo growth would be limited by the lack of population and consumer markets in the port's hinterland which extends to the north, northwest and southwest. Railroads and trucking became increasingly competitive in handling farm produce that was originally seen as potential cargo. Conversely, heavy industry and crude oil shippers needed efficient water transportation for moving bulk cargoes. That meant that if the Port Authority was to achieve the mission of promoting community growth it had to set objectives which focused on pursuit of the deeper and wider channels needed by bulk carriers.

Corpus Christi consistently led other Gulf ports in water depth for decades, partly because port leadership was so aggressive and partly because of the relatively short distance to deep water outside the jetties at Port Aransas. The 45-foot project at Corpus Christi was authorized by Congress in 1968, construction started in 1972 and the last section was completed in 1989. Today most of the major Gulf ports have 45 feet of water and New Orleans and South Louisiana terminals have more than 50 feet. Leadership in pursuing deep water has continued with the full permitting and 2007 congressional authorization of deepening the entire Corpus Christi Ship Channel system to a depth of 52 feet.

Much of the local port activity before 1970 was tied directly to local raw materials and production. In that decade the Corpus Christi Bay Area evolved as an industrial "processing station" not as tied to local raw materials. Bauxite, ores and then imported crude oil were brought here by ship, processed and the products shipped out by ship or barge. This was possible because of deep water efficiencies, excellent building sites and a "can do" local community attitude. Today Eagle Ford Shale oil and gas are providing a new source of nearby production inputs.

A new era in port development began in 1950 with the construction of the branch ship channel along the north shore of Corpus Christi Bay to Reynolds Metals. Dredging La Quinta Channel expanded the port's horizon, extending its operations to the north side of Corpus Christi Bay. It encouraged the Port Authority to see itself as a seaport with several distinct divisions — the Inner Harbor, Rincon Point, La Quinta, Ingleside Point and Harbor Island. The 1950s were a pivotal period as the Port Authority stretched to accommodate new economic activity. The Public Grain Elevator, the Bulk Materials Dock 1 and the Harbor Bridge were all built during that decade. The elimination of the narrow Bascule Bridge in 1959 cleared the way for a new generation of larger ships to call at the Inner Harbor. PCCA built the shallow draft Rincon Industrial Park in 1968 with barge access by way of a 12-foot canal that connects to the ship channel east of the Harbor Bridge.

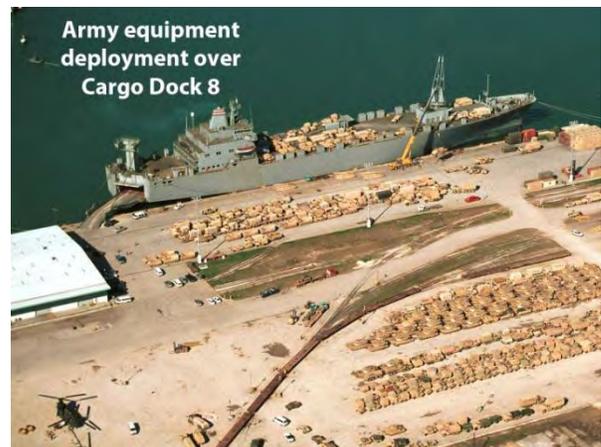
Between 1923 and 1985 the taxpayers of Nueces County were called on to approve and pay off only \$5.3 million in tax bonds to acquire port land and build facilities. While a tax of up to 10 cents per \$100 property value assessment is authorized by law, no tax for maintenance and operations has ever been collected. The Port Authority has always paid for operations out of operating revenues.

## PASS-THROUGH CARGO

The percentage of total cargo that is moved through the Port of Corpus Christi from a distant origin to a distant destination has historically been small. These "pass-through" or transient cargo shipments reached their peak in the 1970s with large overseas shipments of Midwest grain and inbound shipments of ores and cement headed into Mexico.

Since 1950 there have been continuing efforts to generate additional pass-through cargos although marketing efforts were generally conservative. Capital projects were the primary tool of choice. These included construction of the Public Grain Elevator in 1952, improved rail connections in the late 1950s, the Bulk Materials Dock in 1959, bagging operations in the late 1960s and Cargo Docks 14 & 15 and the stationary crane in 1967. Additionally, cargo docks were refurbished and shed improvements were made during the 1970s. During the 1980s the port added Bulk Materials Dock 2 and modified the Grain Elevator to serve larger ships.

A broader marketing effort to generate more general cargo began in the 1980s. On the capital improvement side, the planning and construction of Cargo Dock 8 as a multi-purpose facility was completed and supporting yards were subsequently built on both the north and south sides of the area just west of the Harbor Bridge. Since 2001 these facilities have seen waves of cargo come and go including military equipment and wind energy components.



## EVOLVING MISSION

While there has been an evolving nature to the MISSION of the Port Authority over the past 90 years, there have been several central themes – growth, stability, attention to existing stakeholders and conservative financial management. Overall the mission has been defined as achieving growth by providing leadership in all facets of community and industrial development that are linked to waterborne commerce. The mission has consistently been converted to goals and objectives which have – with few exceptions – been achieved. The Port Authority's efforts to provide deep channels, adequate docks, cargo handling facilities and other infrastructure components have attracted billions of dollars in private capital, built the tax base of all local taxing authorities and created employment opportunities for thousands of South Texans over several generations.

## 2.5. Assessment of Current Standing

The Port of Corpus Christi is one of the busiest U. S. ports in terms of tonnage and has been for the past forty years. It is recognized as a leader in providing the deep channels needed for efficient handling of bulk petroleum, chemicals, minerals and grain.

### GEOGRAPHY

The port serves a hinterland extending north and westward to include parts of the Midwestern States, Colorado, New Mexico, much of Texas and the northern half of Mexico. The port includes four deepsea divisions — Harbor Island, Ingleside Point, La Quinta and the Inner Harbor. Shallow draft facilities are available at Rincon Point, Jewell Fulton Canal, the Aransas Channel and on the Intracoastal Waterway north of Ingleside Point. Landside facilities at La Quinta, Ingleside Point and on the Intracoastal are in San Patricio County. A small portion of Harbor Island and the ship channel at Port Aransas are in Aransas County. All other port geography is in Nueces County.



### SHIP CHANNEL AND DMPAs

The federal deepwater channel totals 36.5 miles in length. The entire channel has been deepened to 45 feet except the La Quinta extension which will be at 45 feet by the end of 2014. A comprehensive 50-year plan is in place for management of dredge material from the federal channel system and the PCCA is required to maintain an updated 25-year plan for placement of material generated by channel maintenance dredging.

The material management plan includes two dozen dredge material placement areas (DMPA) including unconfined placement areas in the Gulf of Mexico and in the open water crossing of Corpus Christi Bay. Sites include upland confined areas, all of which are on property either owned by the Port Authority or the Texas General Land Office. The Army Corps of Engineers has navigational servitude and both term and perpetual easements on these sites.



On the Inner Harbor almost all of the land on the north side of the channel was created through the beneficial use of dredge material from the original channel construction, channel deepening, subsequent levee construction and maintenance dredging.

Several former DMPAs have been retired and converted for potential development or alternate use. These include areas on PCCA and private property on the north side of the Inner Harbor west of the Bulk Terminal and sites in the vicinity of Port Aransas. If at some point in the future the Port Authority determines that additional DMPA areas should be converted for development it will require getting the consent of the Corps of Engineers to release the government’s easement. It will also likely require replacement of any lost material placement capacity with a new DMPA site. The port staff has concluded that South Shore DMPA Cell A and Cell B on the north side of the Inner Harbor across from Avery Point should be held in reserve as contingency capacity.



The Port Authority owns hundreds of acres of submerged land along the southern edge of Nueces Bay. Some have suggested the Authority evaluate the possibility of utilizing a portion of this acreage for future beneficial use of dredge material or as a site for environmental enhancement projects that could provide mitigation offsets to future public or private impacts on natural resource habitat.

In 2008 the Tule Lake Lift Bridge across the ship channel was removed because of age, mechanical condition and the inability to accomplish repairs without stopping channel traffic for an unacceptable length of time. Foundations and fenders of the bridge towers were left in place and remain as a

restriction on channel efficiency and as a navigational safety concern. Plans have been drawn for removal of the foundations and such a project is expected to move forward in 2015 or 2016.

In 1990 the U.S. Congress authorized the Corps of Engineers to begin investigating deepening the Corpus Christi Ship Channel beyond 45 feet. A feasibility study was started in 1997 and several years were spent involving many stakeholders in selecting the best alternative for the Channel Improvement Project (CIP). A final environmental impact statement was published in 2003 and all environmental clearances and permits for the channel widening and deepening were obtained. In 2007 the Congress officially authorized the 52-foot project which included extending La Quinta Channel, widening the channel across Corpus Christi bay to a bottom width of 530 feet, adding barge shelves on both sides of the channel across Corpus Christi Bay to increase separation between ships and barges, and extending the entrance channel in the Gulf by 10,000 feet to deeper water. It also includes constructing ecosystem restoration features to protect wetlands and sea grass areas.

The first element of the Channel Improvement Project was a 126-acre DMPA at La Quinta Terminal that was constructed in 2009 and marked the official conversion of the CIP into an “active” federal project. Dredging of the 1.4-mile La Quinta Channel extension under a Project Partnership Agreement with the Corps of Engineers started in 2011 and was completed in 2013. The federal government put up \$58.5 million and the port authority provided \$15 million in local matching funds. After completing a study and receiving approval from the USACE to assume the maintenance of a further improved channel, the PCCA awarded a \$6.1 million contract in 2013 to deepen the extension from an operating depth of 39 feet to an operating depth of 45 feet, matching the rest of the channel system.

Demand for deeper water at Gulf of Mexico ports will increase with the 2015 opening of the Panama Canal expansion which will have a tropical freshwater draft of 50 feet.

## **DOCKS AND TERMINALS**

The Authority owns 11 liquid bulk cargo docks, two bulk materials docks, general cargo docks, layberth areas, two bagging facilities, the grain elevator, cotton warehouses and a conference center. The grain elevator, cotton warehouses and some layberth areas are leased to single customers. Refineries, chemical manufacturers, terminalling operators and fabricators operate private docks on the Inner Harbor.

Private industry operates all active docks at the three outer harbor divisions. In the outer harbor the Port Authority owns land (mostly submerged) all along the federal waterways, dredge material placement areas and a significant part of Harbor Island.

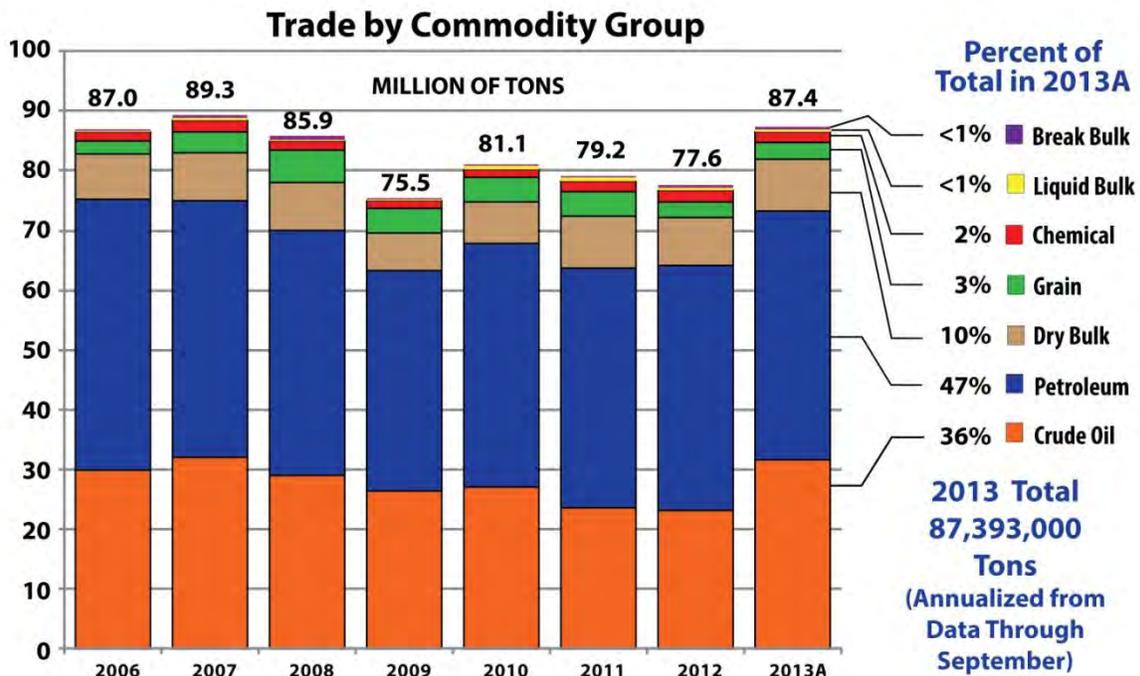
The Inner Harbor and Rincon Industrial Park are both served by all modes of surface transportation. The Port Authority owns 43 miles of railroad tracks which are operated under contract to serve Inner Harbor terminals and connect the Union Pacific, the BNSF Railroad and the Kansas City Southern Railroad.

## **TONNAGE BY COMMODITY GROUP**

Annual cargo movements started at less than one million tons in 1927, showed a steady upward trend until the early 1970s and then started a sharp upward trend as crude oil imports grew. A tonnage drop off with the oil price bust of the mid-1980s was followed by a steady climb through the rest of the 1980s and 1990s, hitting an all-time high of 89.5 million tons in 1998. Tonnage dropped back after the shock of

the 2001 Terror Attacks then recovered until the 2007 recession. Tonnage slid more than 10% before showing a strong recovery in 2013 as Eagle Ford Shale impacts continued to build.

From 2007 to 2011 grain shipments were well above historic levels but fell back in 2012 and 2013 due to drought. Dry bulk tonnage has remained relatively flat in recent years.



## REVENUES

The Port Authority has eight primary ways it can earn revenue to pay for operations and fund part of the cost of new facilities and channel maintenance. They are:

[1] Wharfage — A charge against cargos moved either across one of the Authority-owned docks or under a franchise agreement.

[2] Dockage — A charge against a vessel for time spent at an Authority-owned dock or lay area.

[3] Security Fees – A surcharge fee to support security operations.

[3] Freight Handling — A charge for using Authority equipment and personnel to move cargo on or off a vessel at the bulk materials docks or the general cargo docks.

[4] Building and Land Rentals - Payments from short-term and long-term easement and leaseholders on Authority property.

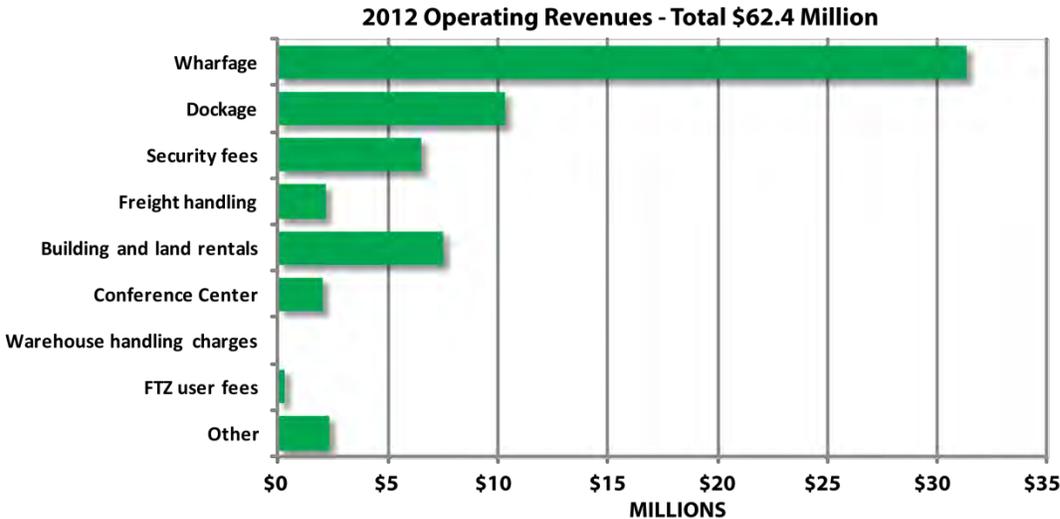
[5] Conference Center Services – Ortiz Center operating revenues.

[6] Warehouse handling charges — Fees for use of cargo sheds and marshaling areas.

[7] Foreign-Trade Zone — Fees for administrative services, and indirectly through increases in other revenue categories.

[8] Investment Income — Interest earnings from net income which are invested until it is expended.

[9] Dredge Material Placement Area depletion and use fees.



Revenues must be earned in a very competitive transportation marketplace. The Port Authority must compete for cargoes against other ports and other modes of transportation. When the cargo is either destined for or being produced by one of the industries in the port community, it is likely it will move through the port. But inland barges, railroads, pipelines and trucking lines compete for some of this business. This competition forces the system to be relatively efficient. When a cargo is coming from or destined for a point well inland from Corpus Christi, the competition becomes even more intense, with a greater number of potential players. Rail rates become a decisive factor, as do highway connections, port charges, labor rates, speed of turnaround, availability of facilities and overall quality of service.

**STATUS OF AUTHORITY FACILITIES**

The Port Authority has general cargo docks, liquid bulk cargo docks, bulk materials docks and four improved cargo marshalling yards. All are operated for hire on a first-come, first-serve basis. The general cargo docks include three covered transit sheds, two open docks and one special public use facility (Cargo Docks 1 and 2).

This strategic planning effort did not include an inspection and assessment of each of these facilities to evaluate their capabilities and potential to serve present and future shipping. The Port Authority has an ongoing maintenance program that covers all facilities. Much of this infrastructure is aging and requires frequent maintenance cycles. PCCA is developing a phased approach to replacing oil docks, Bulk Dock 1 and other facilities, some of which are more than 50 years old.

**CURRENT PROJECTS**

The Port Authority has an active capital improvement program. Significant recent projects include:

[1] The Authority has awarded a contract for deepening of the La Quinta Ship Channel Extension from an operating depth of 39 feet to an operating depth of 45 feet.

[2] An access road is being built and pipelines are being relocated on the La Quinta Terminal property to better serve a 473-acre lease to Austrian steelmaker, voestalpine Texas, and other future tenants.

- [3] The Nueces River Rail Yard project Phase 1 is under construction.
- [4] A barge-depth oil dock located at the west end of the Viola Turning Basin (Oil Dock 5).
- [5] All elements of the Fulton Corridor road project have been completed.
- [6] Fire and safety improvements at Avery Point - Oil Docks 3, 4, 7 and 11.
- [7] Bulk Dock 1 fender replacement and structural repairs.
- [8] Security enhancements along the entire ship channel system.

## *2.6. Stakeholder Input*

As a public agency the Port Authority must work to accomplish its mission within the context of local community concerns and constraints. Success is less likely if community leaders and port stakeholders do not agree with the goals and objectives of the Authority or have mistaken perceptions about the Authority and its capabilities.

The development process for this Strategic Plan included input from industry, vessel operators and community stakeholders. Stakeholder comments made it clear that the mission of the Port Authority is well understood in the community and among customers. There were several comments specifically applauding the port staff for the assistance they provide customers and prospects in working through the project permitting and development process.

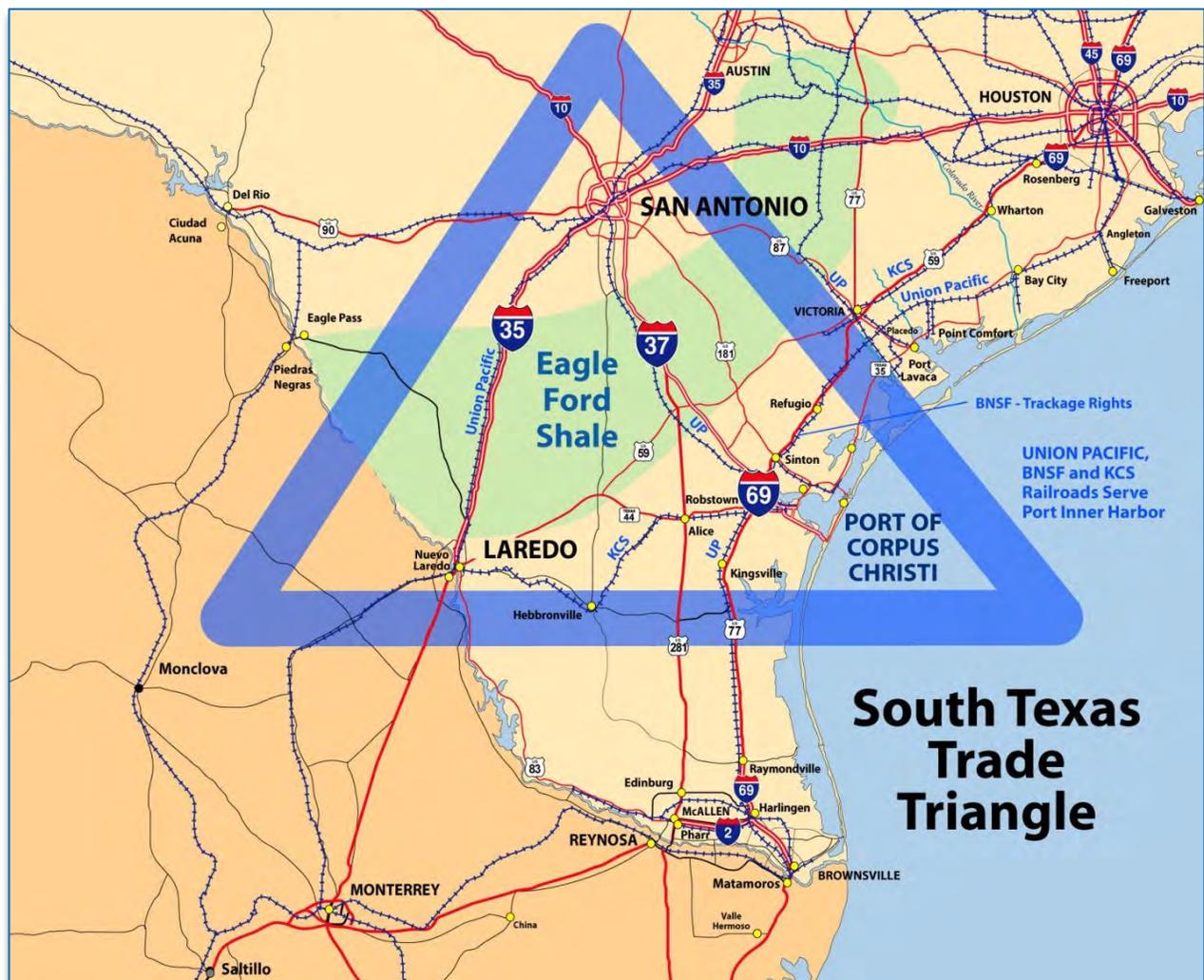
There were at least a dozen concerns raised in these conversations including:

- Regional water supply reliability
- Electric power capacity and distribution
- Skilled workforce availability
- Availability of adequate housing for the large number of construction personnel who will be building new plants
- A shortage of near-channel industrial property options
- Dock availability and vessel delays
- One-way and daylight only channel restrictions on certain ships
- Lack of multi-carrier rail service in much of the area near the ship channel
- Forced delays in maintenance dredging at some docks
- Timely access to dredge material placement sites
- Concern about maintaining the region's air quality attainment status
- Regulatory constraints including Jones Act vessel limitations
- Marketplace risks in a rapidly evolving U.S. and global energy market
- Concern about sending messages to the market that local port capacity is constrained
- A desire that PCCA help local industries stay competitive in the marketplace

## 2.7. Regional Strengths, Weaknesses, Opportunities and Threats

The Port of Corpus Christi is a key economic driver of the growing economy of South Texas. The port complex includes an expanding industrial base, a large and growing petroleum extraction and petroleum refining industry, major commodity chemical manufacturers, trade between the U.S. and Mexico and waterborne international trade. The port supports approximately 66,500 direct, indirect, induced and related users' jobs. In 2011, marine cargo activity at the public and private terminals generated approximately \$13.1 billion in economic activity in Texas consisting of direct business revenue received by the firms associated with the port and through marine services and transportation services to handle the cargo.<sup>2</sup>

A rapidly growing petroleum industry due to the development of the Eagle Ford Shale discovery, the associated activity that Eagle Ford will generate through hydraulic fracking and new industrial development in Corpus Christi will drive marine cargo growth through the port in the coming years. With these powerful growth drivers in the South Texas region, coupled with the growth in trade between the U.S. and Mexico and a national initiative to drive national growth through exports, the Port of Corpus Christi is well positioned to capture growing marine and related revenues over the next decade.



<sup>2</sup> The Local and Regional Impacts Of The Port of Corpus Christi. Martin & Associates, September 25, 2012.

## THE REGIONAL MARKET

The Corpus Christi Ship Channel system and the surrounding port district are a critical resource for Texas, a state which is growing rapidly, both economically and by population. The drivers of the Texas economy include, but are not limited to, energy, international trade, a large and growing manufacturing base, agriculture, Federal activity such as the military facilities and defense contracting. With a predictable regulatory climate and pro-growth economic policies, Texas will continue to be one of the healthier business environments in the U.S. The port will benefit not only from the overall growth in Texas but will grow at a faster rate than Texas overall as a result of some of the unique economic drivers in its geographic region.

The Port of Corpus Christi is located geographically at the eastern edge of South Texas. The region served by the seaport is a geographic triangle bounded on the north by San Antonio and on the west by Laredo. Corpus Christi is the regions connection to world markets via the seaport. The area is served by three interstate highways, three of North America's Class I rail carriers and the marine transportation assets at Corpus Christi. For purposes of this analysis, the South Texas region consists of the following Texas counties: Aransas, Atascosa, Bee, Bexar, Duval, Frio, Goliad, Jim Wells, Kleberg, LaSalle, Live Oak, McMullen, Nueces, Refugio, San Patricio and Webb.

The South Texas Alliance for Regional Trade (START) is a cooperative effort among three Texas ports to strengthen the region's response to logistics and transportation needs. The alliance includes Port San Antonio, Port Corpus Christi and Port Laredo which together have long-standing business relationships.

Economic activity for the START region of South Texas is driven by a broadly based economy including manufacturing, agriculture, trade and commerce – both domestic and international – energy production, the military, tourism and construction. The economy and the population of the entire region are growing rapidly although population growth is concentrated in just three counties – Nueces, Bexar and Webb. With significant growth coming due to oil and natural gas exploration and production and increases in manufacturing, both GDP and population for the region are expected to grow at an accelerating rate.

San Antonio is a growing hub for Eagle Ford shale activity. Growth is being generated through energy extraction and by the materials used in the hydraulic fracturing extraction process. Other significant drivers to growth in San Antonio (the seventh largest city in the U.S.) include aerospace, tourism, the military and international trade, especially to and from Mexico.

Laredo is the largest hub for trade between the U.S. and Mexico. Roughly 45% of land trade between Mexico and the U.S. takes place at the Port of Laredo, estimated at \$215 billion in 2011.

Part of Corpus Christi's economic activity is driven by the growth in energy extraction from the Eagle Ford Shale formation and distribution of the materials used in the hydraulic fracking process of the Eagle Ford. Corpus Christi has a broad based and growing manufacturing sector and is an active player in international trade.

Corpus Christi, Laredo and San Antonio all have "ports." Laredo is a port of entry. San Antonio has established an "inland" port at the former Kelly Air Force Base. All have infrastructure expansions either completed or underway to facilitate and support general economic growth, energy extraction, international trade and/or to support new plants and production facilities. Infrastructure development

follows growth in trade and other economic activity, and the Corpus Christi region is seeing expansion of infrastructure to facilitate overall transportation in support of growth.

The South Texas region is already home to a large and broad based general economy. With significant new economic growth, heavily driven by petroleum extraction and its related spinoff activities, growth in U.S./Mexico and international trade in general and a growing manufacturing sector, especially in Corpus Christi, the South Texas region is in for a sustained period of growth.

Other direct and indirect benefits to the region of continued growth include residential and commercial construction, highway expansions, commercial air traffic growth and multiple other spinoffs to support growth in economic activity and the population to serve that growth. When layered on top of the existing growth in the region's economy, South Texas is in a sustainable growth mode for the coming decade.

### PORT SPECIFIC STRENGTHS

As a major public economic entity of South Texas, the Port Authority is a key strategic enabler to the region's growth. The port has multiple strengths. By its very deep-water nature, the port has access via high capacity vessels to multiple links in domestic and global trade. That allows South Texas industry efficient access to markets worldwide for cargoes ranging from gasoline to corn. The port's somewhat diverse cargo base gives the Port Authority a relatively balanced revenue base acting to partially mitigate normal business cycles.

The port district complex has broad capabilities for handling key cargo types, particularly crude oil, natural gas liquids and petroleum products that fits perfectly with the types of cargo coming on stream with Eagle Ford development.

The port has similar ability to handle dry bulk cargoes. This capability fits perfectly with the growth in dry bulk inputs for hydraulic fracturing. Efficient access to global and domestic producing markets for dry bulk commodities coupled with existing infrastructure to move cargo from the docks to interior consumption points are a key strength of the Port of Corpus Christi. Dry bulk cargo capacity and global market access are also key attractions for multiple industries that rely on bulk cargo for production inputs or outputs.



Efficient global market access is an essential requirement for chemical manufacturers. The Corpus Christi area is currently home to a broad based chemical industry that trades cargo globally. That has been true since Celanese Chemical was drawn in 1945 to its site west of Bishop in Nueces County. A key driver for this industry to invest in the Corpus Christi area is cost effective access to markets by rail, highway, pipeline or water transportation. The industry infrastructure already in place is another key enabler for chemical plant expansions. Petroleum products are essential raw materials in chemical manufacturing. As additional low cost feedstock becomes available in the region the existing

infrastructure and experience in handling chemical products could be strong attractants for additional expansion.

A final and essential strength for the community is the Port Authority itself. Long established in the area, the Authority enjoys broad political and local support from regional stakeholders. Port industries and operations provide high-wage employment to the community. Activity on the waterfront provides excellent employment opportunities and growth in port-related jobs should follow the projected increase in waterborne commerce. Access to multiple interstate highways, a robust warehouse network and access to a competitive rail networks facilitate the inland movement of cargo to markets throughout North America. Lastly, a crucial strength of the Port Authority is its stable financial condition, the result of thoughtful stewardship by management and policymakers. The Port Authority has cash available that could allow it to capitalize on growth opportunities.

### PORT GROWTH OPPORTUNITIES

The Port of Corpus Christi is currently dealing with growth opportunities and challenges imposed by the booming South Texas energy industry and new manufacturing facilities drawn to a source of low cost natural gas and feedstocks.

Contributing to this set of opportunities is the expansion of existing port-related manufacturers, new crude pipelines and terminals, the extended La Quinta Ship Channel, an attractive business climate and access to established efficient transportation networks. Port related growth is creating new training and employment opportunities for South Texans who seek to improve their employment and income potential. As new industries come on line with investments in plants and equipment, it will create a cycle of additional jobs, income and associated investment.

Growth in marine cargo volume is in part a function of how quickly new manufacturing facilities can be brought into operation. New or expanded industrial developments have been announced by TPCO



America, Cheniere Energy, voestalpine Texas, M&G Resins USA, OxyChem, LyondellBasell, Castleton Commodities and Trafigura Terminals. Tank and terminal operations are being expanded by Martin Midstream, NuStar, Plains Pipeline and others.

Eagle Ford production is a new global source of crude oil, natural gas and gas liquids. At one point production from the formation was expected to reach 850,000 barrels per day (b/d) by 2015, peaking at 871,000 b/d by 2020. By mid-2013, Eagle Ford production had surpassed the 800,000 b/d level. A significant portion of that production is moving to Corpus Christi area refineries which have been modifying facilities in order to process more light South Texas crude. This has resulted in a change in petroleum products moving across the docks. In 2010, approximately 500,000 barrels per day of imported crude oil moved into Corpus Christi area refineries. Since then there has been a stunning reversal. By mid-2013, foreign imported crude volumes had dropped to approximately 250,000 b/d while outbound crude had jumped to approximately 580,000 b/d. (Chart data through Sept. 2013).

### Crude Oil Shipments Inbound and Outbound 2007 - 2013A



The Eagle Ford represents significant potential for growth in water shipments of crude and petroleum products. Gasoline and diesel fuel produced by the Corpus Christi area refineries, already a significant source of cargo volume, could grow in the future as shifts in the gasoline market take place amid reduced demand for gasoline in the U.S. Gasoline will likely be pulled onto the water due to refinery shutdowns and shifting demand levels. With additional sources of crude coming online in North America, the domestic markets that utilize the Eagle Ford crude type could become saturated, representing additional outbound cargo opportunities. In addition to crude oil, Eagle Ford is also producing natural gas, natural gas liquids and condensates -- all primary feedstocks for the production of chemicals. The Corpus Christi area is currently home to a significant chemical production complex. Access to this abundant and cost effective source of raw materials may attract additional or expanded chemical manufacturing to the area, resulting in additional waterborne commerce.

The hydraulic fracturing process is a further potential source of growth for port district volumes. Located not far from the Eagle Ford, the port is well positioned to capture shipments of specialty sands, barites and various other bulk products used in the oilfield drilling and production process. These bulk commodities, both domestic and imported, represent opportunity for growth. Drilling and line pipe are also heavily utilized in the petroleum production and transportation process. Inbound pipe shipments have been moved over the docks in 2013 and more are anticipated in the future.

Industrial development project investments are the most tangible signs of opportunity being realized. Projects now in the works include:

**TPCO America** is in the process of building a 500,000 ton per year pipe production facility at Gregory. The first phase of the complex is expected to be in operation in 2014 and will take existing pipe and remanufacture it. The second phase will be a steel making operation. This facility will consume raw steel as its feedstock, a material that more than likely will pass over the port's docks. In addition to the raw materials consumed in the production process, plant production will go to both domestic and export markets. A pipe production facility can drive other industry to locate nearby including pipe coating, specialty pipe processing facilities and transport operations.

**M&G Resins** has purchased property and is permitting a plastics production facility that is expected to produce 1.2 million tons a year of PTA (purified terephthalic acid) and 1 million tons per year of PET (polyethylene terephthalate). M&G will be a major rail customer of the Port Authority and will ship an estimated 14,000 railcars of product annually. Production is expected to be consumed in the U.S. and Mexico. A primary reason M&G picked the property near the Viola Turning Basin is that the facility will have access to three major railroad carriers. The Port Authority is developing plans to build a barge dock to serve the \$1 billion plastics complex but M&G is expected to generate limited waterborne traffic. A production facility of this size could attract other manufacturers that could produce additional waterborne commerce. With access to a growing market, it is possible that M&G's production could attract extruders for production of beverage containers or other packaging types, facilities to add further value to the raw plastic material such as coloring of material or firms that package the plastic product from bulk into smaller unit sizes.

**voestalpine Texas**, a 100% subsidiary of the leading international steel-making and processing group **voestalpine AG** headquartered in Austria, is in the process of permitting a 2 million ton per year hot briquetted iron production facility on La Quinta Channel. voestalpine has leased 485 acres of the Port Authority-owned La Quinta Trade Gateway property and plans to construct a deepsea bulk handling dock. The channel extension is being deepened to 45 feet to serve this and other future docks. The natural gas based facility will convert pre-processed iron oxide pellets into highly metalized iron in the form of Hot Briquetted Iron (HBI). HBI is comparable to the highest quality scrap or pig iron and is therefore an excellent feed material for high quality steelmaking. In contrast to coke-based blast furnaces, the direct reduction plant will use only natural gas as the reducing agent, making it much more environmentally friendly. About half of the plant's production is expected to go to the company's steel mills in Europe. The other half will go into international markets. A preliminary agreement is in place to sell several hundred thousand tons per year to a steel mill in Monclova, Mexico, a cargo that may move by rail or ship. A facility like voestalpine has the potential to attract other industry that would add value to the steel production plus suppliers for the production process and byproducts for movement out for further processing elsewhere.

**LyondellBasell**, a worldwide chemical manufacturer, has announced an expansion of its Corpus Christi ethylene production facilities and plans to install two natural gas liquids (NGL) fractionation units which will produce ethane, propane, butanes and natural gasoline from Eagle Ford shale NGLs.

**OxyChem** has entered into a joint venture with Mexichem to build an ethylene cracker at OxyChem's facility located on La Quinta Channel. OxyChem and Mexichem have entered into a long-term strategic supply relationship in which essentially all of the ethylene produced from the cracker will be consumed by OxyChem in the manufacture of vinyl chloride monomer (VCM) utilizing its existing VCM capacity. VCM will be exported over OxyChem's docks to Mexichem for the production of polyvinyl chloride (PVC resin) and PVC piping systems.

In 2012, Occidental Petroleum Corporation acquired the former Naval Station Ingleside from the Port Authority. The property, which includes approximately 915 acres of channel-front property, a pier and wharf, is now known as the Oxy Ingleside Energy Center. Occidental has announced plans to construct a propane export facility and is considering opportunities to move additional products through the facility. Development of this property could provide significant opportunities for growth in waterborne commerce.

**Flint Hills Resources** also purchased a portion of the NSI property and has constructed a new ship dock as a companion to one that has been at the location for decades. These facilities have efficient pipeline links to the company's refinery in Corpus Christi and to South Texas oil and gas fields. The docks and terminal tankage are used for moving both inbound and outbound liquid bulk cargoes.

A major potential contributor to future port tonnage is the liquefied natural gas (LNG) export facility being permitted by **Cheniere Energy** on a site the company owns just west of Sherwin Alumina on the La Quinta Channel extension. More than \$50 million has already been invested in engineering and other project development activities for the \$10 billion facility. Permitting continues with a final decision on construction expected at the end of 2014. At full build-out it would have three LNG production trains and two ship berths. This export facility will help to sustain production of natural gas in South Texas and support thousands of jobs in gas production, processing and transmission.

Eagle Ford Shale production of a growing volume of crude oil and natural gas liquids has spurred the development of a diverse set of port terminalling operations on the Inner Harbor:

- **Trafigura Terminals** continues to expand pipeline, tankage and dock capacity on the Inner Harbor for moving outbound crude oil. The company is also working on development of a natural gas condensate splitter on its property near the Tule Lake Turning Basin.
- **Castleton Commodities** is in the midst of permitting a facility on 80 acres west of the Bulk Terminal. It would include tankage, a natural gas condensate splitter and at least one deepsea dock.
- **Martin Midstream** continues to expand its crude oil and terminalling operations north of the Corpus Christi Turning Basin. Martin is using existing public oil docks and has completed conversion of Cargo Dock 10 for use as an oil dock.
- **NuStar** operates a large tankage and terminalling operation near the Corpus Christi Turning Basin. It is in the process of replacing the aging Cargo Dock 12 with a new single-user deepsea oil dock.

- **Plains Pipeline, LP**, has established a tankage terminal and contracted with the Port Authority which allowed the upgrading of Oil Dock 5 as a barge dock just west of the Viola Turning Basin.

As Eagle Ford production volumes grow and as export or domestic markets react to this new stream of petroleum products, there likely will be additional firms that construct new facilities near the ship channel. The economic activity generated by all of these firms represents a significant potential for additional waterborne commerce, improved job opportunities and broad regional economic growth.

The energy exploration and production industry itself should attract multiple spin-off businesses that could generate additional cargo movements. Potential spin-off industries could include pipe distribution, additional pipeline construction activity, machinery dealers, and facilities to process raw materials that are used in the hydraulic fracturing process. Additionally, as further development of offshore oil and gas resources expand, there will likely be Western Gulf demand for additional onshore support facilities and for fabrication of offshore equipment, an industry with a long history in the Corpus Christi area.

To support the addition of new plants and facilities and added petroleum production, the South Texas region will see growth in other industries to support this economic activity. New or expanded warehousing activity and other parts of the logistics supply chain will see growth. Residential and commercial construction and other infrastructure related activity will see growth as the economy and population grow. Retail and wholesale trade volumes and employment opportunities will benefit.

Wind energy equipment has been an active source of waterborne commerce at Corpus Christi in recent years. The port has seen wind energy components moving both as imports and exports. This activity is highly dependent on government regulations and subsidies in the U.S. and in other countries. If a favorable regulatory environment remains in place the port should continue to be an attractive location for moving and marshalling this equipment.

## **THREATS TO THE PORT AND THE PORT AUTHORITY**

Major growth in energy development and additional manufacturing plants that take advantage of water transportation and lower energy input costs represent major economic opportunities for the area. Achieving the projected growth, however, is not without risk to Port Authority throughput and revenues. The pipeline industry is in a significant expansion mode to transport crude oil, natural gas and gas liquids out of the region. New and future potential pipelines are a serious competitive threat to the movement of cargo volume via ships and barges.

**ENERGY MARKETS** - An added threat to increased port volume could be energy markets themselves. Those markets are global in nature with complex supply chains and pricing mechanisms that respond to supply and demand. Significant new quantities of petroleum are coming on line in North America. Those new oil and natural gas sources are changing pricing in multiple markets and causing refiners and chemical producers to change long-standing supply chains and production processes. It is possible that market forces outside the control of the Port Authority could shift some potential volume away from the port to other destinations.

**REGULATORY CONSTRAINTS INCLUDING THE JONES ACT** – The Jones Act of 1920 requires that when goods are moved between U.S. ports they must be carried on vessels that are U.S. built, owned, operated and crewed. Working in the Jones Act marketplace can result in costs that are far higher than

if such restrictions did not apply. In recent decades there has been little need to move petroleum between U.S. ports and therefore there are only a relatively small number of vessels currently available for this purpose.

The American maritime industry suffers from a lack of capacity of these Jones Act vessels. With supply constricted and demand growing, vessels will go to their highest profit use which may not necessarily be to and from Corpus Christi. The supply/demand imbalance could lead to even higher shipping rates, a real competitive threat to waterborne commerce. Vessel capacity issues could be an impediment to capturing the growth in petroleum products and related domestic materials used in the petroleum extraction process. With the world gradually recovering from recession and cargo volumes increasing, seaports in North America are experiencing a new level of congestion. That congestion leads to higher cost because of delays. Delays further contribute to vessel supply shortages. Therefore, vessel and port constraints both represent threats to waterborne commerce.

Other regulatory constraints also have an impact. Federal law prohibits the direct export of U.S. produced crude oil and wellhead condensate. At least a minimal amount of processing is required to clear this hurdle. Changing gasoline formulas, decreases in fuel consumption in the U.S., clean air regulations, fuel taxes and multiple other governmental regulatory issues could impact future volume of petroleum products moving through the port. As mentioned, any withdrawal or modification of regulatory subsidies will impact wind energy equipment shipments.

**OTHER CONSTRAINTS** - The Port of Corpus Christi faces other challenging constraints on industrial development. These include water supply reliability and electric power distribution and future power generation capacity.

Labor shortages, particularly workers with specialized skills, have been identified by port customers as a major constraint on their ability to be competitive and successfully move forward with new projects. It will be necessary to mobilize and train more residents of South Texas for technical and semi-technical work. It will also be necessary to attract and hold high quality labor from other markets.

The Port Authority faces other potential threats that may impact the ability to efficiently handle projected increases in vessel calls and tonnage. One of those potential threats is the inability to fund infrastructure upgrades to match growth. To safely and efficiently move projected future volumes and take into account larger ships and the gradual increase in the size of ships, the Port Authority may need to implement all or part of the Channel Improvement Project which includes channel widening and authorized deepening to an operating depth of 52 feet. It is impossible to know how large the ships sailing the world's oceans will be decades from now. History indicates that vessels will continue to increase in size. New, large vessels are typically deployed on the world's longest and largest trade routes. The "smaller" vessels on the service are forced to re-deploy to the next most efficient service for that vessel size. This cascading continues until the most marginal vessels in the fleet are forced to be scrapped. Cascading typically increases average vessel size for each trade service, placing demands on ports like Corpus Christi to support larger capacity vessels with higher bridges and deeper channels. U.S. ports will need to make bridge and channel upgrades to take advantage of post-Panamax vessel opportunities and for larger vessels resulting from cascading over the next few decades.

Some of the Port Authority's cargo handling facilities are threatened by the public desire to see them converted to non-industrial use. Some PCCA facilities on both the north and south sides of the Inner

Harbor will be eliminated by the Harbor Bridge Replacement, assuming the locally preferred route alternative is selected in the ongoing environmental review process.

Leisure time, cultural and visitor attraction facilities have encroached on cargo handling areas on the west side of the existing Harbor Bridge during the past 25 years. It is possible that this trend toward public use areas near the waterfront will continue in the decades to come. This threat will present the Port Authority with difficult decisions about how much break bulk and general cargo capacity the port will have and where it will be located.

Lastly, with continued growth there will be new questions as to whether the highway and rail infrastructure in the two-county port complex is adequate to efficiently accommodate the potential business available.

## **OPPORTUNITIES ASSESSMENT SUMMARY**

Corpus Christi and the South Texas region are in the process of significant growth now and for at least the next decade. Energy industry and manufacturing sector growth in the area represent large, dramatic and positive changes in overall future waterborne commerce on the Corpus Christi Ship Channel. Growth in South Texas and Texas in general are additional pluses due to the port's attractive location, deep water, cargo handling capabilities and community acceptance.

Growth potential for the port district is not limited to the petroleum industry. A growing manufacturing base and the diversity of cargo point to a strong future for the Port of Corpus Christi. While there are threats to potential growth, most of those threats can be mitigated through advance planning and careful asset management. Accomplishing the Port Authority's mission year after year will depend on working closely with customers and potential customers to find solutions that help keep their operations competitive in the marketplace and that reflect a long-term view of financial, community and natural resource stewardship.

## ***2.8. Panama Canal Impacts***

The Post-Panamax Era in world trade will arrive in 2015. Numerous studies have been commissioned and speculation continues about just how completion of the Panama Canal expansion project will impact ports located on the Gulf Coast and the Atlantic Seaboard. Trade patterns will change but because there are so many variables it is difficult to predict just how the marketplace will respond to the changes that will be introduced by the new canal capacity. It will certainly provide an alternative to U.S. and Mexico West Coast ports. It will be a time saving option for bulk carrier voyages that would otherwise use the Suez Canal or go around the Cape of Good Hope.

An early assumption was that the wider and deeper canal would create a dramatic shift of container traffic from West Coast ports to Gulf and Atlantic ports. Although some shifting is certain, the investments in existing supply chain infrastructure along with market pricing adjustments could temper possible cargo diversions. The canal will, however, result in significant growth in bulk exports from Gulf Coast ports using bigger ships.

## PANAMA CANAL EXPANSION PROJECT

The Panama Canal Authority is working toward completion in 2015 of a project which will add a third set of locks with greater dimensions than the existing two sets of locks. The updated canal will be able to accommodate vessels up to 1,200 feet in length with a beam of 160 feet and a draft of 50 feet. The existing locks are limited to 965 feet by 106 feet by 40 feet respectively. As a result, the opening of the larger locks and deeper waterways will allow post-Panamax container vessels of up to 12,000 TEU (twenty-foot equivalent units) capacities to use the canal. That compared to a current maximum ship size carrying about 4,400 TEUs. The economics of the use of the larger vessels may encourage some steamship lines to use the all water route via the canal.



One of the main drivers in expanding the canal was the perceived near term limit of the capacity of the existing canal system. Wait times were an issue during the peak shipping surge years of 2004 and 2005. And projections indicated that the capacity of the current canal could be reached in about 2015. It is believed that the expansion project will provide sufficient capacity for existing traffic flows for the foreseeable future.

The expansion project will provide the opportunity to accommodate larger container and bulk vessels. The major emphasis in impact studies has been on the increased vessel sizes able to use the third set of locks. A second and often overlooked impact is the overall increase in throughput and the expanded tonnage it will be possible to carry through the larger dimensions. This will allow an increase in the number of vessels that can transit between Gulf ports and point in the Pacific Basin.

Concentrating on changes associated with vessel voyage impacts overlooks the actual shifts in supply chain strategies of various shippers. Simply stated many of the projected changes cannot occur without associated upstream and downstream changes to the supply chain strategies of major shippers. If the rerouted voyages would negatively impact the associated supply chain strategies or require substantial shifts of displacement of existing supply chain infrastructure, major shippers may simply stay with their existing routings and upstream and downstream infrastructure as the efficiencies and cost savings associated with larger vessels may not be greater than the costs of relocating or shifting the supply chain infrastructure.

The major impacts under study appear to be concentrated on Asian import containers bound for the U.S. However there are two major factors which could seriously diminish the growth of post-Panamax container traffic into U.S. Gulf ports. The first is the existing West Coast import model which allows a substantial number of the international 40-foot containers which arrive at the West Coast to be cross docked into larger 53-foot containers and moved east via the U.S. rail system. This practice allows the quick turn of international containers. It also allows a substantial portion of the tonnage to terminate in the major West Coast consumption markets while making available the ability to repackage multiple

commodities into truckload lots destined for specific storage or distribution centers, greatly enhances the efficiency of the retail supply chain.

Any discussion of trade impacts to Gulf Coast ports should not be limited to direct container traffic. Liner services could be consolidated at Caribbean ports for transshipment in smaller vessels to Gulf Coast and East Coast ports.



A factor in the container market is the recent growth of Caribbean regional “megaports.” These facilities increase the efficiencies of East Coast and Gulf Coast container moves by consolidating large volumes at the megaports and providing feeder services to multiple Gulf Coast and East Coast container terminals. This practice also allows for the integration of Latin American markets into the megaport distribution system furthering economies of scale associated with this concept. The megaports provide a quicker turn of container ships which is appealing to steamship companies. The economies of scale combined with quick vessel turns can more than compensate for the additional costs associated with the handling and short-term storage of the containers at these new megaports.

## **BULK SHIPPING**

Bulk shipping is likely to be the major growth area for deepwater Gulf ports as a result of the Panama Canal expansion. Prospects for this growth have been highlighted by the sustained movements of bulk shipping through the canal post-recession while container services declined.

These bulk trades could also be impacted by the development of petroleum related export facilities in the Gulf, especially for LNG and LPG. Much of the Panama Canal literature was written prior to the growth of U.S. shale oil and natural gas production. This dramatic shift in energy availability has led to

the prospect of dramatic growth in export markets such as LNG and LPG, and has given rise to expanded industries such as petrochemicals which prosper with low cost energy sources.

The export of grain through U.S. Gulf ports will benefit from the ability to utilize post-Panamax size vessels in serving Asian markets. Existing Panamax vessels could be replaced by Capesize vessels which will decrease transportation costs per bushel. This will make Gulf ports competitive with Pacific Northwest ports for upper Midwest grain traffic which is presently subject to high rail rates to those ports.

## **MARKET AND TRADE TRENDS**

Shifts in global production associated with the canal will impact movements through Gulf Coast ports. The growth of low cost natural gas supplies in the Gulf Coast region has made the siting of new energy intensive facilities in the region more likely. This is confirmed by recent selection of sites on the Texas Coast for new plastics, primary metals and chemical plants. The expanded canal provides the ability to both move a sufficient number of vessels and transit larger ships with the associated economies of scale.

Impacts could result from either diversion or creation of new markets. Diversion is simply the shift of port calls from West Coast ports to Gulf or East Coast ports as a result of the canal expansion. New markets may be created by providing an entirely new efficient supply chain option which gives rise to the creation of new industries over time.

## **CONCLUSIONS**

- The expanded canal provides the opportunity for movement of larger container vessels which will reduce costs and will compete with rail bridge traffic. However, the heavy investment existing supply chain infrastructure, consumption points in the Western U.S., Caribbean megaports, and market based pricing to maintain existing rail bridge volumes will temper the use of mega-ships calling at Gulf Coast ports.
- The introduction of low cost energy has led to the development of new facilities which will produce bulk goods such as plastics and processed iron which could take advantage of a larger canal.
- Increased energy exports will be able to utilize the widened canal and load Very Large Gas Carriers (VLGCs) and full sized LNG tankers which make Gulf energy exports to Asia even more competitive compared to current market pricing.
- The expanded canal offers the opportunity to utilize larger grain vessels can serve Asia and could provide a low cost alternative to Pacific Northwest ports for rail dependent grain shipments originating in the upper Midwest.
- The additional set of locks means the canal will have the capacity to pass a greater number of ships of all sizes each day. This is a very important change in world trade debottlenecking.
- The Corpus Christi Ship Channel currently handles post-Panamax vessels and it is permitted and authorized to -52 feet, a depth greater than the expanded canal at -50 feet.

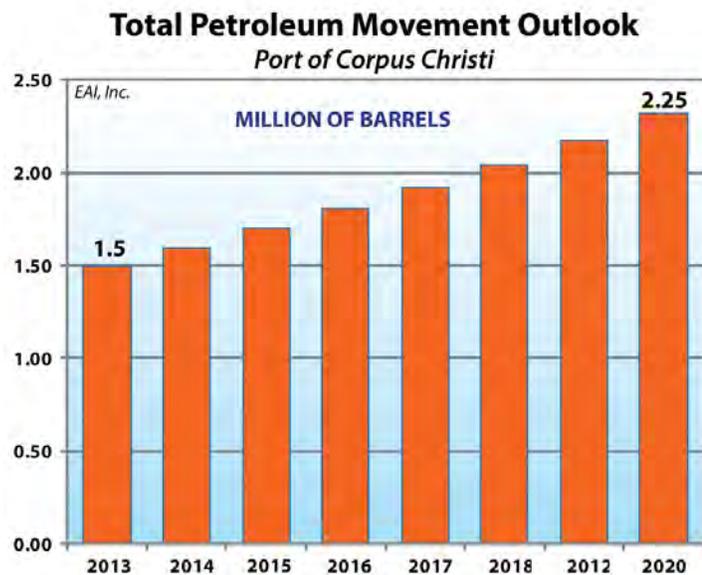
# 3. External Trends Impacting Decisions

## 3.1 Energy Movement Outlook

Development of the Eagle Ford Shale in South Texas has dramatically accelerated petroleum-related cargo movements on the Corpus Christi Ship Channel. Because of the many impacts of this fast moving disruptive force, the PCCA employed the services of EAI, Inc. (Energy Analysts International), a national energy industry consulting firm. EAI has developed outlooks for crude oil, condensate and refined products movements through the Port of Corpus Christi based on oil patch production and a look at transportation infrastructure, refining capabilities, market hubs and global supply. EAI’s full summary report – “Energy Movement Outlook” – is included as **APPENDIX 1** of this Strategic Plan.

EAI’s team has decades of experience in energy industry trends, economics, resources, refining and logistics. They employ a comprehensive set of models and data to support their analysis and outlooks.

Total petroleum movements across the docks at Corpus Christi are forecast to increase from 1.5 million barrels per day in July 2013 to 2.25 million barrels per day in year 2020. That is a compounded average growth rate of 6.4% -- a jump of approximately 50% during the next seven years. This total represents both inbound imported crude oil and outbound Texas light crude, condensate and all finished refined products such as gasoline and diesel.



### CRUDE OIL AND CONDENSATE

Imported crude shipments declined 15% in the year ending in July 2013. Area refineries have replaced almost all light and medium crudes previously imported with Texas light crude. Since early 2012 outbound shipments of Texas crude and condensate have increased from near zero to more than 385,000 barrels per day.

This activity is being driven by three factors:

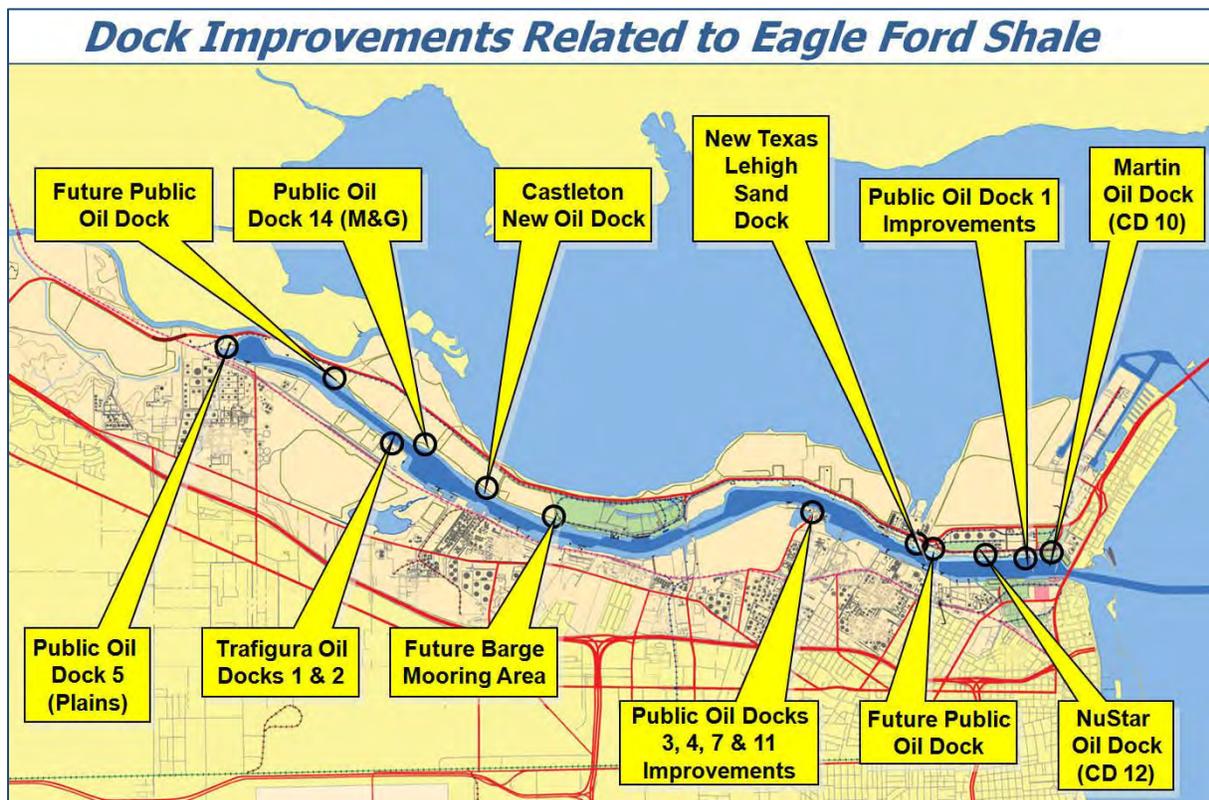
- Rapid growth in Eagle Ford production.
- Local refinery saturation with Eagle Ford crude.
- A market for Texas light crude in the Gulf Coast refinery hubs east of Baytown.



EAI found that pipeline capacity from the Eagle Ford headed toward Houston is currently being underutilized because a combination of capacity bottlenecks including refinery access and saturation in the Houston area market. Shipments through Corpus Christi will increase and as the Gulf Coast refinery market is saturated more of the Texas crude will go by marine vessel to East Coast refineries which are set up to run light crudes. East Coast markets, however, are a primary outlet for Bakken Shale crude moving via rail which will present growing competition.

## REFINED PRODUCTS

EAI examined the outlook for the overall Corpus Christi-San Antonio-Austin-Waco-Dallas-Fort Worth Corridor to determine likely demand for gasoline and other light refined products. Gasoline demand in the U.S. and in the Corpus Christi to DFW corridor is forecast to decline due to mandated improvements in motor vehicle fleet fuel efficiency among other factors. This has encouraged the trend to export greater amounts of refined products to foreign destinations. Exports of light products and intermediates are expected to grow longer term (post 2017) with increases in refinery output, contributions from planned splitter units at Corpus Christi and accelerated decline of domestic hydrocarbon based gasoline. In the shorter term exports are expected to recover in 2014 to 2012 levels (they were down in 2013) and undergo moderate decline in the 2014 to 2017 timeframe due to some domestic demand recovery for gasoline and distillate products.



## OIL DOCK DEMAND

A projected 50% increase in waterborne petroleum movements at Corpus Christi over the next few years has prompted a significant wave of new oil dock planning and construction. Plans for several new oil/bulk liquid docks were being pursued with urgency by private companies and by the Port Authority in late 2013. Among these are multiple docks planned by Trafigura Terminals, the NuStar dock at the

former Cargo Dock 12, Martin’s temporary facility at Cargo Dock 10, Public Oil Dock 14 adjacent to the M&G plant site, a Castleton Commodities dock, and a potential deepsea public oil dock near Viola Turning Basin.

### NATURAL GAS, NGL AND LNG OUTLOOK

Natural gas and associated natural gas liquids (NGLs) production has increased rapidly in the Eagle Ford and in West Texas. The EAI base case outlook is for an increase in Eagle Ford natural gas production from 3.3 billion cubic feet per day (cf/d) in 2013 to approximately 6 billion cf/d in 2020. In a high case this could ramp up to 9 billion cubic feet per day if unconstrained by demand and infrastructure. As the system or market for handling NGLs becomes saturated more of these commodities will be exported. The recent increases in propane exports out of the U.S. Gulf Coast are a result of this trend.

The abundance of natural gas in the U.S. and particularly in Texas, coupled with higher value of gas in foreign markets, is driving the effort to build facilities that can produce liquefied natural gas (LNG)



for export. The proposed Cheniere facility on the La Quinta Channel is seeking needed federal approvals and is well positioned to be a player in this market. EAI concludes that it is likely this facility will win both a federal operating license and a license to export to non-Free Trade Agreement countries.

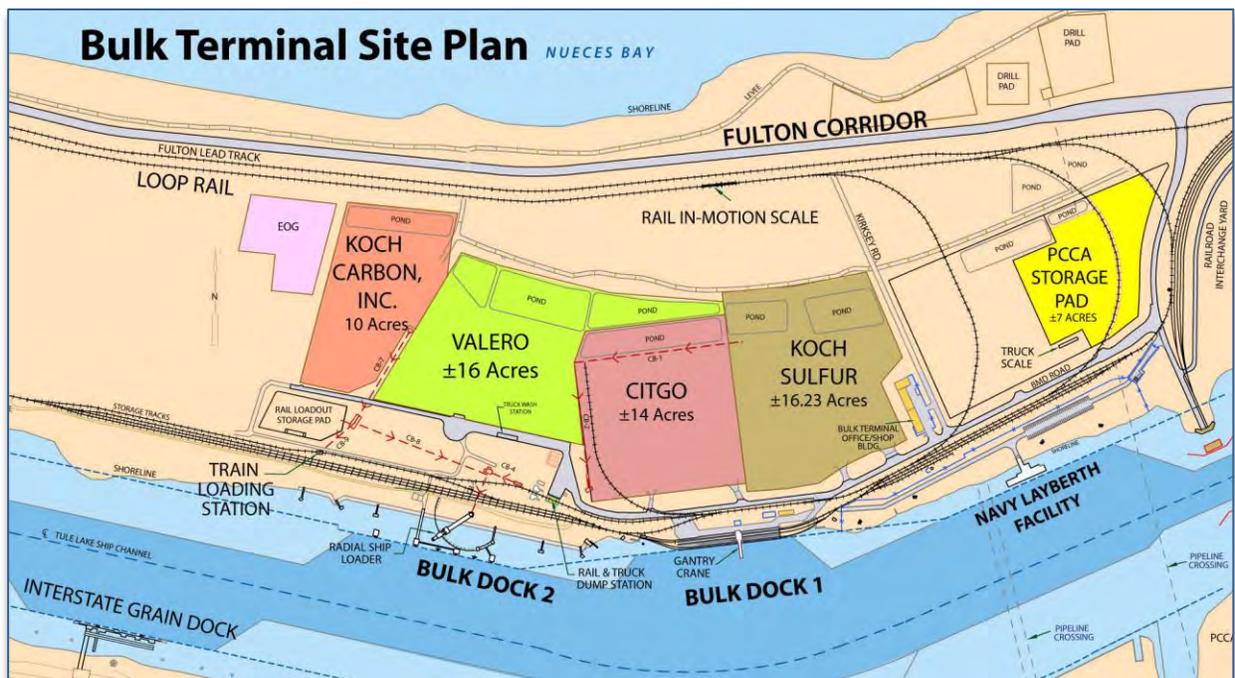


**Bulk Materials Terminal**

### 3.2. Bulk Terminal Forecast

The Port Authority’s Bulk Terminal was first put in service in 1959 when bond funds were used to build Bulk Dock 1 and install the traveling unloading crane. Commodity holding pads were developed over the decades to accommodate an evolving list of bulk cargo handled. Bulk Dock 2 which is used to move outbound bulk commodities was put in service in 1985 with a conveyor system and rail lines designed to more efficiently move materials on and off the site. A loop rail track was added to the terminal in 1998. The terminal plays an important role in supporting local industry and care should be taken to maintain required capacity and service.

In 2006 the basic mooring and dredging components for the future Bulk Dock 3 were built. This facility is leased as a long-term layberth for Navy LMSR vessels.



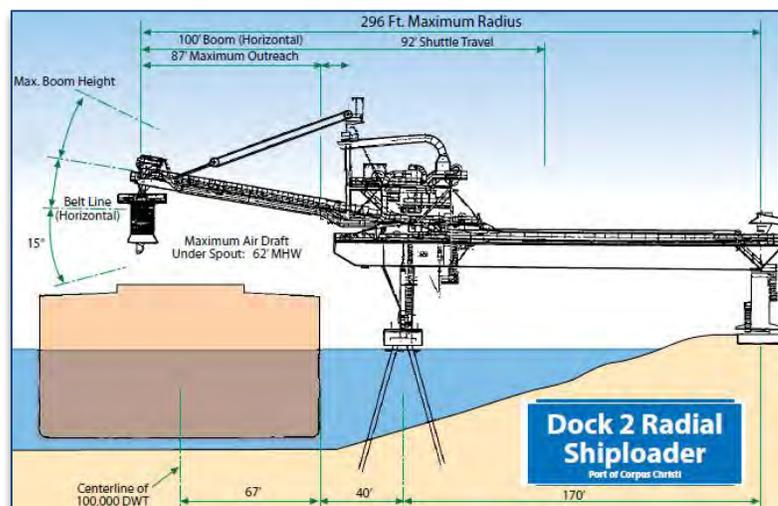
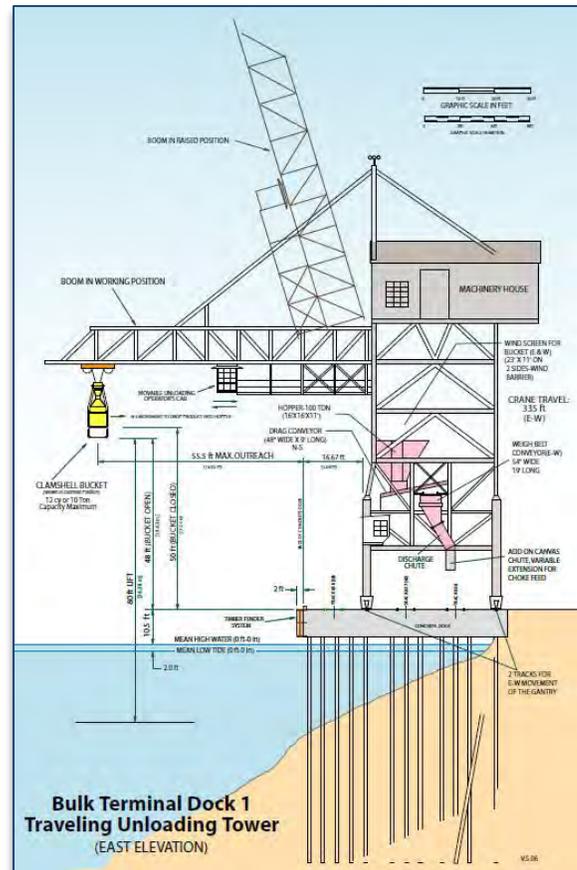
The facility includes leased pads where local oil refiners stockpile materials prior to shipment outbound by water or by rail. This activity is a vital part of the logistics chain for these customers.

Bulk Terminal stockpiles and material handling equipment span many acres and create environmental challenges. PCCA has worked to modify the site in ways that have reduced pollutants in storm water runoff dramatically. Overall operations have been modified to keep air emissions within permit limits.

**Bulk Dock 1** is used to unload inbound commodities such as barite, iron ore-related slags, specialty sand, rutile sand, bauxite and grain products. The **Bulk Dock 2** shiploader is used to handle outbound commodities such as petroleum coke, sulfur and some coal. Bulk Dock 2 has 45 feet of water depth at the dock while the older Bulk Dock 1 is limited to 34 feet of water at the dock face.

In recent years the primary role of Bulk Dock 1 has been to unload imported barite, coming primarily from Asia, which is an important weighting ingredient in oil and gas drilling fluids. In the recent past barite volumes were in the range of 300,000 to 400,000 tons per year. With the expansion of Eagle Ford Shale and Permian Basin drilling program the demand has more than doubled barite tonnage in 2013 with ships commonly waiting in line for time at the dock. One component of this growth is the availability of lower quality barite which must be blended with higher quality material to meet required specifications. With a total of three barite grinding plants operating near the Inner Harbor and a proposed fourth, the current forecast is that barite shipments could grow to 800,000 to 1 million tons per year. Shipments of furnace slag, rutile sand and grain products over Bulk Dock 1 are anticipated to continue but not necessarily increase.

The estimated sustainable capacity of Bulk Dock 1 is just less than 2 million tons per year. The 55-year-old traveling gantry crane has been maintained and upgraded with various components added. It was declared to be near the end of its service life 20 years ago. The Port Authority should continue to monitor the cranes remaining service life. It is considered likely that additional barge unloading capacity will be needed at the terminal in the future. The Authority should continue the planning process for completing Bulk Dock 3 which would accommodate deeper draft ships, faster unload times and a more efficient operations.

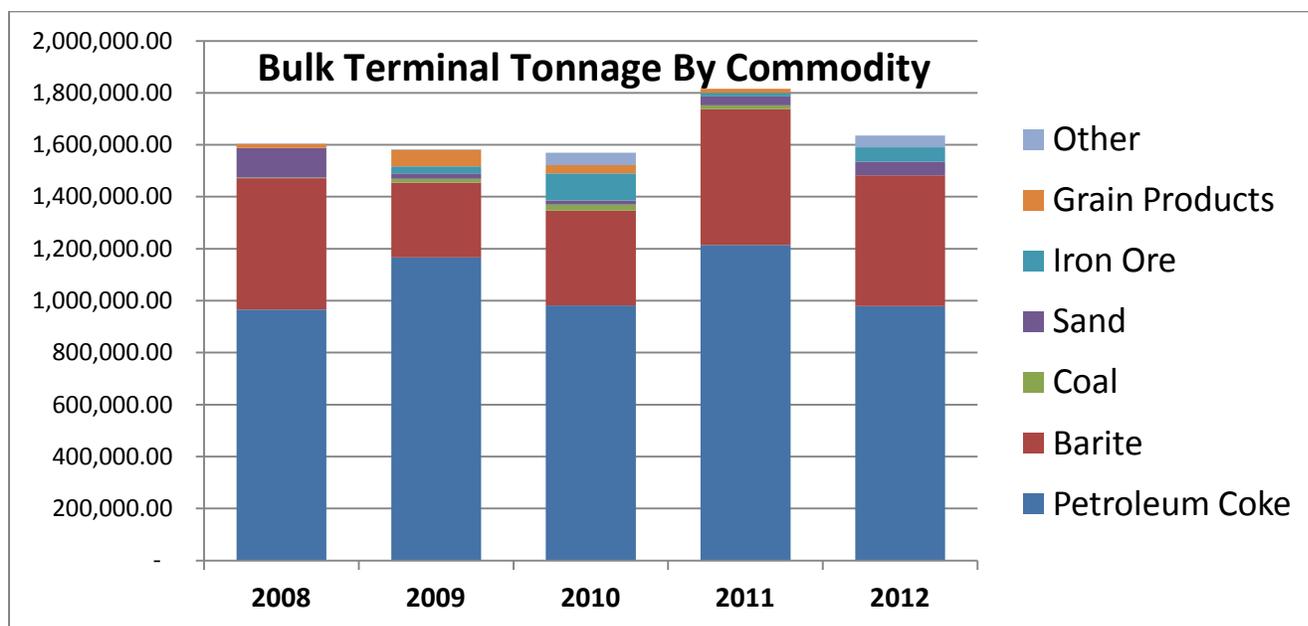


**EXPORT COAL** - Over the past four years interest in exporting coal at the Bulk Terminal has gone from no interest to a high of 40 million tons per year and then back to seriously diminished interest. Currently the export coal market has shrunk substantially. The domestic market has seen older coal fired power plants closed with some being refitted to burn natural gas. Wind and solar power driven by regulatory incentives have created additional pressure on coal. The enthusiasm for export terminals among coal producers has diminished. At the peak there were 185 million tons per year of new export capacity planned, mostly on the West Coast but also on the Gulf Coast. There are only three projects in the Pacific Northwest still being pursued. Together they would total about 45 million tons per year of export capacity. In the Gulf there are a handful of projects moving forward with backing from coal producing companies. Discussions with a variety of coal producers, railroad representatives and brokers leads to the conclusion that for the next two years it appears that the coal export market will not shift significantly up or down.

**PETROLEUM COKE** - The core business of Bulk Dock 2 is the export of petroleum coke. Additional coke shipments go from the Bulk Terminal by rail to cement kilns in Mexico. With the ongoing shift of Corpus Christi area refineries to lighter Texas crude oil, the export volume of coke at Bulk Dock 2 has declined from a high of 1.25 million tons in 2011 to a current forecast of 850,000 tons in 2013. Assuming no further change in refinery crude runs and pet coke production, volume at Bulk Dock 2 over the next five years is likely to remain at about 850,000 tons per year. Approximately 250,000 tons a year are being exported to Mexico by rail through the terminal’s outbound cargo handling equipment.

Local refineries also produce sulfur as a result of crude oil processing. Some 35,000 to 50,000 tons per year of sulfur is shipped outbound from the Bulk Terminal.

Combining the increase in imports of barite with the decrease of petroleum coke handled, the total tonnage at the Bulk Terminal looks favorable for the next five years with total volume at approximately 2 million tons moving over the docks and 250,000 tons moving out by rail.



## **BULK TERMINAL SUMMARY**

As a standalone operation, the Bulk Terminal has a viable future and investments for operational improvements should be considered to reduce cost. While the Bulk Terminal meets existing air quality permit standards, additional efforts to manage particulate emissions should be considered to facilitate growth opportunities.

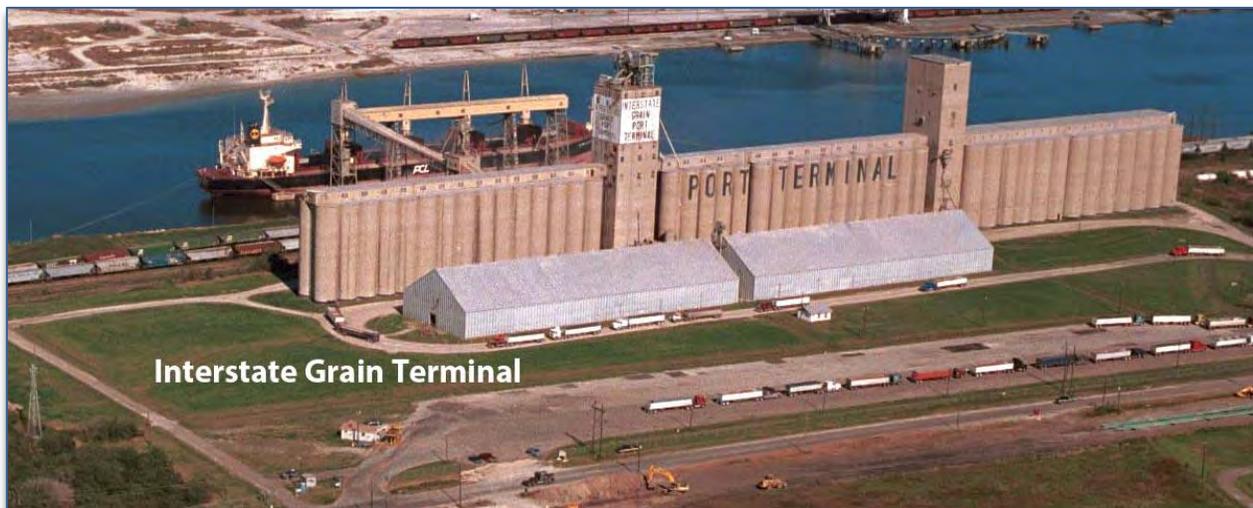
The Port Authority should continue to monitor cargo volumes at Bulk Dock 1 and evaluate development of Bulk Dock 3 as a way to deliver expanded and faster unload times.

The Port Authority should continue to explore export opportunities, monitoring export demand to determine the best time to potentially lease the Bulk Material Terminal to a private operator. In the alternative, PCCA should consider investing as needed to support expected business levels, improve the efficiencies of rail to stockpile transfers, and evaluate expansion of the conveyor system to eliminate double truck haul moves.

### 3.3. Agricultural Exports Forecast

There are two large privately-operated grain export terminals located at the Port of Corpus Christi Inner Harbor. The Corpus Christi Public Elevator built in 1952 is owned by the Port Authority and has been under long-term lease to Archer Daniels Midland Co. (ADM) since early 2000. The Interstate Grain Corp. elevator on the south side of the Tule Lake Channel has been in service since 1961. Both terminals have 45 feet of water at dockside and can load Panamax size vessels with a maximum cargo of approximately 70,000 tons. Both elevators are configured for efficient grain export and are not designed or equipped to import any products.

The majority of U.S. grain exports through Gulf of Mexico port flow via the Center Gulf or the Mississippi River area. Major export terminals can unload arriving barges and trains which improves their competitive position. The size of the U.S. grain crop in any given year is the driver that determines how much volume will flow to various ports for export. During smaller crop years Corpus Christi will only see a few months of product movement, normally right at new crop harvest time in South Texas. In bumper crop years the Corpus Christi elevators sometimes see steady movements for nine months during the year. Corpus Christi is seen in the industry as a “swing” port of reserve capacity that is used as an outlet when the more competitive Gulf Coast elevators are running at full capacity.



The Interstate Grain Corp. facility is capable of unloading 110-railcar shuttle trains. The elevator is served by the BNSF and Union Pacific railroads. Interstate’s primary commodity export is wheat destined to Nigeria. Since Interstate is located beside the Union Pacific mainline, it is served direct by the railroad delivering the trains with no assistance from the Port Authority railroad (CCTR). The Port Authority collects half wharfage tariff on cargo at the Interstate dock.

Since leasing the Public Elevator, ADM has invested heavily to improve the facility’s inbound truck and rail unloading capacity. They have also improved dock and shiploading facilities. ADM uses this terminal primarily for exporting soybeans to Asia. They can unload up to three 110-railcar shuttle trains per day. ADM is located on Port Authority owned rail track allowing the Authority to earn revenue from rail shipments. Under terms of the facility lease ADM is treated as a private dock operator and pays half wharfage on grain exports.



One of the areas of ADM investment has been in increased track for car storage. ADM has also added a rail unloading pit for sand and distillers dried grain to help diversify their business portfolio. BNSF is the primary delivering railroad for ADM because BNSF is the primary rail carrier in those states producing a significant portion of the U.S. soybean crop.

With the construction of the Nueces River Rail Yard Phase I and II, the Port Authority will be adequately positioned to support all the traffic that ADM would or could move to export. There are no indications that the Authority will be required to invest significant capital to directly support the grain export business in the future.

There is a small market at Corpus Christi for delivery of inbound distillers dried grain (DDG), a by-product of ethanol production used for cattle feed. This commodity moves by barge to a location on Rincon Channel and is trucked to Odem for distribution by Planters Coop. Due to an extremely small corn crop in 2012 there have also been some corn imports by ship to Bulk Dock 1 with the grain unloaded to truck using the gantry crane.

The current and forecast grain export business, including the needs of South Texas grain producers, is well served by existing infrastructure and the expanded rail flexibility that will be achieved with completion of the Nueces River Rail Yard.



### 3.4. Break Bulk Cargo Forecast

The Corpus Christi community originally built their seaport to handle general cargo, in particular South Texas cotton and other agricultural products. The Port Authority has consistently pursued general cargo over the past 65 years but geography and rail connections have always limited the success of this effort. Containerization revolutionized general cargo transportation worldwide in the 1970s and 1980s but Corpus Christi was unable to participate in this profound shift. Container traffic in Texas is driven by demand in the Houston and Dallas-Fort Worth markets and the Port of Houston has developed facilities well-suited to serve this trade.

Today the Port of Corpus Christi is not served by a regular shipping line and has no steady stream of break bulk or general cargo. Rather, cargo moved over the general cargo docks comes in the form of intermittent “project” cargo such as pipe, wind turbine components, military equipment and bagged minerals.

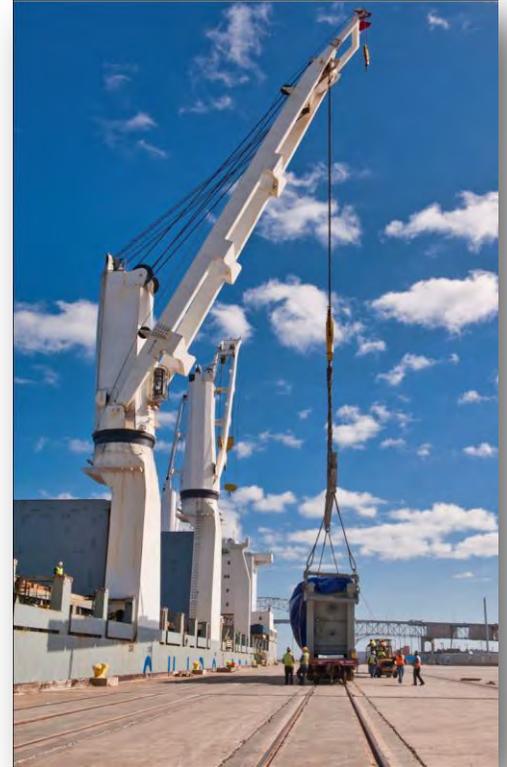
The Port Authority maintains Cargo Docks 8, 9, 14 and 15 with three on-dock transit sheds plus more than 120 acres of open storage areas. Cargo Dock 8 is a high strength open dock designed for all types of cargo including heavy lift items.

Break bulk cargo volumes over the past 15 years have been as high as 256,000 tons in 2008 and as low as 18,800 tons in 2001 with an average of approximately 150,000 tons per year.

Break bulk cargoes moving across the general cargo docks and private docks have made up less than 1% of port tonnage each year over the past two decades. Movement of wind energy components are expected to rebound in 2014 to 2012 levels with an estimated 68 vessel calls and \$2.75 million in revenues. The inbound portion of this activity, however, is subject to future regulatory uncertainty and tax incentives. The export market for wind components is growing as U.S. production of this equipment ramps up.

Opportunities exist for targeting additional cargoes that could efficiently move through the port’s existing general cargo facilities. Without commitments to consistently move cargo over these docks it is difficult to produce a meaningful forecast of likely activity in the next three years. Based on business development information it is reasonable to project that volumes will average in the range of 200,000 tons per year.

The development of Caribbean transshipment hubs related to the expansion of the Panama Canal and growth in trade with Central and South America will enhance the opportunity for additional break bulk and containerized cargo moving through Corpus Christi in the next few years. This could provide the market conditions for development of a multi-purpose general cargo and container facility on 150 acres adjacent to the new San Patricio Turning Basin at La Quinta Terminal.



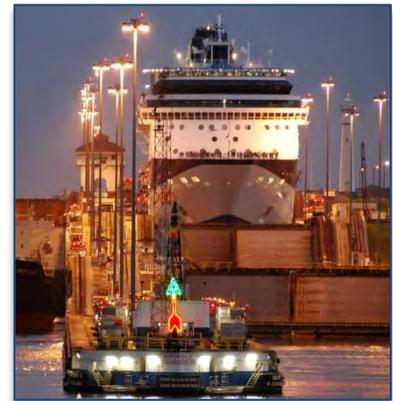
### 3.5. Cruise Line Homeport Potential

The cruise industry is still going strong and growing in North America, as well as the rest of the world. According to the Cruise Lines International Association in 2012 a total of 10.1 million passengers cruised from U.S. ports. This is approximately 2.5% growth over the previous year. Growth rates at U.S. ports have slowed in recent years at the same time that passenger counts have increased in other parts of the world.

The three ports of embarkation on the Gulf of Mexico are Galveston, New Orleans and Tampa which together accounted for 15.6% of the 2012 U.S. passenger embarkations.

In 2012, Galveston was the only cruise port in Texas, embarking 604,000 passengers, or 6% of U.S. passenger embarkations. Cruise activity in Texas accounted for \$1.24 billion in direct spending which generated 16,342 jobs paying \$944 million in income.

The most popular destination in the world for cruising is still the Caribbean with 37.3% of 2013 worldwide cruises deployed to this region. Cruises sailing from ports in the Gulf of Mexico primarily call in western Caribbean ports such as Cozumel and Costa Maya, Mexico, Belize, Honduras, Grand Cayman and Jamaica.



#### TODAY'S CRUISE FLEET

The main cruise lines sailing regularly from U.S. ports are Carnival Cruise Lines, Royal Caribbean Cruise Line, Norwegian Cruise Lines, Princess Cruises, Holland America Cruises and Celebrity Cruises. Each of these lines has been building new ships with the average size of these new cruise ships continually increasing. Almost all ships for these lines are either Panamax (the largest vessel that can fit through the current Panama Canal) or post-Panamax. Almost all future deliveries of new vessels for these companies will be post-Panamax.

These larger vessels not only make economic sense, with greater economies of scale, but they also give the lines the opportunity to add more exciting features to their vessels.

On the other hand, these larger vessels are more restricted in the ports they can enter. The largest of these vessels are more than 1,100 feet in length with an air draft of 236 feet. Some ports do not have turning basins to accommodate these large ships while other ports have height restrictions, such as bridges or power lines that these vessels cannot pass under. Even the smaller Panamax vessels have air drafts of about 170 feet. The Corpus Christi Harbor Bridge has vertical clearance of 138 feet.

#### DEPLOYMENT

Cruise Lines base their deployment decisions on two main factors – the potential profitability of the homeport and the nautical/physical aspects of the port.

#### Potential Profitability

There are many factors that a cruise line considers when determining the potential profitability of a homeport. The first is how convenient the port is to large population bases in their target markets. This

could mean a convenient drive market, significant existing airlift capacity or a combination of the two. Airlift is the number of available airline passenger seats in a given market.

For the drive market, they would examine the size of the population within a few hours drive of the port, as well as the income levels of that population. Different cruise lines target different demographics, so they would look at how many people live in this drive range with an annual income over \$50,000, \$75,000 or even over \$100,000. They would then compare this population to the next closest potential homeport. Naturally, there will be overlaps, so if there are more people in this target market in another homeport, the cruise line would lean toward the other port.

Airlift is also extremely important. If the port under consideration does not have significant airlift then it would need to have a substantial population base at the right income levels to make this primarily a drive destination.

Naturally, if the port has a great population with the right demographics within an easy drive, as well as significant airlift, it will pass the first test for convenience.

Once this is determined, the cruise line will look at potential itineraries and cruise lengths from the candidate port. The cruise line not only needs a convenient homeport, it also needs to offer attractive itineraries. The cruise length is important because some lines focus on shorter cruises (seven days or less), and others offer longer cruises. If it is not possible to offer an interesting itinerary within the target length of the cruise then homeporting for the potential port will not move forward.



Other factors are also vital in the profitability question such as fuel consumption on the potential itineraries, costs of goods and services in the port, and direct port charges including pilotage.

### **Nautical and Physical Aspects of the Port**

As mentioned above, today's generation of cruise ships is much larger than in the past. If the vessel cannot safely enter the port, then obviously the ships will not homeport there. Some ports may have the option of enlarging their channels or turning basins, and raising overhead obstructions, but this may be prohibitively expensive.

Homeport vessels also need an adequate terminal to embark and disembark their guests. Cruise lines are very concerned about guest comfort so there needs to be enough space under air-conditioning for plenty of security and check-in lines. For debarkation, there should be a separate area for luggage, as well as space dedicated to the needs of Homeland Security. Guests embark and disembark cruise vessels from a high deck, so an enclosed, movable air-conditioned gangway is also needed.

Parking is another very important consideration and potential profit center for the host port. Adequate space needs to be dedicated close to the cruise terminal for guest parking.

On the designated cruise ship dock space is needed for provisioning, as well as staging of the many trucks that will deliver provisions during a rapid ship turnaround.

## **Corpus Christi**

To put all of this in the perspective of Corpus Christi, the first issue is the air draft restriction entering the port. Unless the Harbor Bridge is raised, or another location found for a cruise terminal (possibly at the City Barge Dock), then this will be a non-starter for the cruise industry.

If the air draft restriction can be overcome, then the next step would be to convince the cruise lines that there is a lucrative market in the Corpus Christi area. It would be natural for them to compare Corpus Christi to Galveston/Houston. For the drive market, the argument can be made that if both ports had homeport sailings, the San Antonio market would find Corpus Christi more convenient, but the Dallas market would find Galveston/Houston more convenient. Overall, Galveston/Houston has a better drive market.

Next would be the airlift comparison. It would be very difficult to compete with Houston and its two high capacity airports. It is easy to fly non-stop to Houston from most of North America and Europe. Corpus Christi flights are limited to connections through Dallas or Houston. This leaves Corpus Christi as primarily a drive market, as opposed to Galveston/Houston that has an excellent drive and air markets.

Even with the competition from Galveston/Houston, it may be possible to convince a cruise line that the drive market in Corpus Christi is lucrative enough to be worthwhile. The cruise lines would then look at itinerary options, which would be very similar to the itineraries now offered from Galveston. It is farther to sail from Corpus Christi on these itineraries, so this will increase the cruise lines' operating costs.

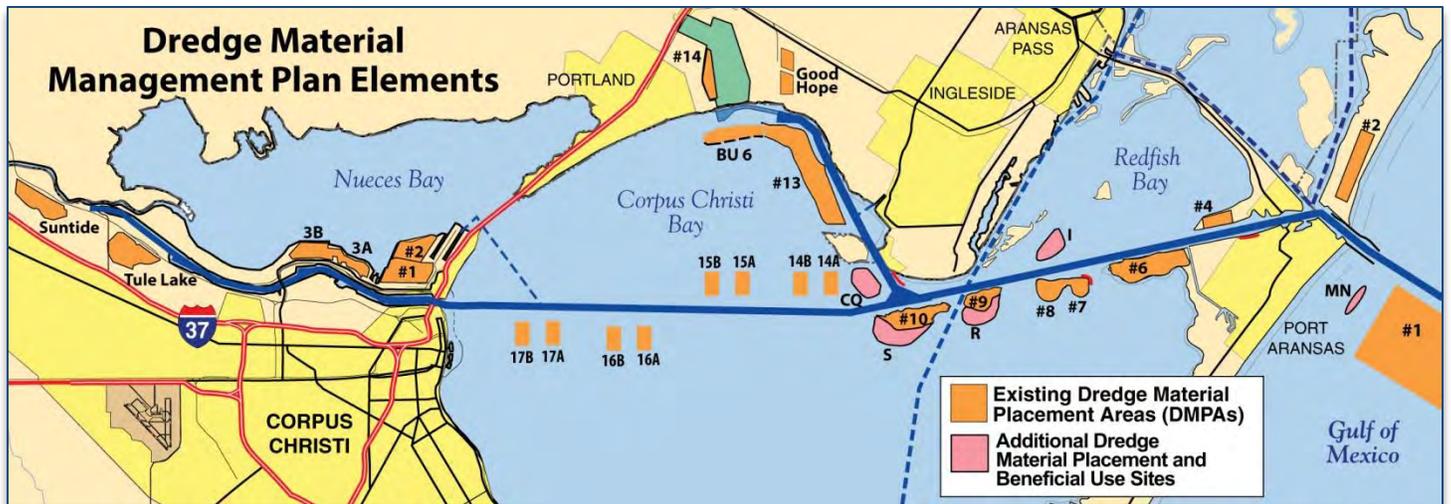
Another consideration is the terminal facilities. Some ports have practiced the "Field of Dreams" approach – if you build it, they will come. For the most part, this does not work. Most cruise line itineraries are confirmed 18 to 24 months in advance, so a long-term agreement with a cruise line is the best approach before investing in a terminal. Even some ports with agreements have found themselves with an empty terminal once the agreement expired and the cruise line pulled out.

Cruise lines can drive hard bargains with ports including large marketing incentives, discounts on port fees, and even a share of parking revenues. The Port of Houston is an example of a port that invested heavily in a terminal but then had no cruise business. They have had to pay a substantial marketing fee, as well as foregoing most of their revenues to attract a cruise line. The Alabama Cruise Terminal is an example of a port that had a short-term contract with a cruise line, then the cruise line pulled out when the contract expired, leaving the City of Mobile paying down a large bond debt used to finance the facility.

In general, there are significant economic benefits in having cruise ships use Corpus Christi as a homeport but there are also financial risks in investing in a cruise terminal and infrastructure without long-term guarantees. Cruise lines consider their vessels to be movable assets and they will move them to markets where they will make the most profit.

# 4. Supporting Strategies

## 4.1. Channels, Basins and DMPAs



All of the deep draft waterborne commerce moving across the public and private docks at the Port of Corpus Christi depends on the availability of a safe, adequate and well maintained Federal ship channel system. Nothing is more important to the port community than maintaining the channel at the fully authorized depth and width. A significant portion of all bulk liquid and dry bulk cargos depend on the maximum channel dimensions for the best shipping economics.

The most important responsibility of the Port Authority in maintaining the authorized depth is the provision of adequate placement sites for silts and sands produced in channel maintenance dredging. In the 1970s and 1980s maintenance dredging and construction of the 45-Foot Project were delayed for years because of conflict over alternative material placement plans. As the non-Federal sponsor of the ship channel, the PCCA has the overall responsibility of acquiring and maintaining dredge material placement areas (DMPAs).

Significantly, when the Corpus Christi Channel Improvement Project was approved in 2007 it included a full 50-year management plan for material placement. The fully permitted plan includes a creative set of dredge material beneficial use sites that will be built in association with channel deepening and widening. In the Inner Harbor all new work and maintenance material will be deposited in existing DMPAs owned by the Port Authority. The PCCA has an active management program to protect, preserve and enhance the system of DMPAs, dredge pipeline easements and vehicular access to placement areas. It will be important for the PCCA to pursue additional mitigation projects needed to support future dredging projects.

The Channel Improvement Project includes several elements – widening, deepening and barge shelves. It may be beneficial to build out channel improvements in pieces as demand develops. A review of channel capacity is recommended along with an analysis of the benefits of widening the Bay Reach at the current 45-foot depth. Significantly, the Federal Government pays 75% of the cost of dredging new channels to depths of 45 feet or less but only 50% for projects deeper than 45 feet. The Federal Government generally pays the full cost of channel maintenance.

Navigational safety is an equally important part of serving the port community. Aids to navigation should be reevaluated to see if changes are needed for safety and efficient channel utilization. Complete removal of the Tule Lake Life Bridge tower foundations, fenders and approach ramps will also improve safe navigation and channel efficiency.

Significant changes in the world vessel fleet will gradually follow the opening of the expanded Panama Canal. The PCCA should continue to review channel capacity and the future vessel fleet to assess long-term channel improvement requirements.



## 4.2. Rail Assessment and Objectives

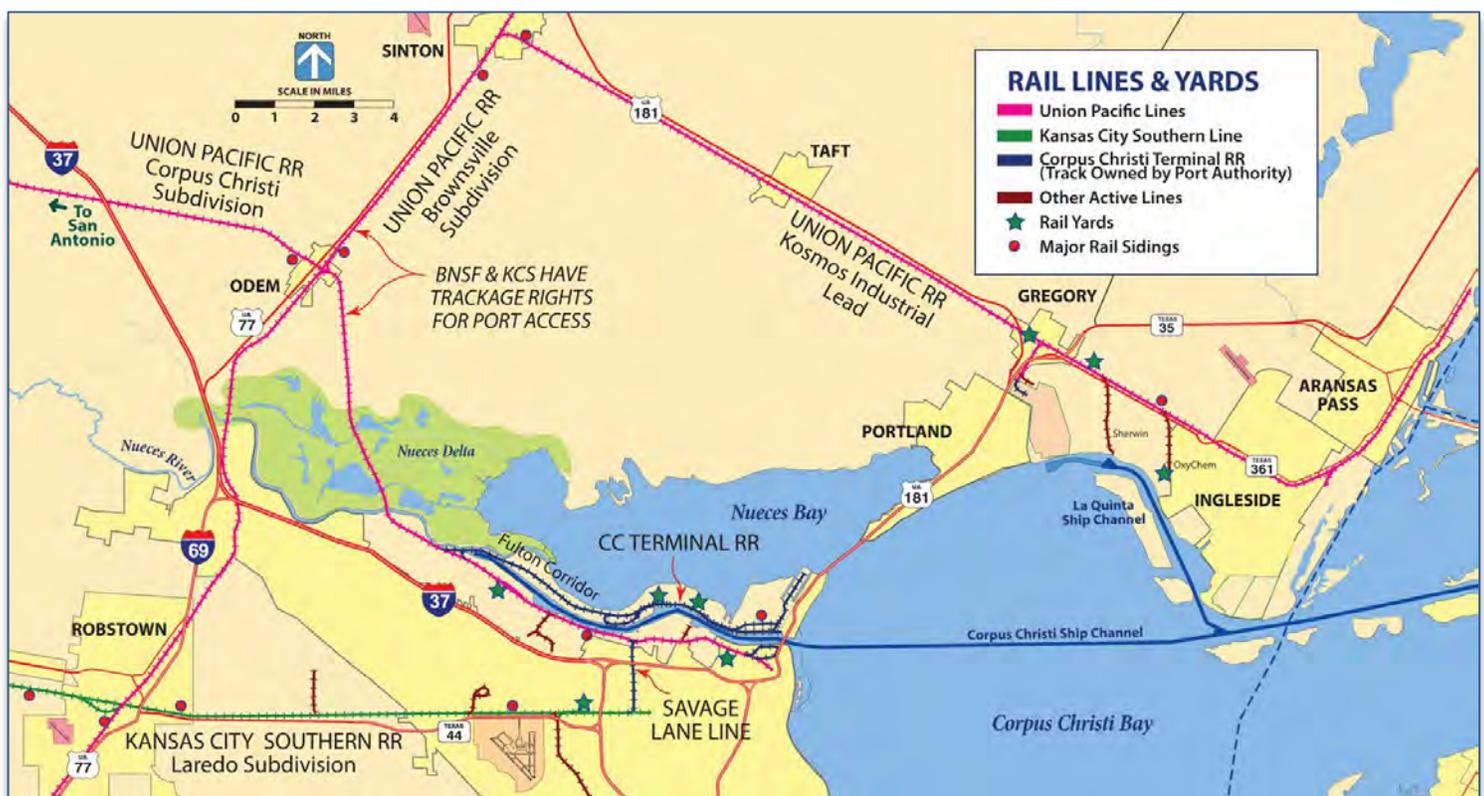
### RAIL SYSTEM DEVELOPMENT

Railroads have been a vital part of the Coastal Bend economy since the first train arrived in 1876, particularly in the period before paved highways. The “Tex-Mex” line, completed from Corpus Christi to Laredo in that year, is now part of the Kansas City Southern Railway (KCS) system.

By 1886 a rail line was complete from San Antonio to Beeville to Sinton and Aransas Pass with a branch line from Gregory and Portland across Nueces Bay to Corpus Christi. This line later became part of the Southern Pacific Railroad (SP). Most of this 150 mile line has been abandoned and removed with the exception of the important Kosmos Industrial Lead which connects Sinton, Ingleside and Aransas Pass. A spur line from Aransas Pass to oil and cargo docks on Harbor Island was completed in 1912 but saw business diminish after the opening of the Port of Corpus Christi in 1926. It was later converted to automobile traffic and then abandoned.

The Gulf Coast line from Brownsville to Robstown and on to Houston was completed in 1907. It later became the part of the Missouri Pacific Railroad (MoPac) and is now the Union Pacific mainline in South Texas.

The San Antonio, Uvalde and Gulf Railway (known as the Sausage) from San Antonio to George West to Odem and then across the Nueces Delta to Corpus Christi was completed in 1914. It was the most direct way into Corpus Christi and it remains the key rail gateway to the Port of Corpus Christi Inner Harbor. It became part of the MoPac and is still active as part of the Union Pacific.



When the Harbor Bridge was built in the late 1950s an agreement was reached granting Southern Pacific the right to use the MoPac line from Sinton to Odem to Corpus Christi. This allowed the SP line from Portland to Corpus Christi to be abandoned and later removed completely.

The Union Pacific Railroad (UP) merged with MoPac in 1982 and took over the Southern Pacific in 1996. The result was that Union Pacific owns all of the track in the Coastal Bend except the KCS line from Corpus Christi to Laredo. As a condition of the 1996 Union Pacific/Southern Pacific merger, both Burlington Northern Santa Fe (BNSF) and KCS/Tex-Mex were granted operating rights over certain Union Pacific rail lines. BNSF was granted rights over the entire line between Houston and Brownsville including the Corpus Christi Subdivision accessing the port from Odem. KCS was granted rights from Victoria to Corpus Christi and Robstown. From Victoria to Rosenberg the KCS now runs on track it rebuilt on a former SP right of way.

The PCCA owns the Corpus Christi Terminal Railroad (CCTR) which includes 43 miles of track in the vicinity of the Inner Harbor including the Savage Lane Line which runs under Interstate 37 and connects to the KCS. The Corpus Christi Railway Association (CCRA) operates an interchange yard serving all three railroads. The CCTR is operated under contract by Rail Link Inc., a Genesee & Wyoming Inc. company which provides similar local rail service and switching at 36 seaports in North America. Construction was started in 2013 on the Nueces River Rail Yard which will add 12 miles of track to the port-owned system.

During the latter half of the 20<sup>th</sup> century limited cargo volumes made it difficult for the railroads to provide service in the Coastal Bend. As trucking took over much of the U.S. goods movement in the 1960s and 1970s rail service in Nueces and San Patricio Counties became focused on delivering grain from North Texas and the Midwest, and on shipping out production from Reynolds Metals and area chemical plants.

## **PORT RAILWAY ASSOCIATION**

The three Class I railroads – Union Pacific, BNSF and KCS – and PCCA make up the membership of the Corpus Christi Railway Association. This organization was formed as a result of a dispute between the rival railroads in 1928 over which one would serve the new port's Inner Harbor public docks. The Interstate Commerce Commission ruled that the Port of Corpus Christi would be served by all three railroads. A contract was developed and the association of railroads was formed in 1929. The association then assumed responsibility for resolving disputes, coordinating operations and overseeing maintenance and capital investments in the port-side railroad. Each of the four parties has one vote. The organization meets on a regular schedule with the Port Authority serving as administrator. A positive working relationship has evolved over the years resulting in better operations, coordination and growth in car counts.

## **CURRENT CONDITIONS**

Although there have been significant changes and mergers in the industry over the past century, in recent years rail transportation has assumed an ever increasing role in the long-term growth of the Coastal Bend and port-related trade. The three Class I railroads – Union Pacific, BNSF and KCS – and the Port Authority have been making investments to better serve this growing demand. It is important to stress that the Inner Harbor is the only location in the Corpus Christi region that is served by all three competing railroads. That means that the most desirable location for new rail centric industrial development and transit cargo handling is in the competitive rail zone that includes all of

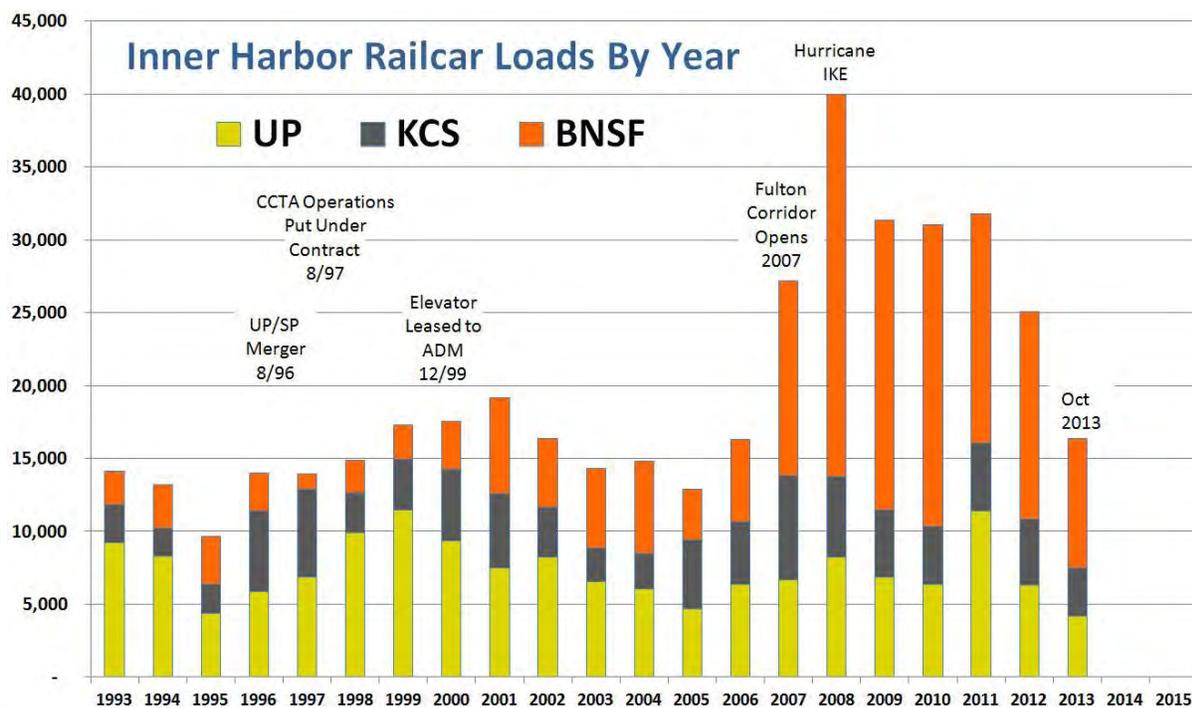
the north side of the Inner Harbor and 1.6 miles of PCCA loop track in the Southside General Cargo Terminal. All other areas of Nueces and San Patricio Counties are served by a single railroad and in most cases that is the Union Pacific.

Today commodities moving by rail in the Inner Harbor district include wheat, corn and soybeans from the Midwest delivered to the two export grain elevators. Some locally produced petroleum coke is exported to Mexico by rail. Imported wind energy components have moved by rail to the Pacific Northwest and Great Plains states. More recently, domestically produced wind components are arriving by rail for export to world markets. Flint Hills Resources, Citgo Refining, Valero Refining and Equistar all have active UP sidings for moving petroleum and chemicals by rail. In support of Eagle Ford Shale production, specialty sand from Illinois and Wisconsin is railed to Corpus Christi and then trucked to oil patch destinations across Texas.



The Union Pacific Kosmos Industrial Lead in San Patricio County serves industries along La Quinta Ship Channel. Commodities moving by rail on this line include crushed limestone, alumina hydrate, alumina, lime, chlorine, vinyl chloride, refrigerants, other specialty chemicals and steel. It serves Sherwin Alumina, OxyChem and DuPont and will serve TPCO America's pipe manufacturing plant once it is operational. Kiewit Offshore Services is not on the line but has used it to deliver steel on cars spotted in Ingleside.

The rail volume on the PCCA's Inner Harbor tracks was consistently averaging about 15,000 carloads per year from 1993 through 2006. The Joe Fulton International Trade Corridor road and rail line went into service in 2007 resulting in a significant increase in flexibility and capacity for the CCTR.



A major source of rail delays was eliminated in 2008 with removal of the Tule Lake Lift Bridge which carried both rail and vehicular traffic. Trains coming from Odem can now go directly to customers such as the ADM Public Elevator, the Bulk Materials Terminal and the North Bank Yard. This increased efficiency on the north side of the channel allowed customers to plan more effectively for commodity movements and sharpened competition among the rail carriers.

CCTR traffic jumped from 16,000 carloads in 2006 to 27,000 in 2007. When Hurricane Ike shut down terminals in Galveston for a time in 2008 the annual total jumped to almost 40,000 carloads. The Fulton Corridor has also allowed Corpus Christi to fulfill its role as a military deployment port with greater efficiency.

Rail movements of silica sand ultimately bound for Eagle Ford Shale drilling sites added significantly to CCTR traffic and congestion in 2010 and 2011. This specialty sand does not move in unit trains which complicates the process of spotting the cars for unloading in the port area.

As the traffic mix changed, PCCA embarked on development of a Rail Master Plan to identify and catalog all potential expansion projects. It was completed in 2012 and serves as a guide to ensure rights of way are preserved for the future projects.

The Rail Master Plan identified a new main interchange yard at the west end of the Inner Harbor as its number one

priority. Known as the Nueces River Rail Yard, it is being built in two phases. To help finance Phase 1 the Port Authority and the railroads negotiated a public-private partnership. The \$18 million project is being financed with \$10 million coming from a federal TIGER grant, \$4 million from the Port Authority and \$4 million to be paid by the railroads through a per car surcharge. The yard is being developed in cooperation with M&G Resins which plans a plastics manufacturing complex on adjacent property and will be a significant rail shipper. Working in conjunction with the Texas Department of Transportation (TxDOT), the Port Authority secured additional funding to expand the Nueces River Rail Yard to include eight 8,000-foot unit train length tracks.

### INNER HARBOR RAIL PROJECTION

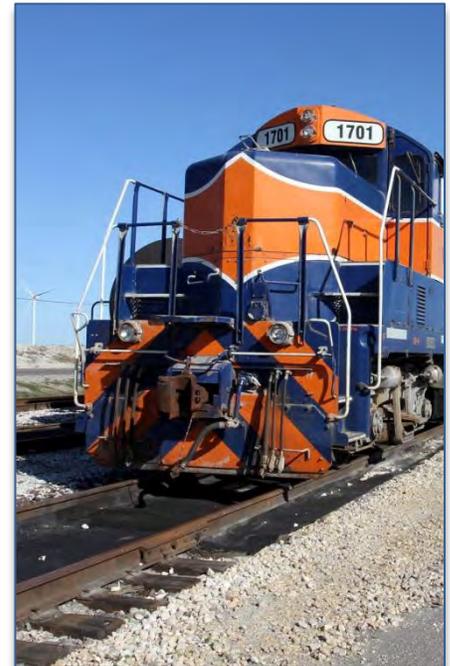
Once completed the rail capacity on the north side of the channel will be adequate to serve current traffic and will have significant capacity for future growth. The port rail system could be handling an estimated 50,000 carloads per year by 2016. Three areas of potential future rail traffic growth include:



- 1) M&G Resins - 15,000 carloads per year starting in 2016.
- 2) Grain shipments, assuming continued improvement in crop production, should generate an additional 5,000 carloads in 2014.
- 3) voestalpine and TPCO America will be manufacturing product by 2016 that can potentially be trucked to the Inner Harbor for transloading to rail, adding up to 5,000 carloads per year.

### THREE CLASS I RAILROADS

Beaumont, a port serving a substantially different market, is the only other Gulf port served by three Class I railroads. Having three Class I carriers on the Inner Harbor was instrumental in M&G's decision to make a \$1 billion investment at Corpus Christi. When voestalpine was conducting its site selection the company did not have rail service as a priority criteria. Subsequent to making the decision of build at the La Quinta Terminal property the company decided that rail service will be important to their business plan going forward. This may include receiving iron ore pellets from the Great Lakes region or shipping HBI to steel mills in Mexico, Mississippi, Alabama and Arkansas. TPCO America has indicated that it will eventually be receiving rail shipments of scrap metal for its mini mill. Rail may also be used to ship out a portion of the plant's future seamless steel pipe products.



The value of having three Class I railroads has been an integral part of the region's economic development asset presentation in recent years. The three railroads provide direct service throughout the U.S., Mexico and Canada. The challenge going forward for the Port Authority is to maintain the option of three railroad access for new developments including the PCCA's La Quinta Terminal property.

### LA QUINTA RAIL SERVICE

La Quinta currently does not have efficient rail access and will require substantial capital investment to address this situation. The initial step proposed in the Rail Master Plan is to provide an alternative route that avoids going through the middle of Gregory. A highway overpass on U.S. Highway 181 at the La Quinta entrance that smoothly handles both truck and rail traffic has been part of TxDOT's plans for more than a decade and will have to be built as part of the relief route project. The San Patricio Rural Rail District is assisting the Port Authority in planning this project.

The La Quinta property will initially be served by the Union Pacific from its Kosmos Industrial Lead running through Gregory. No other railroad company has access to La Quinta at this time. Gaining access to the BNSF or KCS will require that materials be trucked to and from the Inner Harbor for transloading to rail. Discussions have begun with both TPCO and voestalpine about the logistics and requirements involved in such a trucking operation. Although not the most efficient move, this is a common practice throughout North America. Corpus Christi refineries truck 1.5 million tons of petroleum coke from their plants around the channel to the Bulk Materials Terminal for export via ship or movement by rail to Mexico.



The 2012 Rail Master Plan includes a conceptual route for extending a new rail line from La Quinta due west to a point near Odem. This would allow BNSF to serve all users of the La Quinta Terminal. Such a project will require a lengthy regulatory approval process plus right of way acquisition and rail line construction.

The Rail Master Plan offers expansion concepts that will require further analysis and review. This process should continue as part of a process of providing the backbone infrastructure that must be in place to serve the needs of potential waterborne commerce shippers who will be considering a location in Nueces or San Patricio Counties over the next several decades.

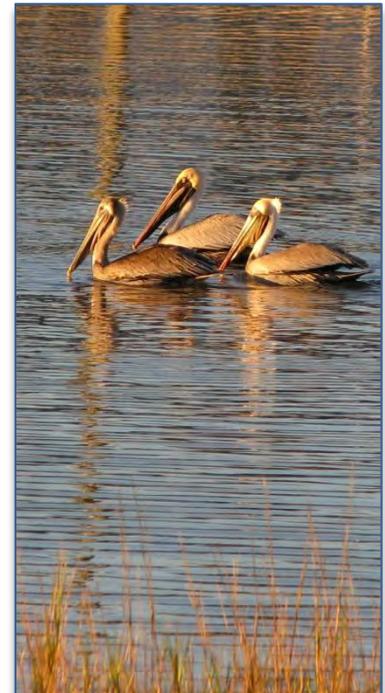
It is anticipated that construction of Phase I & II of Nueces River Rail Yard will support Inner Harbor rail traffic growth through 2020. Attention should be focused on completion of other Inner Harbor rail projects identified in the Rail Master Plan. These include extension of North Bank yard tracks, improved access to Rincon Industrial Park, and further analysis of an East End Turnaround Loop track north of Cargo Docks 9 and 10. Bulk Terminal trackage should also be upgraded to continue to handle rail traffic efficiently at that location.

## 4.3. Support Strategies

### ENVIRONMENTAL STEWARDSHIP

Federal laws and regulations enacted since the 1960s resulted in major changes in the way the nation's port authorities conducted all aspects of their planning and operations compared to earlier years when there was less understanding or regard for natural resource values.

By the 1960s, the Port of Corpus Christi was well ahead of the nation's environmental awakening. The Corpus Christi area had been a significant sport fishing, hunting and tourist destination since the 1890s. There was a strong nature and wildlife conservation movement that was fostered by the owners of very large ranch properties in South Texas. This was instrumental in establishment of the Aransas Wildlife Refuge (1939), Padre Island National Seashore 1962, and Mustang Island State Park (1972). Two men were among those who helped maintain a Coastal Bend focus on conservation and preservation. The first was Ed Harte, publisher of the Corpus Christi Caller-Times who spent 20 years on the board of the National Audubon Society included serving as president from 1974 to 1979. The other was M. Harvey Weil, legal counsel to the Port Commission for four decades and a life-long supporter of conservation, wildlife protection and marine science.



The Port of Corpus Christi and its industrial customers have had an excellent environmental record over the years. To assure quick response, the cooperative Corpus Christi Area Oil Spill Control Association was formed in 1967 by 21 private companies and 14 governmental agencies including the Port Authority. In 1973 the port was recognized as the cleanest industrial port in America at the time. For decades the Port Authority has worked with the Audubon Society to manage Pelican Island, a PCCA-owned rookery island in Corpus Christi Bay. It is a significant nesting site for a wide variety of protected or threatened colonial water birds. With the help of the Texas General Land Office the PCCA has recently constructed extensive breakwaters to reduce shoreline erosion on the island.

Today there is a sophisticated regulatory regime in place that is integral to all operations around the port waterfront. Virtually all dredging, major construction and facility upgrades are subject to an extensive planning and permitting process which includes close coordination with natural resource agencies, groups such as the Corpus Christi Bays and Estuaries Program, university research program representatives and other stakeholders. New projects often require mitigation projects to offset wetland impacts, a process that has created opportunities for creative habitat improvement or restoration actions

Implementation of the Corpus Christi Channel Improvement Project, authorized by Congress in 2007 and documented in the extensive 2003 environmental impact statement (EIS), is being implemented over time following the specific steps and beneficial use components which were developed through more than five years of extensive stakeholder participation. These steps, such as a seagrass protection breakwater at Ingleside Cove and newly created shallow water habitat near La Quinta Channel, will continue to produce increased bay habitat productivity and new areas where wildlife has the opportunity to prosper.

**ENVIRONMENTAL MANAGEMENT PROGRAM** – Members of the general public frequently do not differentiate between the Port Authority and the industries that line the ship channel. To some limited degree the public expects the Port Authority to be responsible for the actions of carriers and shippers when it comes to water transportation safety and environmental stewardship. The specific roles of the Coast Guard, the Harbor Pilots and various incident responders such as the Oil Spill Control Association are less known.

Taking a proactive role in environmental stewardship was a major strategy included in a 1992 PCCA planning document. In the following years the commission and staff pursued that goal. In 2004 an Environmental Management System (EMS) was implemented in cooperation with the American Association of Port Authorities, the U.S. Environmental Protection Agency and Global Environmental and Technology Foundation. By 2007 the Port Authority had achieved ISO 14001 certification for its environmental management program. The result is an enhanced culture of environmental awareness among PCCA employees, port customers, service providers and tenants operating on PCCA-owned property. A single framework has been created which incorporates several longstanding natural resource protection programs.

Among the PCCA's initiatives is a tenant audit program consisting of an annual review of the operations of each lessee or user of port facilities. The intent is to work cooperatively with the customer to confirm they have training and procedures in place to prevent violation of environmental rules.

The Bulk Materials Terminal is the largest facility directly operated by the Port Authority. Operating activity on leased pads and technology for moving cargo at the terminal remain little changed from the 1970s. The PCCA has begun initiatives to address dust emissions and greater storm water control at the facility. This includes plans for covering all conveyor systems and consideration of covered storage for commodity stockpiles.

As part of a multi-faceted conservation program, the Port Authority has committed to reducing water and electric power consumption at PCCA facilities, reusing or recycling waste streams generated by PCCA, reusing dredge material in ways beneficial to the ecosystem, improving storm water runoff, and reducing air emissions.

## **SECURITY AND SAFETY**

Into the 1970s many Inner Harbor facilities were unfenced and the public could often be found in the evening fishing from general cargo docks. As liability, safety and theft concerns increased, fencing went up, gatehouses were added and the number of security personnel increased. Security efforts intensified after 2001. Over the years the PCCA has spent more than \$50 million in grant and local funds for a wide variety of security improvements including camera surveillance systems, additional fencing and lighting. The PCCA spends more than \$9 million a year on security efforts including waterside patrols, landside patrols and security monitoring.

With PCCA property and operations stretching from Harbor Island to La Quinta and the Inner Harbor, there is a continuing need to maintain strong relationships with city, county, state and federal law enforcement and regulatory agencies with security and policing resources and jurisdiction in Nueces and San Patricio Counties. Maintaining collaborative relationships with these agencies allows all involved to maximize resources.

An independent review of all security efforts was initiated in mid-2013. The goal is to evaluate and adjust total security infrastructure, staffing and resource levels as appropriate.

The Port Authority has initiated a renewed effort to provide a safe work environment and eliminate on the job accidents and injuries. This includes providing safety training and highlighting the Port Commission's dedication to safety and creation of a safety culture.



## FINANCE AND ADMINISTRATION

Citizens and community leaders in Nueces and San Patricio Counties look to the Port Authority to maintain the port's role as the most important driving force in the economic stability and growth of the Coastal Bend region. To accomplish its adopted Mission and meet community expectations the Port Authority must make wise decisions for the present and for generations in the future. That requires the appointment of Port Commission members who are practical, financially conservative and at the same time visionary. It requires a management team dedicated to meeting the needs of existing customers and to achieving community economic development goals.

A review of the strategic actions in the Strategic Plan leads to the conclusion that incremental staff additions are needed in 2014 to deal with the workload associated with the changing marketplace, new industrial customers, potential prospects, planning and new initiatives. Additionally, there is a recognized need to further develop plans for managerial staff succession looking out over the 2020 planning horizon. Training and development of staff should be a part of the overall staff reevaluation initiative.

**TARIFFS** - The shifting nature of commercial activity in the port district has prompted a rethinking of the PCCA's revenue sources including rents, dockage and wharfage. Increasingly activities are taking place at port-side facilities that do not result in waterborne commerce. Recent lease agreements are recognizing this and imposing PCCA tariffs on certain pipeline, rail and truck movements in addition to the traditional fees associated with moving cargo on the port's waterways.

The Port Authority has identified projects that will require very large financial commitments. It is important to build reserves in anticipation of these capital projects and to pursue outside sources of funding including partnerships and grant funds. Multi-party participation in development of the Nueces River Rail Yard is an excellent template for some future infrastructure funding.

Over the years the PCCA staff has developed a set of financial models for evaluating return on investment and return on assets for capital project investments, lease agreements and partnership development agreements. These tools should continue to be refined and applied in a manner that recognizes potential risk and provides an adequate foundation for decision making.

**PLANNING** – A successful organization needs an ongoing planning process. Marketplace developments and the needs of major port user industries should be continuously monitored. Plans should be reviewed and regularly revised using a systematic process calendar that includes evaluation of results, revision of forecasts, an update of strategic plan actions and development of capital improvement programs and budgets. Operating metrics should be developed that can be instrumental in financial

evaluation of future capital investment. Metrics might include such items as ship wait times in the Gulf anchorage and the extent of barge stacking in line for dock assignment. The planning process should be driven by top management and have acceptance by key external stakeholders.

## **REGIONAL COOPERATION**

Providing the region with a reliable water supply to meet growing needs and increasing the efficiency and safety of roadways accessing the port district are critical to accomplishment of the Port Authority's stated economic development and business retention mission.

**WATER SUPPLY** – A major rainfall event in October 2013 helped push regional water supplies in storage to more than 60% (including Lake Texana). This brought relief from a three year slide in available water, a reflection of sustained drought conditions. In 2013 regional drought management plans were revised and there was a renewed focus on expanding and further diversifying the region's water supply which currently comes exclusively from Lake Corpus Christi, Choke Canyon Reservoir and Lake Texana.

Long-term reliable water supplies are pivotal in many industrial investment decisions, both for new facilities and expansion of existing port industries. This was no less true 50 years ago than it is today. Previous generations of PCCA leadership have been actively involved in regional water supply planning. They took very active roles in guiding the development of Wesley Seale Dam in the 1950s and the decision to build a second reservoir in the Nueces Basin at Choke Canyon in the 1970s.

The Port Authority took an even greater role during development of the Mary Rhodes Pipeline in the 1990s. To get that project done in the shortest possible time a special joint effort was organized by the City of Corpus Christi, the Nueces River Authority, the Port of Corpus Christi Authority and the Lavaca-Navidad River Authority (LNRA) in cooperation with wholesale water customers. The Nueces River Authority issued the revenue bonds to fund the project and awarded the construction contracts. The Port Authority entered into a project management contract and the PCCA engineering staff took on the role of manager for planning, permitting, land acquisition, engineering and construction of all project components except the primary pump station which was handled by the LNRA. The \$120 million project was done in record time and under budget.

With water supplies again stressed by new demand and extended drought intervals in the current decade, the Coastal Bend is actively pursuing new water supplies from diverse sources with the goal of creating enhanced reliability. The Port Commission has committed to help facilitate the efforts of a coalition of regional parties to increase water supplies available to industry and Coastal Bend communities.

**HIGHWAY CONNECTIVITY** – Roadways that directly provide access to the ship channel, adjacent industrial employers, and intermodal terminals are indispensable to Coastal Bend shippers that must get freight to and from the port area or workers to and from industrial facilities adjacent to the ship channel. Equally important are the inter-regional highways that provide connectivity to points in the port's hinterland.

The public port and its industrial customers in Nueces and San Patricio Counties are served by a modern regional highway system including Interstate 37, US 181, Interstate 69/US 77, State Highway 361, State Highway 35 and State Highway 44. US 77, US 281 and US 59 are being upgraded to interstate highway standard and, as sections are completed, they are being designated as I-69. This route runs from the Lower Rio Grande Valley to Corpus Christi then to Houston and on into East Texas. Interstate 37 connects Corpus Christi to San Antonio, I-10 running east and west, and the I-35 corridor heading to Central and North Texas.

The Texas Department of Transportation has been a strong partner with the Port Authority for decades starting with the construction of the Harbor Bridge and removal of the Bascule Bridge bottleneck in the 1950s. I-37 was built during the 1960s and 1970s creating excellent access to the south side of the Inner Harbor. The Nueces Bay Causeway was reconstructed and widened in the 1980s and the US 181/SH 35 freeway through Portland and Gregory was completed in the 1990s. The Fulton Corridor, which dramatically improved north side access to the entire length of the Inner Harbor when completed in 2012, was a joint project with federal, state and Port Authority funding.



Most recently TxDOT has completed an overpass and other improvements on SH 35 to improve access to the TPCO America plant site at Gregory.

Building a rail relief route around the east side of Gregory and eventually extending a new rail line to Odem will require construction of a US 181 highway overpass project allowing rail tracks to run under the roadway and providing turn-around lanes so that trucks can efficiently move in and out of the La Quinta Terminal property. This project is already included in the Corpus Christi Metropolitan Planning Organization's (MPO) long-range plan and TxDOT has done schematic design work. The average daily traffic count on US 181 at this location in 2012 was 41,000, equal to the volume on Interstate 37 over Port Avenue in Corpus Christi.

Another freight-related highway project that has been advanced involves creating a new interstate highway loop serving port-related facilities in both San Patricio and Nueces Counties. US 77 through the region is being upgraded to be Interstate 69. The proposed loop route would start at US 77/I-69 northeast of Sinton and follow US 181 to Corpus Christi's North Beach where it would cross the proposed Harbor Bridge Replacement. The route would then run west concurrently with I-37, then south on SH 358 and finally west on SH 44 to a connection with I-69 in Robstown. Some sections are already at interstate standard and there are active upgrades underway on Highway 44 west of Corpus Christi International Airport. Once all upgrades are made the complete loop would be designated as an interstate segment with a number such as I-669. Parts of this plan are included in the MPO long-range plan but the entire concept has yet to be added.

While highway and local street access to most ship channel related facilities is good there is a serious capacity problem at Ingleside. All truck traffic and more than 7,000 commuters travel through the city streets of Ingleside daily going to Kiewit Offshore Services, Gulf Marine Fabricators, Flint Hills terminal and the future operations at Oxy Energy Center. Environmental clearance is underway on a new right-of-way relief route on the west side of Ingleside that will be called SH 200. Funding has not been identified.

Coming construction projects at TPCO America, voestalpine, OxyChem, Cheniere and other sites and new permanent employment at these sites will stress the existing highway capacity in the eastern half of San Patricio County. Truck traffic supporting Eagle Ford Shale development has increased dramatically with materials heading west and crude oil and natural gas condensate moving east to port terminals. This is causing congestion, safety concerns and accelerated roadway damage. Close coordination among governmental agencies and rail lines facing these challenges will be essential. The Port Authority should continue to be a strong advocate for expanding and filling gaps in the regional highway system that supports freight movements and worker access to port-related jobsites, particularly in eastern San Patricio County.

Providing connecting freight corridors between ports of entry at Laredo and in the Rio Grande Valley and Texas seaports, including Corpus Christi, has been a core purpose being addressed by Interstate 69 route upgrades in South Texas. The SH 44/US 59 freight route between the Port of Laredo and the Port of Corpus Christi should be added to the congressionally designated I-69 system in Texas.

Making progress on conversion of US 77/US 59 to I-69, upgrades to SH 44 and US 181, and maintenance of I-37 are all important to freight movement connectivity to markets and production centers in Texas and Northern Mexico. The Port Authority should continue its tradition of strong leadership for improvement to those roadways that will expedite goods movement traffic flow in and out the Corpus Christi area by truck.

**HARBOR BRIDGE REPLACEMENT** – Unless unexpectedly sidetracked, a routing decision on the Harbor Bridge Replacement Project will be made at the end of 2014 and construction could begin under a design-build contract sometime in 2016. The current cost estimate for the project is more than \$700 million. In all the local community has pledged \$100 million toward the project and \$600 million in State and Federal funds have been approved. The Port Authority has pledged \$15 million toward the project plus contribution of millions of dollars worth of necessary right-of-way over land owned and controlled by the PCCA.

The Port Commission, the MPO, Nueces County and the Corpus Christi City Council have all passed resolutions voicing their support for the bridge alignment known as the **Red Route**. Starting on North Beach it would bend away from the existing bridge alignment crossing the ship channel at the site of Cargo Dock 10 and continuing in a southwesterly direction to make a direct elevated link to the Crosstown Expressway (SH 286). The bridge is expected to have a vertical clearance of 205 feet compared to 138 feet at the existing bridge. The new clearance would match the 205 feet under the Bridge of the Americas on the Panama Canal.

The average daily traffic count on the existing Harbor Bridge is 51,000 vehicles and the count on I-37 just east of the Crosstown Expressway interchange is 61,000. These volumes have been growing in recent years and are expected to increase as industrial growth in San Patricio County continues.

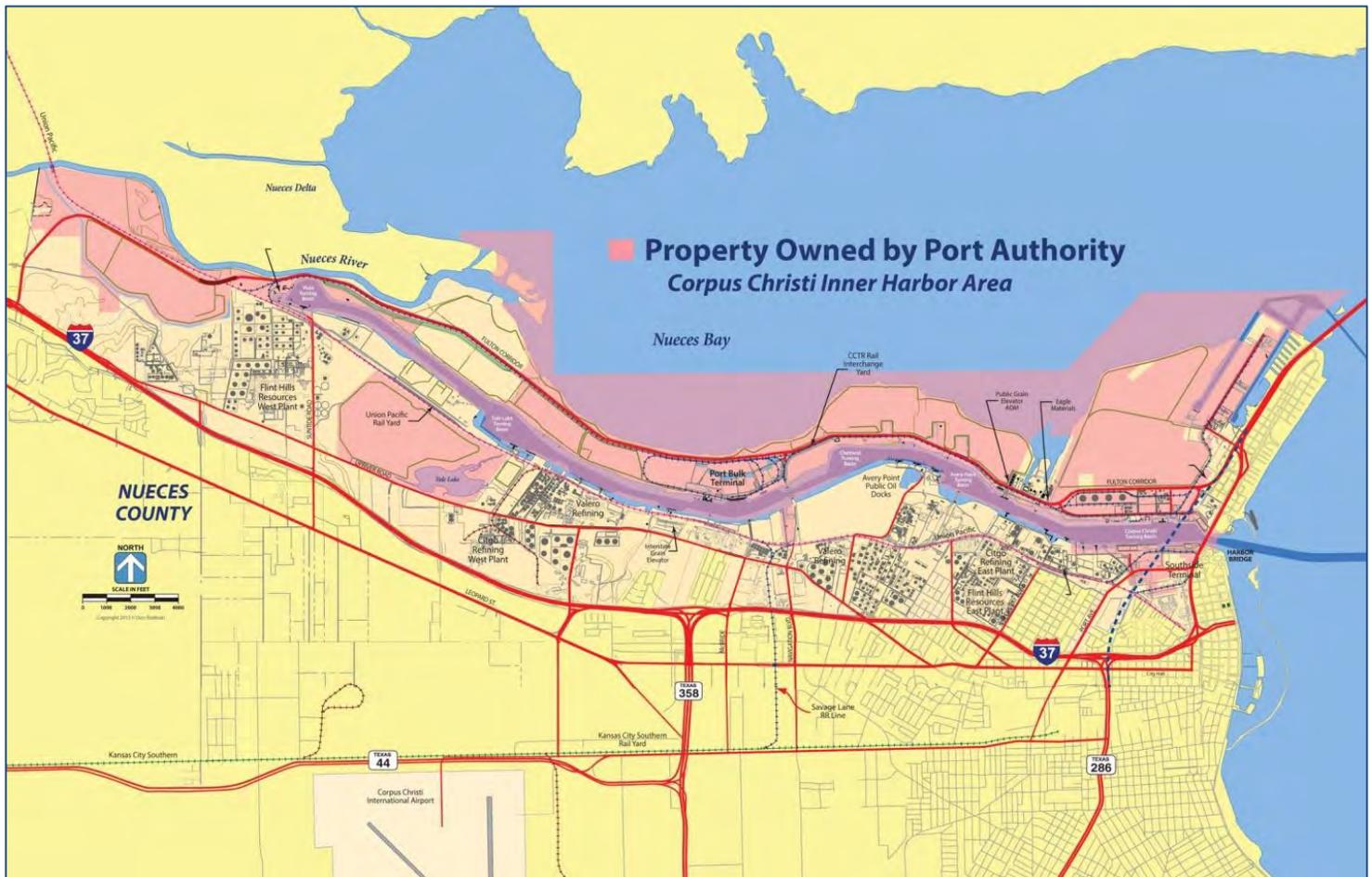
Bridge replacement will change some access points to port-related facilities and will require some realignments and modifications of truck traffic routes at both ends of the new longer span. Once the final bridge route is determined the Port Authority plans to complete an assessment of impacts on port-related commerce, land use and land access corridors.



Removal of the existing Harbor Bridge will create a new landscape on both sides of the channel adjacent to zones where the community has made major investments over the past 40 years including the American Bank Center, museums, a baseball stadium, the Texas State Aquarium and the USS Lexington Museum. The area on the south side of the channel has been designated by the City of Corpus Christi as the SEA District (Sports, Entertainment and Arts) and the MPO has discussed the concept of in the future turning much of the existing Harbor Bridge right-of-way into a parkway to better move entertainment and sports event traffic in and out of the area.

Port Authority assets in this area should be protected from encroachment that could reduce their productive use in supporting waterborne commerce. These assets include the Cargo Dock 8 complex, the Al Speight Yard, the vital rail turnaround loop and the conference center parking with supporting parking.

# 5. Real Estate Management & Opportunities



## 5.1. Port-Owned Property

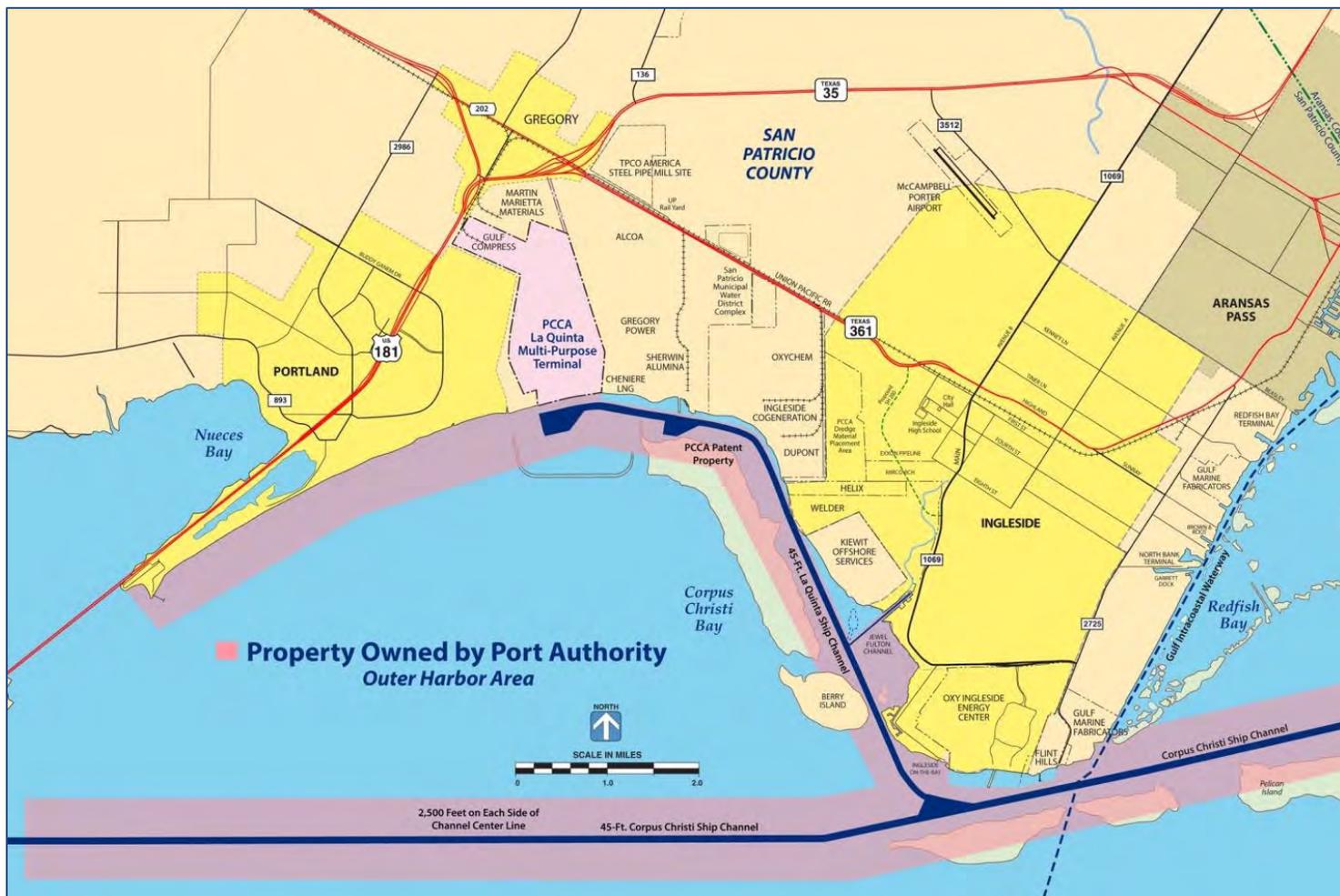
Port Authority land holdings provide a base for port infrastructure, operations and revenue generation. Virtually all of the ship channel sits on land owned by the Authority and the same is true for thousands of acres assigned in perpetuity as designated Dredge Material Placement Areas (DMPAs). While the Port Authority holds title to more than 20,000 acres of real estate, about 90% of this is submerged or in permanent use as DMPAs. A good deal of the remaining land is either developed or otherwise committed.

From 1930 until 1960 the PCCA purchased submerged land from the State of Texas (fee simple less minerals) as necessary to extend channels and provide for channel expansion. Acquisition of private property holdings began in the 1960s with a site for the Power Street offices and acreage for the Rincon Industrial Park. Acquisitions in the 1980s included the Sun Terminal at Ingleside Point (1985), the McGloin Tract for the Suntide DMPA (1987), and properties associated with the establishment of Naval Station Ingleside.

Purchases in the 1990s included the Tule Lake DMPA site (1991), DMPA 1 and 2 acreage west of North Beach (1991), the Al Speight Yard property (1992), the Turner Tract on Port Ave. (1992), right-of-way for the Fulton Corridor (1992) and the administrative office Annex Building on Shoreline (1995).

In 1996 the PCCA traded the Sun Terminal property to Flint Hills Resources for 250 acres of Harbor Island tank farm property previous owned by Exxon and Petrofina. The intent was to guide future Harbor Island development and to establish the ability to collect future user fees through franchise agreements. Private developments at Ingleside Point and Harbor Island predated the PCCA’s ownership of adjacent submerged land and the port’s franchise arrangements did not apply before these property transactions.

**LA QUINTA** - A milestone real estate purchase came in 1998 when the PCCA had the opportunity to acquire the 1,114-acre La Quinta property from El Paso Natural Gas. This allowed planning to accelerate on extension of La Quinta Ship Channel and presented the opportunity for the Port Authority to investigate potential land uses. The PCCA was subsequently able to relocate the Gulf Compress cotton warehouses there and to hold the remaining property until the market was ready for it to be developed in a way that produces high level returns for the community and for the Port Authority. Today 117 acres is being utilized as a DMPA for the channel extension and will serve as a future vegetated buffer zone between terminal facilities and Portland. Approximately 150 acres at the La Quinta waterfront is reserved for a future multi-purpose cargo and container handling facility. In 2013 voestalpine entered into a 50-year lease covering 475 acres that will return PCCA substantial base rent plus fees on all cargo moved by ship or rail. It will also increase the tax base in San Patricio County and will provide high wage employment with a leading international steel manufacturer.





**FULTON CORRIDOR** – Prior to completion of the Joe Fulton Corridor Phase 1 highway and railroad in 2007 there were hundreds of acres of land on the north side of the Inner Harbor with no access except by four-wheel-drive vehicle. Much of this land had been used for dredge material placement in the past and a good deal of it was originally part of Nueces Bay before the adjacent channel was dredged in the 1950s. A total of about 400 acres of this property historically owned by the Driscoll Foundation was acquired by M&G Resins USA in 2012. The company’s plastics plant and the PCCA’s Nueces River Rail Yard will occupy about 200 acres of the site. M&G also owns a 242 acre development site to the north between the Fulton Corridor and the Nueces River. Between M&G and the Bulk Materials Terminal the Port Authority owns approximately 170 acres that is divided into three sections:

- The center 80 acres is leased to Quintana/Castleton which has proposed a condensate splitter development.
- Just east of M&G is a 32 acre tract available for port-related development.
- To the east of Quintana/Castleton is 56.5 acres with 1,900 feet of channel frontage. This property can be used by the PCCA to expand the Bulk Terminal loop track and to create a longer continuous section of shoreline for a proposed barge mooring area.

Two miles west of the Viola Turning Basin the PCCA owns about 240 acres on the north side of the Fulton Corridor near the Nueces River. Some of this property has wetlands and restricted access. An area of about 50 acres west of the highway is currently suitable as a possible industrial development site. Other areas could potentially be developed with mitigation.

Phase 2 of the Fulton Corridor greatly improved the quality of access to north side properties between the Harbor Bridge and the Bulk Terminal. Much of this property is owned by the Port Authority

including a tract of about 50 acres permitted for multiple ship docks just east of the site of the former Tule Lake Lift Bridge. The notable exceptions to blanket PCCA ownership on the north side are the Nueces Bay Power Station, Texas Lehigh and U.S. Coast Guard properties.

**OUTER HARBOR** – The PCCA’s largest developable upland real estate holdings east of the Harbor Bridge are the La Quinta property, most of which is now under lease, and two tracts on Harbor Island – the 250-acre Exxon/Petrofina property and former DMPA #4 which includes about 100 upland acres fronting on the ship channel. The Authority also owns the 225-acre upland Good Hope DMPA adjacent to OxyChem inside the Ingleside city limits. It can provide the PCCA with dredge material flexibility for decades to come. This property is served by utilities, is near a major highway and connects to the ship channel. At some point in the future it may be appropriate to convert this valuable property to some higher land use.

**FEW LARGE DEVELOPMENT SITES AVAILABLE** – In early 2010 there were several large tracts of channel-front property available for sale or lease including the Driscoll Foundation property, PCCA property on the Fulton Corridor, the La Quinta property, the 500-acre Welder property at Ingleside, the former Naval Station Ingleside property and adjacent land, and the Harbor Island parcels. That situation has changed dramatically. By mid-2013 there were no waterfront sites on the market larger than 60 acres except for the Harbor Island properties which have limited access to regional infrastructure. There are some undeveloped large-tract properties on or near the ship channel but they are owned by industrial companies likely to retain them for their own use or the use of a partner. Inside the City of Ingleside there are other large tracts that do not have channel frontage but may be suitable for port-related development.

## *5.2. Opportunities to Acquire Property*

In providing for sustainable and long-term port-related growth, PCCA planning strategies will need to include acquisition of additional real estate and development of the infrastructure required to meet the needs of current and future customers. The La Quinta and Fulton Corridor investments are each models for how the PCCA can employ long-term planning in a way that helps guide private investment for the benefit of the entire region.

The implementation of some of the strategies recommended in this plan will require that the PCCA make the best possible use of existing land holdings and make strategic property acquisitions that will serve as the foundation for initiatives in the 2014-2020 planning horizon and well beyond. Purchase of some smaller properties may be necessary to improve the usefulness and flexibility of tracts already owned by PCCA. It may be that the highest and best use of an existing property can only be achieved by combining it with all or part of a property that is privately held.

**REMOTE SITES** - Some industrial manufacturers need access to one or more docks on the deepwater ship channel but their plant can be located some miles away. A local example is the LyondellBasell Equistar chemical plant located east of Robstown. The complex is connected to port docks by pipeline.

The Port Authority should identify for purchase a select few undeveloped remote sites that meet a well defined set of criteria and closely evaluate their potential to serve as this type of industrial site in the decades ahead. At the same time utility corridors connecting the properties to the ship channel should be identified and preserved. Finally these assets should be protected from encroachment from

incompatible land uses in the years prior to their maturity as port and inland transportation development sites.



The SH 44 corridor from North Padre Island Drive (SH 358) to a point about five miles west of Robstown has excellent highway access, is served by the Kansas City Southern railroad and has direct rail access via the Savage Lane Line to the port Inner Harbor. This zone in Nueces County is definitely an area where remote sites meeting the selection criteria could be identified. All of this area is either inside the city limits or in the extra-territorial jurisdiction of either the City of Corpus Christi or the City of Robstown, and thus subject to land use zoning controls to deal with compatible use and encroachment issues.

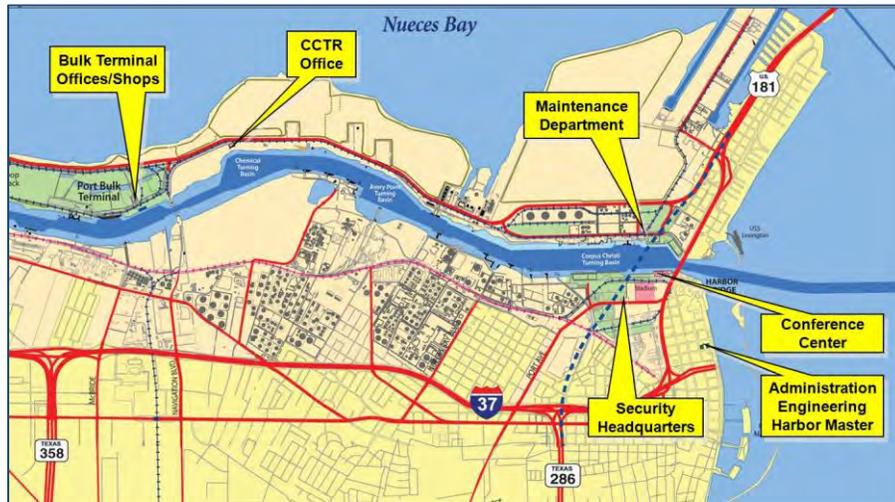
The Robstown Improvement Development Corp. (RIDC) has acquired a 122-acre site in central Nueces County and is developing the Robstown Inland Port trade and logistics center concept. The PCCA is assisting the RIDC in assessing opportunities, planning for the future and making the most of this potential rail related transportation asset. Depending on what kind of commercial or industrial activity is attracted to the facility there may be opportunities for connecting it to the ship channel and waterborne commerce which PCCA may be able to help facilitate.

For the past two decades the City of Robstown has been encouraging development of an industrial zone along US 77 and the Union Pacific Railroad on the south side of the city. Water supply infrastructure is available in this corridor either from the city or from the South Texas Water Authority which has a 42-inch potable water line running parallel to the railroad.

A recommended strategy in this plan is evaluation and implementation of a railroad build out from the La Quinta property northeast of Portland to a connection with the Union Pacific rail line near Odem. This San Patricio County route travels through more than 40 square miles of open farmland parallel to major water supply lines owned by the San Patricio Municipal Water District. The PCCA Rail Master Plan includes a conceptual plan for a major rail yard on this route. It is also possible that a special new heavy haul road could be built alongside the rail line to make it possible to move overweight loads to and from the proposed multi-purpose docks at La Quinta Terminal. The central and western part of this route has seen no development pressure except for wind turbines. The rail build out concept opens the possibility that the Port Authority should evaluate acquiring a block of property on the proposed route and protect it for port-related industrial use at some point in the future. The property has high elevations. There are multiple existing pipeline fairways running through this area and under Nueces Bay to and from the Inner Harbor area.

### 5.3. Facilities and Buildings

It is important that the PCCA provide its personnel and operations with workplaces that are efficient, safe, meet current regulatory standards and provide flexibility to accommodate growth and future technology. The PCCA should apply the highest and best use standard to each of the properties and operating facilities used in the course of doing the organization’s business.



The Port Authority owns an assortment of scattered facilities utilizing property that may now or soon will have higher and better use potential. Administration, engineering, operations, security, maintenance and rail operations are in facilities that were put in place as needs developed over a period of several decades.

The Maintenance Department is located on property with channel access and could be relocated to a site of less value. Consolidating all maintenance activities and equipment storage in a single location should be evaluated. Enclosed equipment protection should also be given close consideration.

**ADMINISTRATIVE OFFICES** – The PCCA administrative offices are currently located in two separate buildings on 2.2 acres of very valuable Shoreline Boulevard property between Interstate 37 and the American Bank Center convention and entertainment complex. The two buildings were built in the 1960s and contain approximately 37,000 square feet of office space. The buildings contain a number of deficiencies and will not meet the needs of the Port Authority in the future.

The existing buildings are in fair to poor condition and need extensive repair or renovation. Despite numerous repair efforts, the buildings suffer from continued wall and roof leaks. Mold has been an issue over the years. Many of the major building systems such as fire escape and ADA accessibility do not meet current code requirements while other systems such as mechanical and electrical are outdated and inefficient. Major maintenance has



been delayed for a number of years while other higher priority PCCA infrastructure issues were addressed.

The PCCA's major administrative functions (Executive Staff, Harbormaster's Office, Operations, Business Development, Engineering, Finance, Communications, Governmental Affairs and Human Resources) are spread out between two buildings causing inefficiencies in daily functions. Security is located in a third offsite location creating further inefficiencies. The existing buildings lack room for expansion and would require a major addition to meet the needs for the next five to ten years. Total space requirements are currently 43,400 square feet (including security) and are expected to increase to 55,000 square feet in five years and 64,000 square feet in 10 years.

The Port Authority should consider construction of a new office building that could provide room for growth and increase operational efficiency. A prime location for a new building would be at or adjacent to the Ortiz Center at the entrance to the Inner Harbor. With the planned removal of the existing Harbor Bridge, this location would provide a signature location for Port Authority offices. The right-of-way for the bridge at the edge of the channel is Port Authority property. A new multi-story office building that would meet the 10 year needs of the Port Authority is estimated to cost \$18 million. A portion of this cost could be reduced by the sale of the existing 2.2 acres of Shoreline Blvd. property.

**CONFERENCE CENTER** – The Ortiz Center and adjacent Storm Pavilion include a variety of venues for events including the Nueces Room which is the primary location for meetings of the Port Commission. The building is a conversion of sections of what had previously been historic Cargo Docks 1 and 2 and the Harbormaster's Office. The 44,000 square foot finished out portion of the center is underutilized and does not provide a net return to the Port Authority. Further the Ortiz Center competes directly with nearby city-owned and private hotel facilities. The west end of the center includes a 15,000 square foot non-air conditioned section of the Dock 2 transit shed building that remains unused.

The Port Authority should evaluate how the conference center property can be put to the highest and best use going forward. One option for consideration is the viability of fully privatizing the facility. Alternately the building could be used as a location for consolidating scattered PCCA personnel and operations in a single location.

To adequately meet the anticipated demand and the need for operational consolidations the Port Authority should develop a long-term Facilities Plan during 2014.



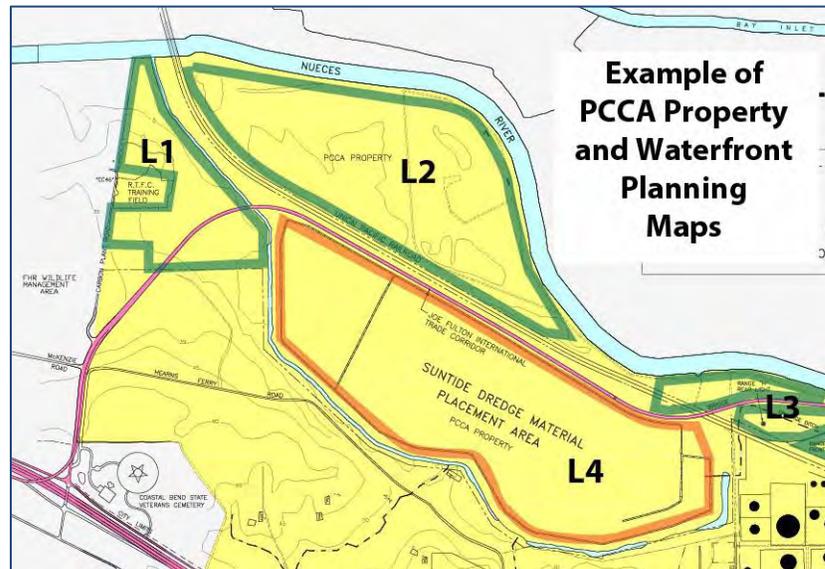
## 5.4. Guiding Future Use of PCCA Property

As part of this planning process a staff review and examination of all waterfront properties was conducted with a particular focus on channel-front property owned by the Port Authority. This work is being captured in a **Property Planning Guide**. It will be a set of general planning maps and tables that can be regularly updated and used by PCCA staff at the initial stage of planning projects, evaluating proposed leases and assessing highest and best use options. The adjacent map is an example of how PCCA-owned properties are identified in the planning guide.

The shoreline and properties were divided into useful segments and mapped. Each area was explored with staff to determine current conditions and to determine whether the shoreline was suitable

for future dock or mooring area development. Areas with adequate dimensions and without navigational restrictions were further evaluated to see how many and what type of docks might fit in the available frontage and be served by nearby land areas. The intention is not to suggest that all the docks identified would ever be built, only that planners should be aware of the possible optimal use of the waterfront. This will potentially prevent construction that could later block additional projects or result in assets having to be abandoned or removed to create space for a future highest and best use opportunity. Work on the guide recognized that decisions made in the present will have consequences that will persist for decades into the future.

The Property Planning Guide will include property descriptions, a current assessment of possible future uses and known restrictions that would likely limit future development options.



# Facilities Guide



General Information	Public General Cargo Facilities	Public Oil Docks	Other Port Facilities	Inner Harbor Private Docks	La Quinta Channel & Ingleside Point	Harbor Island & GIWW
Location Map	Southside Terminal	Oil Dock 1	Inner Harbor Rail Yards	Citgo Docks	La Quinta Terminal	Gulf Jetty Channel
Inner Harbor Map	Cargo Dock 8	Oil Dock 2	Bulk Terminal Overall	Flint Hills Docks	Gulf Compress	Harbor Island Property
North Bay Map	Cargo Dock 14	Oil Dock 3	Bulk Terminal Dock 1	Valero Docks	NSI Marine Terminal	PCCA Dock & Terminal
Harbor Bridge	Cargo Dock 15	Oil Dock 4	Bulk Terminal Dock 2	Texas Lehigh	NSI Property	Martin Midstream
Tule Bridge Fenders	Speight Rail Terminal	Oil Dock 6	Navy LMSR Layberth	Sunbelt	PCCA Ingleside Property	McDermott Property
Joe Fulton Corridor	Cargo Dock 9	Oil Dock 7	Barge Mooring (North)	Bludworth Shipyard	Gulf Marine - South	Brown & Root
Dale Miller Bridge	Cargo Dock 10	Oil Dock 8	Barge Mooring (Viola)	Heldenfels	Koch Terminal	Gulf Marine - North
JFK GIWW Bridge	Ro-Ro Dock	Oil Dock 9	ADM Grain Elevator	Interstate Grain	Jewell Fulton Canal	North Bank Terminal
Rail & Road System	Northside Cargo Yard	Oil Dock 10	CB Cold Storage	Bay Barge Dock	Navy EMR Property	Brown & Root Ingleside
General Data	Cargo Dock 12	Oil Dock 11	Rincon Industrial Park	Texas Dock & Rail	Kiewit Offshore	Redfish Bay Terminal
Port Offices	North Bank Yard	Oil Dock 12	Dock One & Two	LyondellBasell	Helix Dock	Gulf Copper
	Transfer Facility		Ortiz Center	Vulcan Dock	OxyChem Docks	
	Buildings 26 & 27		Bayfront Multi-Use Area		Sherwin Alumina	

Also being updated is the interactive **Port Facilities Guide** which is used by port customers and PCCA staff as a daily reference guide. It includes photos and detailed site drawings of each existing PCCA-owned facility and an aerial photographic catalogue of private docks and key infrastructure related to marine operations. That includes specific information such as dock heights and deck load ratings along with items such as bridge clearance dimensions over area waterways.

## RESISTING ENCROACHMENT

By its very nature most of the activity that takes place in the port district and at PCCA facilities is industrial. In most cases this involves continuous round-the-clock operations that generate noise and require lighting for security and operational safety. This is as true on PCCA properties as it is in the private industrial zones that make up the Inner Harbor and the La Quinta Channel waterfront. Along the entire length of the ship channel system it will be increasingly important for the Port Authority to work closely with communities and other landowners to minimize the encroachment of new land uses that are not compatible with the continuous industrial activities supported by the ship channel. The same thing can be said for developing potential industrial areas along the SH 44-KCS Railroad corridor and the conceptual La Quinta rail corridor in San Patricio County.

Encroachment near the Corpus Christi bayfront is also an issue. Starting in the 1970s cultural, entertainment and visitor attractions began appearing in the vicinity of decades-old port operations. This initially included the Bayfront Auditorium, the Corpus Christi Museum and the Harbor Playhouse. A comfortable co-existence developed as more and more public venues were established at the edge of the port’s operational area.

Eventually aging cotton warehouses that originally had a reason to be next to the harbor were relocated and replaced with a minor league baseball stadium. Passing ships, moving trains and the lights of evening cargo loading instantly became part of the charm of the ballpark experience. All proving that

some activities are very compatible with the workings of an active seaport. Yet it is important to emphasize that Port Authority assets in this area should be protected from encroachment by incompatible land uses that could reduce their productivity in supporting waterborne commerce, industry and employment.

### **HIGHEST AND BEST USE**

Participants in the Strategic Plan development process agreed across the board that the PCCA should intensify efforts to see that public assets near the ship channel are put to the highest and best use for the long-term benefit of the community. Stakeholders also appeared to agree with the conclusion that the Port Authority must be willing to say “no” to some proposals brought to the PCCA staff and commissioners by prospective tenants.

While highest and best use is a subjective standard, it is possible to develop a checklist of general criteria associated with the PCCA’s mission, financial responsibilities and environmental protection goals. These criteria can be used in dealing with prospective tenants in a way that provides ample latitude to negotiate lease or easement terms. Great care should be taken to avoid marginal commitments that could block or constrain future prime uses. Any proposed leases involving a relatively high risk of site contamination or public health and safety impacts should be avoided.

Another component of this decision-making process is the fact that existing frontage on the 45-foot deep ship channel is essentially an irreplaceable asset. It will be extremely difficult to ever create more such channel frontage in the Corpus Christi region.

One criteria for evaluating highest and best use of properties and channel frontage should always be whether the use generates high value waterborne commerce or is a vital support activity to such waterborne commerce. High value may not always be a function of the price per pound of the commodity as in the case of barite or frac sand which are essential inputs to South Texas oil and natural gas extraction.

Easements for pipelines, dredging, utilities and access within the port area are vital to the Port Authority, port customers and unknown future industrial and shipping prospects. The Property Planning Guide will attempt to identify for protection easement corridors leading to remote sites miles from the ship channel. In most cases it may be possible to follow existing pipeline or utility fairways. Formal procedures should be strengthened to ensure that none of the existing easements or potential corridor pathways are compromised.

Part of the highest and best use equation is the fact that to follow this management strategy it is necessary to forgo potential revenues, perhaps for many years, in order to allow a property or channel location to be utilized for what is finally deemed an appropriate best use.

# 6. Strategic Objectives and Actions

Through a collaborative process participants in the planning process for Strategic Plan 2014-2020 developed a set of operational and management objectives. Further work identified specific initiatives or actions needed to address those items in the planning horizon. Finally a matrix defining action responsibility and schedules was developed and appears in a table in Section 7 – Implementation.

## 1. Channels and Basins

**Strategic Objective** – Implement strategies to ensure that the Port of Corpus Christi Authority is a strong partner with the federal government and port industries in providing adequate and well maintained deepwater channels and shallow-draft waterways necessary to fully serve existing and potential waterborne commerce in Nueces and San Patricio Counties.

### Initiatives/Actions:

- 1.1. Take all necessary steps to expedite regular maintenance of the federal ship channel and preserve the full 45-foot channel operating depth.
- 1.2. Follow the Channel Improvement Project’s extensive dredge material management plan for all channels, basins and PCCA mooring areas; evaluate additional opportunities for adding future DMPA capacity not included in the CIP plan.
- 1.3. Continue allowing PCCA franchise customers access to Dredge Material Placement Areas (DMPAs), where practical and in accordance with Corps of Engineers restrictions, to support private investment in the community.
- 1.4. Continue protection, preservation and enhancement of DMPAs, dredge pipeline easements and vehicular access to placement areas.
- 1.5. Review channel capacity and future vessel fleet to assess long-term channel improvement requirements; included impact of various new docks being built or planned for completion in 2014.
- 1.6. Evaluate the decision to move forward with the -52-foot deepening and widening of the Corpus Christi Ship Channel and La Quinta Channel system to accommodate larger bulk cargo vessels including those that will be able to transit the expanded Panama Canal.
- 1.7. Consider third-party modeling of the benefits of widening parts of the channel at the current depth including potential barge shelves; pursue federal assumption of maintenance agreement for Bay Reach widening.
- 1.8. Complete deepening of La Quinta Channel extension to -45 feet.
- 1.9. Complete removal of Tule Lake Lift Bridge tower foundations which are an impediment to channel efficiency and safe navigation.
- 1.10. Improve safety and traffic efficiency by widening the Tule Lake Channel.
- 1.11. Evaluate improved aids to navigation as a way to enhance channel capacity and efficiency.
- 1.12. Pursue natural resource enhancement and mitigation projects as required to support channel and mooring area projects.

## 2. Land Use and Industrial Development

**A. Strategic Objective** – Make the highest and best use of property and facilities owned by the Port Authority and make timely property acquisitions that will help the PCCA continue to achieve its mission in future decades.

### **Initiatives/Actions:**

- 2.1. Enhance the Port Authority’s long-term future viability by selective purchases of real estate that can be served by the port’s ship channels including properties on the waterfront and at somewhat remote locations including Western Nueces County and San Patricio County.
- 2.2. Evaluate options to repeat in the future the success of the Joe Fulton Corridor by purchase and development of property to expand the reach of the La Quinta Terminal.
- 2.3. Identify and preserve utility corridors that connect remote properties to the ship channel.
- 2.4. Maximize PCCA income from real estate assets while continuing to implement a “highest and best use” land management program.
- 2.5. Evaluate private lease requests in terms of proper asset utilization, minimizing risk and the strength of the potential tenant to be a good partner in accomplishing the Authority’s mission.
- 2.6. Avoid sale of PCCA owned property.
- 2.7. Continue development of La Quinta Terminal infrastructure to support current and future tenants to include communications effort to inform potential partners that channel will be at 45 feet.
- 2.8. Initiate Rincon Industrial Park infrastructure improvements including upgrades on Canal B and design work on possible road and rail improvements.
- 2.9. Develop and implement a plan in coordination with the Texas Department of Transportation to widen the Rincon Channel opening in the Nueces Bay Causeway.
- 2.10. Make drainage and driveway access improvements around the Inner Harbor as needed and in coordination with Nueces River Rail Yard and other rail system upgrades.
- 2.11. Update and maintain PCCA Facilities Guide and develop property “highest and best use” guide utilizing site identification and recommendations from this planning process.

**B. Strategic Objective** – Provide leadership in facilitating the development of regional water supplies, electric power, workforce, highways and rail facilities that will support existing port-related industries and create opportunities for private investments that generate waterborne commerce.

### **Initiatives/Actions:**

- 2.12. Facilitate efforts of a coalition of regional parties to increase water supplies available to industry and communities in the Coastal Bend by developing additional diversified water sources.
- 2.13. Facilitate and support efforts to extend electric power distribution systems needed by industry and to provide additional power generating capacity as it is needed.
- 2.14. Support port stakeholders and community in the success of programs to expand the locally available skilled workforce.
- 2.15. Implement a program to assess the impacts of the Harbor Bridge Replacement on port-related commerce, land use and land access corridors.

- 2.16. Continue support of efforts to expand and fill gaps on the regional highway system supporting freight movements and worker access to port-related jobsites, particularly in eastern San Patricio County.

### 3. Private Facilities

**Strategic Objective** – Continue to provide support and the transportation infrastructure needed for the owners of private docks covered by franchise agreements in order to help these customers remain competitive in their industry. Work to help create an environment in which these major employers can grow and make new investments in the community. There are 36 private docks.

**Initiatives/Actions:**

- 3.1. Protect the existing 45-foot deep channel which includes attention to preserving dredge material placement areas – the single highest priority for private dock operators.
- 3.2. Strive to ensure that this continues to be a competitive location for refining, petrochemical and chemical processors.
- 3.3. Provide professional staff assistance to new industrial customers planning and permitting private dock facilities.
- 3.4. Promote the growth and sustainability of new and existing private dry bulk facilities and fabrication yards.
- 3.5. Consider widening channel Bay Reach to reduce traffic restrictions.
- 3.6. Assure the continuation and incremental growth of port traffic support capabilities including harbor pilots, tug units and adequate power, line handling and spill control.
- 3.7. Continue to provide and enhance Foreign Trade Zone services.

### 4. Public Oil Docks

**Strategic Objective** – Provide public oil dock customers with safe, modern facilities of adequate capacity to meet marketplace demand; protect and enhance the transportation efficiencies and competitive position of industrial customers moving cargo across these docks.

**Initiatives/Actions:**

- 4.1. Develop new deepsea and barge depth public oil docks as needed and with throughput commitments from customers.
- 4.2. Provide a new 45-foot depth public oil dock in the vicinity of Viola Basin.
- 4.3. Select sites, design and permit public oil docks in advance of need in order to be able to respond quickly to possible future market demand.
- 4.4. Identify and preserve PCCA-owned sites for future oil and bulk liquids docks and for pipeline corridors leading to the channel.
- 4.5. Develop additional capacity for barge mooring and fleeting in the Inner Harbor with planning assistance from harbor stakeholders.
- 4.6. Conduct further analysis of the costs and benefits of potential investments in additional ship lay berth capacity.
- 4.7. Continually monitor the development and utilization rates of pipelines leading out of the Eagle Ford Shale and Permian Basin production plays and away from Corpus Christi – facilities that could impact dock demand.

## 5. Bulk Materials Terminal

**Strategic Objective** – Provide a public terminal for dry bulk imports and exports that supports local industry and offers capacity for possible new customers; maintain adequate service levels while reducing environmental impacts of operations.

### **Initiatives/Actions:**

- 5.1. Continue adequate maintenance and facility upgrades in order to sustain service levels and provide dependable unloading and loading capabilities to and from ships and barges.
- 5.2. Seek air permits for future Bulk Dock 3 that would reduce development time if it becomes apparent that conditions warrant moving forward.
- 5.3. Develop an engineering analysis of the Bulk Dock 1 Traveling Unloading Tower to determine remaining service life and the cost-benefit of further gantry crane upgrades.
- 5.4. Once permitted, make environmental improvements to reduce fugitive dust including covering all conveyor systems and adding other particulate management systems as necessary.
- 5.5. Consider development of covered storage to reduce air emissions.
- 5.6. Consider issuing a request for proposals (RFP) in 2014 that would lead to a private operator leasing the facility on a long-term basis and making major capital improvements that would result in a substantial increase in waterborne commerce and PCCA revenue. Regularly review export markets to evaluate opportunities.
- 5.7. Preserve property that would allow the future expansion of the rail loop and potential new cargo processing areas including major coal export facilities should such a need develop.

## 6. Dry Cargo Docks/Break Bulk

**Strategic Objective** – Provide and maintain docks, transit warehousing and intermodal cargo storage yards to support the movement of break bulk cargo, military deployments and heavy lift projects.

### **Initiatives/Actions:**

- 6.1. Continue active preservation measures on Inner Harbor break bulk handling facilities.
- 6.2. Begin planning for use of 10 acres of property connected to Cargo Dock 9 (Martin property). This property is in the Harbor Bridge Replacement project potential impact zone.
- 6.3. Protect Cargo Docks 8, 14 and 15 and Southside Terminal rail facilities from further encroachment by non-industrial land uses; carefully consider investments in locations that are likely to be converted to non-industrial use once the Harbor Bridge Replacement project and bridge removal project are complete.
- 6.4. Conduct a study of the impact of the Harbor Bridge Replacement on all break bulk cargo handling capabilities.
- 6.5. Work to identify an anchor tenant for multi-purpose container, break bulk and general cargo facilities on waterfront acreage reserved in the PCCA's La Quinta property.
- 6.6. Preserve a block of waterfront property adjacent to the Chemical Turning Basin on the Inner Harbor adequate for a multi-purpose general cargo facility served by all three railroads should future market demand justify such a facility.

## 7. Grain Elevators and Leased PCCA-Owned Facilities

**Strategic Objective** – Provide port-owned and privately operated facilities that give South Texas agricultural producers an opportunity to competitively participate in global trade.

### **Initiatives/Actions:**

- 7.1. Promote and participate in providing adequate channels, highways and rail facilities that will enhance the commercial viability of the Corpus Christi Public Elevator, Gulf Compress cotton warehouse and agricultural product bagging facilities (all leased from PCCA by private operators) and privately owned Interstate Grain.
- 7.2. Work with grain elevator operators to ensure they are served by adequate rail capacity going forward.
- 7.3. PCCA's trade development team should support operators of leased PCCA-owned facilities and others in growing waterborne commerce.

## 8. Rail Infrastructure

**Strategic Objective** – Work with partners to achieve modern multi-carrier rail service to areas of Nueces County and San Patricio County with potential for generating waterborne commerce and substantial private industrial investment.

### **Initiatives/Actions:**

- 8.1. Continue implementation of PCCA's 2012 Rail Master Plan.
- 8.2. Proceed with construction of Nueces River Rail Yard Phase II to provide additional capacity for unit train movements, car storage and train assembly.
- 8.3. Continue to work with the port area rail system stakeholders to modernize, expand capacity and establish new working relationships.
- 8.4. Investigate the feasibility of providing multi-carrier rail service to PCCA tenants and future customers at the La Quinta Terminal property.
- 8.5. Facilitate the investigation of possible addition of multi-carrier rail service to the Robstown Inland Port property.
- 8.6. Work with TxDOT and the railroads to identify resources for replacing two major bridges and upgrading numerous smaller structures which restrict the dimensional and load capacity for all rail traffic on the Union Pacific line between Houston and Corpus Christi.
- 8.7. Collaborate with other stakeholders to address the delays on the shared Union Pacific mainline track from Bloomington to Corpus Christi and Robstown.
- 8.8. Support Odem, Sinton and San Patricio County in pursuing options to reduce grade crossing delays in those cities.

## 9. Buildings and Facilities

**Strategic Objective** – Provide PCCA personnel and operations workplaces that are safe, energy efficient, meet current regulatory standards and provide room and flexibility to accommodate growth and changes in technology while applying “highest and best use” criteria to PCCA-owned properties.

### **Initiatives/Actions:**

- 9.1. Develop a long-term PCCA Facilities Plan including administrative offices, harbormaster operations, conference center, maintenance, Bulk Terminal offices and shops, and the security center.
- 9.2. Apply highest and best use criteria to all facilities and properties not directly involved in maritime operations.
- 9.3. Evaluate consolidation of all PCCA maintenance activities at one location.
- 9.4. Review Bulk Terminal buildings to determine if this property should be converted to leasable acreage.
- 9.5. Evaluate alternative uses for the conference center property including potential consolidation of all administrative, operations and security activities.
- 9.6. Continue to study cruise line service at Corpus Christi while recognizing it would require major infrastructure investments.

## 10. Environmental Stewardship

**Strategic Objective** – The Port Authority will diligently uphold a 50-year tradition of being a positive and proactive force in the protection of the region’s marine, water related and air quality resources. PCCA will continue to implement management practices through PCCA’s Environmental Management System that promote regulatory compliance and pollution prevention through a strategy of continual improvement and teamwork.

### **Initiatives/Actions:**

- 10.1. Implement the federally permitted Corpus Christi Channel Improvement Project following the specific steps and beneficial use components which were developed through extensive stakeholder participation and which will result in increased bay habitat productivity and new opportunities for wildlife to prosper.
- 10.2. Continue collaborative environmental preservation, restoration and public education efforts in cooperation with state and federal resource agencies, the Corpus Christi Bays and Estuaries Program, conservation organizations, area university scientists and port-related industries.
- 10.3. Continue providing resources to allow for minimizing environmental impacts of port-related operations and development including audits of customers.
- 10.4. Reduce dust and other air emissions from Port Authority operations through policy changes and use of alternative technologies.
- 10.5. Move forward with conservation programs to reduce water and electric power consumption at PCCA facilities.
- 10.6. Implement plans to convert some sites to low maintenance landscaping.

## 11. Safety and Security

**A. Strategic Objective** – Maintain a high level of safety training and awareness in PCCA’s workforce. Ensure that the port district and surrounding areas are properly protected.

### **Initiatives/Actions:**

- 11.1. Provide a safe work environment for all employees.
- 11.2. Provide safety training including specialized training for certain employee categories.
- 11.3. Create a strong safety culture and reduce workplace lost-time injuries to zero.
- 11.4. Evaluate and adjust total security infrastructure, staffing and resource levels to ensure compliance with regulatory requirements and customer needs.
- 11.5. Develop site, design, acquire permits and provide new dock for firefighting barge.
- 11.6. Continue security upgrades at critical locations as required and dependent on security assessment.
- 11.7. Maintain strong collaborative relationships with city, county, state and federal law enforcement and regulatory agencies with resources and jurisdiction in the areas surrounding the ship channels in Nueces and San Patricio counties.
- 11.8. Maintain updated emergency management and hurricane preparation plans.

## 12. Finance and Administration

**Strategic Objective** – Maintain Port Authority financial strength, flexibility and management depth in order to implement strategic and policy priorities.

**Initiatives/Actions:**

- 12.1. Conduct an evaluation of tariffs and lease agreement provisions to determine appropriateness in light of most recent market demand for real estate assets and use of dock capacity, including imposing tariffs on cargo that moves on or off of port properties by pipeline or rail.
- 12.2. Continue to refine and expand utilization of financial return on investment and return on assets models to evaluate PCCA capital project investments and on public-private development partnership agreements.
- 12.3. Pursue outside sources of funding including partnerships and grants for which the PCCA is eligible.
- 12.4. Continue staff development to ensure that leadership and appropriate staff are in place to meet current and future work effort requirements.
- 12.5. Make the Port Authority a great place to work through adequate facilities, empowerment and strong internal communications.
- 12.6. Continue being proactive in legislative and regulatory affairs.
- 12.7. Develop a plan for executive and managerial staff succession recognizing that some present members of the staff will be retiring in the next few years.
- 12.8. Incremental staff additions are needed in 2014 to deal with the workload associated with the changing marketplace, new industrial customers, potential prospects, new initiatives and planning.
- 12.9. Follow a systematic process calendar to annually review results, revise forecasts, update strategic plan actions and develop a capital improvement program and budget for the next year that reflects the revised plan.

## 7. Implementation by Category

(See Following Table)

Action #	INITIATIVE or ACTION	Begin	Finish	Lead Responsibility	Expected Results/ Consequences
<b>Channels and Basins</b>					
1.1	Coordinate with the Corps of Engineers to consistently maintain 45' channel operating depth	2014	2020	Engineering	Help ensure that port industries have best possible transportation economics
1.2	Utilize the Channel Improvement Project's dredge material management plan	2014	2020	Engineering	Support core PCCA mission
1.3	Continue franchise customer access to DMPAs recognizing COE restrictions	2014	2020	Managing Director, Engineering	Support operations of port users who contribute to PCCA revenues
1.4	Enhancement, protection of DMPAs	2014	2020	Engineering	Being prepared for future public and private dredging projects
1.5	Review channel capacity; review impacts of new docks in Q4-2014	2016	2016	Managing Director, Engineering	Determine if there is a channel capacity restriction that is impacting dock and waterway efficiency
1.6	Move forward on elements of Channel Improvement Project	2014	2020	Commission, Staff	Make decision to take action on widening and deepening reaches of the channel
1.7	Consider third-party modeling of benefits of widening channel Bay Reach	2014	2016	Engineering	Determine if new conditions justify channel widening with local funding
1.8	Complete La Quinta deepening to minus 45' (underway)	2014	2014	Engineering	Create transportation efficiencies for new industrial channel users
1.9	Removal of Tule Lake Life Bridge tower foundations	2014	2016	Engineering	Improve channel efficiency and safety
1.10	Widen Tule Lake Channel; review permit	2016	2017	Engineering	Improve channel efficiency and safety
1.11	Evaluate adequacy of aids to navigation	2015	2016	Director of Operations	Potentially eliminate daylight only restrictions and enhance safety
1.12	Pursue environmental enhancement and mitigation projects as required	2014	2020	Engineering	Support mooring area and other project permitting

Action #	INITIATIVE or ACTION	Begin	Finish	Lead Responsibility	Expected Results/ Consequences
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**Land Use and Industrial Development**

2.1	Selective real estate purchases	2014	2020	Commission, Executive Director	Provide PCCA managed assets available for development in future years
2.2	Evaluate options for major corridor or development site opportunity	2014	2014	Commission, Staff	Seek opportunity to replicate Fulton Corridor or La Quinta success
2.3	Preserve corridors to remote properties	2014	2020	Commission, Staff	Preserve the viability of non-waterfront or remote sites
2.4	Maximize income from real estate assets	2014	2020	Managing Director	A modified revenue stream adjusted to changing trade patterns
2.5	Set high minimum standards for land lease holders	2014	2020	Managing Director, Real Estate Mgr	Achieve higher asset utilization while lowering risk
2.6	Avoid sale of PCCA owned property	2014	2020	Commission, Staff	Property held for highest use in future
2.7	Develop La Quinta Terminal infrastructure and support elements	2014	2020	Engineering	Enhance value of asset
2.8	Initiate Rincon improvements including rail	2015	2017	Engineering	Maintain viability of asset
2.9	Plan for Rincon Canal bridge widening	2014	2018	Managing Director, Engineering	Improved barge access to PCCA Rincon property
2.10	Various drainage and driveway improvements as needed	2014	2020	Engineering	Provide better property utilization
2.11	Update Facilities Guide and build database from identified potential waterfront sites	2014	2015	Engineering	Provide information tools to guide internal decisions
2.12	Facilitate regional water supply expansion efforts	2014	2020	Commission, Executive Staff	Address core mission of supporting strength of existing port industries
2.13	Facilitate electric power distribution and generation	2014	2020	Commission, Executive Staff	Accomplish objective of supporting port-related industry and trade
2.14	Encourage workforce development	2014	2020	Commission, Staff	Support customers and industrial development efforts
2.15	Assess impacts of Harbor Bridge Replacement	2014	2016	Engineering	Identify options for future action
2.16	Support efforts to expand highway system serving freight movement and access to port industries	2014	2020	Commission, Staff	Help insure that local industry and port terminals have best possible transportation economics

**Private Facilities**

3.1	Maintain 45' channel; provide adequate DMPAs	2014	2020	Engineering	Help ensure that local industry has best possible transportation economics
3.2	Help keep port industries competitive	2014	2020	Commission, Staff	Maintain waterborne commerce and PCCA revenue base
3.3	Provide assistance to new industrial customers	2014	2020	Engineering	Increase success in attracting major private investment and added waterborne commerce to port area
3.4	Support growth of private dry bulk and fabrication capabilities	2014	2020	Executive Staff Business Dev.	Increased waterborne commerce, revenue and community employment
3.5	Widen channel Bay Reach	2014	2020	Engineering	End certain vessel traffic restrictions
3.6	Assure adequate harbor activity support services	2014	2020	Executive Staff	Services such as tug power and pilots will be in place when needed to take care of additional freight movements
3.7	Continue full FTZ services	2014	2020	Operations Dir.	Enhanced competitive position for port-related industries and shippers

Action #	INITIATIVE or ACTION	Begin	Finish	Lead Responsibility	Expected Results/ Consequences
<b>Public Oil Docks</b>					
4.1	Develop new oil docks as needed	2014	2020	Engineering	Serve growing petroleum traffic and capture revenue stream
4.2	Build new 45' oil dock at Viola if users make commitments	2014	2020	Engineering	Contingent on user commitments
4.3	Advance permitting for oil docks	2014	2020	Engineering	Permits in hand allow for rapid response to new customers or market changes
4.4	Identify and preserve sites for future docks	2014	2020	Engineering	Avoid actions which will compromise most suitable dock locations
4.5	Develop additional barge mooring capacity in Inner Harbor, assuming permits approved	2014	2015	Engineering	Assist industry and improve dock utilization
4.6	Conduct analysis of additional lay berth capacity	2014	2014	Engineering, Operations	Assist industry and improve dock utilization
4.7	Monitor pipeline activity that could reduce demand for oil dock capacity	2014	2020	Executive Staff, Engineering	Identify threats as early as possible
<b>Bulk Materials Terminal</b>					
5.1	Continue maintenance and upgrades	2014	2020	Engineering Operations	Maintain service levels to meet customer demand
5.2	Seek air permits for BMD 3	2014	2015	Engineering	Will be ready to move forward if conditions warrant
5.3	Develop analysis of Traveling Unloading Tower	2014	2016	Engineering	Estimate remaining service life and cost-benefit of upgrades
5.4	Make dust control improvements; new permit required	2014	2015	Engineering	Maximize particulate management
5.5	Consider adding covered storage	2014	2015	Engineering	Maximize particulate management
5.6	Consider issuing RFP for BMT privatization	2014	2015	Executive Staff	Find an operator willing to make major investments and capable of directing significant cargo through the terminal
5.7	Preserve property for future BMT loop rail and operations expansion	2014	2020	Executive Staff	Keep open the possibility of a major future expansion of the terminal
<b>Dry Cargo Docks/Break Bulk</b>					
6.1	Continue preservation of Inner Harbor general cargo facilities	2014	2020	Engineering, Business Dev.	Maintain readiness for project cargoes suited to facilities
6.2	Planning for use of Martin property; in new bridge impact zone	2014	2017	Engineering	Possible expansion of Northside break bulk capacity
6.3	Protect Southside facilities from encroachment whenever possible	2014	2020	Executive Staff Engineering	Maintain existing cargo handling capabilities.
6.4	Study impact of Harbor Bridge Replacement on general cargo facilities	2015	2016	Engineering, Operations	Identify options for future action
6.5	Seek anchor tenant for La Quinta multi-purpose container facility	2014	2020	Executive Staff Business Dev.	Gain an anchor tenant willing to make major investments and capable of generating cargo through the terminal
6.6	Preserve property at west end of Chemical Basin for future general cargo uses	2014	2020	Executive Staff, Real Estate	Preserves future options for adapting to evolution in land use near bayfront
<b>Grain Elevators and Leased PCCA-Owned Facilities</b>					
7.1	Participate in providing infrastructure that will enhance the commercial success of leased assets	2014	2020	Executive Staff, Business Dev.	Increase waterborne commerce and PCCA revenues
7.2	Ensure adequate rail service for elevators	2014	2020	Executive Staff, Engineering	Improved throughput, cargo volumes and revenues
7.3	Staff support in marketing leased facilities	2014	2020	Executive Staff, Business Dev.	Increase waterborne commerce, revenue and support local economy

Action #	INITIATIVE or ACTION	Begin	Finish	Lead Responsibility	Expected Results/ Consequences
<b>Rail Infrastructure</b>					
8.1	Implementation of 2012 Rail Master Plan	2014	2020	Engineering	Improve Inner Harbor rail connectivity
8.2	Construction of Nueces River Rail Yard Phase II	2014	2017	Engineering	Provides additional capacity and new site for interchange yard
8.3	Work with stakeholders on upgrades	2014	2020	Operations, Engineering	Modernize system and increase efficient use of rail assets
8.4	Investigate multi-carrier rail service for La Quinta Terminal property	2014	2017	Executive Staff	Increased economic viability for shippers from La Quinta site
8.5	Assist investigate possible multi-carrier service to Robstown Inland Port property	2014	2015	Executive Staff	Potential benefit to waterborne commerce from additional industrial activity at Robstown
8.6	Lead effort to get upgrades to UP Angleton Subdivision	2014	2020	Executive Staff	Increased efficiency in moving rail cargoes in and out of South Texas
8.7	Collaborate on reducing delays between Bloomington and Corpus Christi area	2014	2020	Executive Staff	Increased efficiency for Port of Corpus Christi shippers
8.8	Support Odem and Sinton in pursuing reductions in grade crossing delays	2014	2020	Executive Staff	Reduced community impacts from rail traffic
<b>Buildings and Facilities</b>					
9.1	Develop Facilities Plan	2014	2014	Executive Director, All Departments	Provide long-term direction for accommodating workplace needs
9.2	Apply highest and best use to all non-maritime facilities	2014	2020	Executive Staff, All Departments	Create opportunities for higher use and/or revenue potential
9.3	Consider consolidating all maintenance activities	2014	2014	Operations	Improved operational efficiency
9.4	Assess converting BMT buildings to leasable property	2014	2014	Operations	Create more leasable property near docks at BMT
9.5	Evaluate alternative uses for conference center	2014	2015	Executive Staff	Information for sound decision on future use of asset
9.6	Continue to study cruise line service	2014	2020	Executive Staff	Sound decision criteria to apply if a cruise line indicates interest.
<b>Environmental Stewardship</b>					
10.1	Follow habitat creation and beneficial use components in approved Channel Improvement Project permit	2014	2020	Engineering	Produce substantial shallow water habitat and net gains in bay productivity
10.2	Continue collaborative efforts in cooperation with other natural resource stakeholders	2014	2020	Engineering, Executive Staff	Build on established relationships to achieve regional environmental protection, restoration and enhancement goals
10.1	Continue programs that minimize impacts and promote compliance	2014	2020	Engineering	Maintain PCCA's 50-year reputation for strong environmental stewardship
10.2	Reduce dust and air emissions	2014	2020	Engineering	Meet or exceed standards to reduce impacts on surrounding operations and community
10.3	Continue conservation programs	2014	2020	Engineering, Operations	Reduced water and electric power consumption
10.4	Conversion to low maintenance landscaping	2014	2020	Engineering, Operations	Reduce costs and some storm water impacts
10.5	Communicate environmental performance	2014	2020	Environmental, Communications	Greater community awareness of PCCA initiatives

Action #	INITIATIVE or ACTION	Begin	Finish	Lead Responsibility	Expected Results/ Consequences
<b>Safety and Security</b>					
11.1	Provide safe work environment	2014	2020	Operations, Engineering	Reduced injuries and higher morale
11.2	Safety training for personnel	2014	2020	Operations	Improved staff awareness and skills
11.3	Create workplace safety culture	2014	2020	Executive Staff, All Departments	Reduce injuries and accidents
11.4	Evaluate total security infrastructure and staffing (underway)	2013	2014	Executive Staff, Operations	Provide options to ensure compliance
11.5	Provide new dock for firefighting barge; permit needed	2015	2020	Engineering	Barge needs permanent location with suitable infrastructure
11.6	Security upgrades at critical locations as required and dependent on security assessment	2014	2020	Engineering	Provide backup systems
11.7	Maintain relationships with other agencies with jurisdiction	2014	2020	Executive Staff, Operations	Enhanced coordination and reduced duplication of effort in port area
11.8	Maintain emergency plans	2014	2020	Operations, Engineering	Be ready to implement plans for orderly response

<b>Finance and Administration</b>					
12.1	Evaluate tariffs and leases in light of changing market demands and limited available properties and docks	2014	2020	Executive Staff, Operations, Real Estate Management	Identify opportunities to modernize tariffs and leases to get fair value for PCCA assets
12.2	Refine and expand ROI models used on projects and assets	2014	2014	Finance	Provide Executive Staff with enhanced tools for evaluating capital projects, maintenance projects and asset leases
12.3	Pursue outside funding and grants	2014	2020	All Departments	Identify opportunities for federal, state and other funding
12.4	Continue staff development	2014	2020	All Departments	Greater staff skills and capabilities
12.5	Make PCCA a great place to work	2014	2020	All Departments	High personnel motivation and engagement in tasks at hand
12.6	Proactive legislative and regulatory affairs	2014	2020	Executive Staff, Legislative Affairs	Protect PCCA's ability to accomplish Mission
12.7	Staff succession planning	2014	2020	Commission, Executive Staff	Planning for future professional staffing
12.8	Make incremental staff additions in 2014	2014	2014	Executive Staff	Provide adequate management and professional staffing to deal with changing marketplace, new customers, prospects and initiatives
12.9	Annually update Strategic Plan and link with capital improvement program and budget	2014	2020	Managing Director	Make strategic planning part of the continuing business planning process

**ENERGY MOVEMENT OUTLOOK**  
**OUTLOOK, STRATEGY AND OPPORTUNITIES**  
**PORT OF CORPUS CHRISTI**

*November 21, 2013*

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# ENERGY MOVEMENT OUTLOOK

## PORT OF CORPUS CHRISTI: ENERGY MOVEMENT OUTLOOK

### INBOUND AND OUTBOUND: ENERGY/PETROLEUM COMMODITIES

- **Overall Approach:** EAI, Inc. developed outlooks for crude oil, condensate and refined product movements through the Port of Corpus Christi based on an integrated analysis of resource production, refining and flows within the Corpus Christi - Southwest Texas area as well as the interaction with other U.S. and global supply and market hubs for the same commodities. In this process, EAI, Inc. develops and forecasts the outlook for components of the commodity network balances.

EAI, Inc. also addressed, at a lesser level of detail, trends in natural gas and natural gas liquids (NGL) production and the potential for increasing movements of both commodities through the Port of Corpus Christi. This latter area of focus also included a look at LNG projects and the potential for these to occur in Corpus Christi versus other Gulf Coast markets. An itemized summary of EAI, Inc.'s assessment of each commodity group and the potential business to be realized by the Port of Corpus Christi is provided below:

- **Inbound Crude Movements:** EAI, Inc. profiled the refineries operating in the Corpus Christi through Three Rivers area to assess refining capability and crude slate trends including existing facilities and planned projects that might shift a particular refiner's crude slate. Most of the inbound crude traffic is dependent on continued use and imports of heavy and medium sour crude by some of the refiners that are designed to run these crude grades. Almost all of the light crude grades imported into Corpus Christi have been displaced by local Eagle Ford crude streams.
- **Outbound Crude Movements:** U.S. law does not allow, with some exceptions Canada, export of crude oil or condensate to another country. Refined products like gasoline, diesel fuel, and naphtha can all be exported legally. In this report, when crude or condensate is said to be exported, it means that these commodities are moving outbound from one U.S. region (Eagle Ford, Corpus Christi) to another region in the U.S. (Houston, Eastern Seaboard). Outbound crude movements through the Port of Corpus Christi were tracked and forecast on the basis of EAI, Inc.'s latest Eagle Ford crude and condensate production forecast, an assessment of future local crude runs on the part of the Corpus Christi-Three Rivers refiners and the net crude and condensate available for export to other U.S. refining markets. The net crude available for export includes three primary disposition paths including:
  - 1) Movement east on the Enterprise or Kinder Morgan Pipelines that transport both crude and condensate to the Houston-Pasadena and Sweeny refinery markets. In the Houston-Pasadena area, crude can be moved on other pipelines to other refinery centers or on outbound via marine facilities through the Houston Ship Channel.
  - 2) Movement through the Port of Corpus Christi including both crude and condensate. Pipeline capacity existing and planned from the Eagle Ford to Corpus Christi exceeds the capacity to go east to Houston and Sweeny. There is also capacity to move crude into Victoria via truck or rail and expanding barge capability to move Eagle Ford crude to Gulf Coast refinery markets. This volume would debit the total net (net of refinery runs locally and east bound pipeline movements) volume that is available to move through the Port of Corpus Christi.
  - 3) There is potential that some of the condensate that is produced in the Eagle Ford will be processed through splitter units. The output from these splitter units consists

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# ENERGY MOVEMENT OUTLOOK

generally of NGL's, light and heavy naphtha streams, distillate and gas oils. These can be exported to foreign markets. Some of the output from the splitters could also be run by local refineries. This is the case for Flint Hills and Valero that are installing additional capacity to run more Eagle Ford crude and condensate.

- **Refined Product Exports:** Drawing on its Regional Downstream Business Analysis and Outlook studies and modeling capabilities around refinery centers, terminal centers and logistical routes connecting these production and market centers, EAI, Inc. examined the outlook for the overall Corpus Christi-San Antonio-Austin-Waco-Dallas-Ft. Worth (CC-SAA-DFW Corridor) Corridor to determine future light product balance outlooks. This analysis addresses total gasoline, ethanol blended into gasoline, distillate and jet fuel. EAI, Inc. provided an outlook for light product demand for the corridor along with likely supply sources including the Corpus Christi – Three Rivers refineries and supply sourced from refinery hubs located outside this corridor. An assessment of likely future ethanol penetration of the gasoline market was also conducted for the CC-SAA-DFW market corridor. Total light product supply for the corridor less local refining output and anticipated future supply from outside the CC-SAA-DFW corridor was computed for each forecast year to determine the net available product for export. The local Corpus Christi refinery run levels were increased to reflect some expansion and assumed that these plants would continue to increase their exports to foreign markets.
- **Other Commodities and Facilities:** EAI, Inc. also developed an assessment of the natural gas, NGL plant, LNG project and splitter project activity that could influence port traffic. This included an assessment of likely natural gas and liquid natural gas (LNG) production in the Eagle Ford and the likelihood these products would be transported through the Port of Corpus Christi. Condensate splitter projects were also researched by the EAI, Inc. study team to determine likely project activity in the vicinity of the Port and how this would impact condensate supply and the disposition of splitter output.
- **EAI, Inc. Study Products and Resource Support:** This work draws on EAI, Inc.'s latest North American Crude Study, Gulf Coast Deep Dive Crude Study and integration with EAI, Inc.'s assessment of crude supply, logistics and refining in the Eagle Ford production area. The interactions between these areas currently and over the defined forecast period were developed with focus on key drivers for movements of energy commodities through the Port of Corpus Christi. EAI, Inc. employs its proprietary Supply, Transportation and Refining System (STARS) model integrating resources, markets and economic drivers to assess likely logistical patterns. EAI, Inc. supports the model process with its Energy Information Base covering physical assets, resources, pricing, and market data and how the business components are integrated. EAI, Inc.'s Energy Information Base draws on federal data, state and local information resources, purchased vendor data as well as proprietary EAI, Inc. data bases developed and maintained internally.

## INBOUND AND OUTBOUND: CRUDE OIL AND CONDENSATE

- ❑ **PCCA Movement Trends:** Inbound crude movements have declined from 480,000 b/d in 2010 to 268,000 b/d in July of 2013. Almost all light sweet, light sour and lighter medium sour crudes have been backed out of the Corpus Christi-Three Rivers refinery market. Over this same timeframe, outbound movements of crude and condensate have increased from negligible levels prior to 2012 to over 385,000 b/d in July of 2013. Most of these outbound movements have been to short haul markets in the Eastern and Western Gulf Coast refining centers.

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## ENERGY MOVEMENT OUTLOOK

- ❑ **Key PCCA Business Drivers and Outlooks:** There are a number of key drivers and dynamics impacting the Port of Corpus Christi and the movement of crude and condensate including the following most influential factors:
  - **Rapid Production Growth:** Eagle Ford crude and condensate production has been and is forecast to undergo rapid growth averaging approximately 40,000 b/d per month over the January through July period in 2013. Eagle Ford production is now over 1,000,000 b/d (including crude and condensate).
  - **Local Refinery Saturation:** Refineries operating in the Corpus Christi and Three Rivers areas are nearing saturation regarding their ability to absorb increasing volumes of Eagle Ford crude and condensate without significant refinery modifications. Both Valero and Flint Hills have projects underway to increase their ability to run Eagle Ford crude with on-stream times estimated to occur in early 2015. The modifications will result in both increasing EF crude runs but also some displacement of intermediate feedstocks with light Eagle Ford crude.
  - **Gulf Coast Refinery Market:** With the local refining market nearly saturated with Eagle Ford light crude, most of the incremental production has been moving to the Gulf Coast refining market including Texas and Louisiana at 169,000 and 182,000 b/d respectively in July 2013. The Eastern Gulf Coast refinery market is a major market outlet for Light Louisiana Sweet, LLS, like crudes (light = low viscosity, sweet = low sulfur content) as well as for light streams to blend with offshore medium sour and other heavier crudes. With the Texas to Louisiana pipeline conductivity and capacity limited, Eagle Ford crude movements on pipeline tend to “dead-end” in the Houston-Pasadena area and Corpus Christi marine movements fill-in the Louisiana refinery market gap.
  
- ❑ **Pipeline Capabilities:** Total transportation capacity in operation for moving Eagle Ford crude/condensate to /through Corpus Christi and Houston is 1,890,000 b/d. This capacity includes 650,000 b/d east to Houston-Pasadena and 1,240,000 b/d to/through Corpus Christi. The Enterprise-Plains and Magellan projects recently added 450,000 b/d (first half of this year, 2013) of capacity to Corpus Christi.
  
- ❑ **Take-Away Capacity and Logistics:** Total crude take-away capacity is likely to reach between 2,200,000 and 2,400,000 b/d by 2014. This includes pipeline capacity and Valero Three Rivers’ refinery take of Eagle Ford crude. The Corpus Christi plants are likely to use approximately 300,000 to 400,000 b/d of this overall pipeline capacity to service their own crude needs by 2015. Outbound crude – condensate shipments to Gulf Coast destinations through Corpus Christi have grown to over 380,000 b/d by mid-2013. This is likely to subside as the Gulf Coast gets more saturated with light crude in 2014/2015 with marine exports to the Eastern Seaboard projected to increase to over 400,000 b/d by 2016. This assumes that Jones Act Tankers are available for transport duty. The shift from shorter haul Gulf Coast markets to longer haul eastern seaboard markets will have a dramatic impact on ship requirement out of Corpus Christi.
  
- ❑ **PCCA Petroleum Throughput:** Total petroleum movements (crude, condensate and finished refined products) through the Port of Corpus Christi are forecast to increase from 1,504,000 b/d in July of 2013 to 2,250,000 b/d by 2020 representing a 6.4 CAGR (compound average annual growth rate). This represents both inbound and outbound movements with the inbound consisting of primarily heavy and medium sour crude oil for local area refineries.

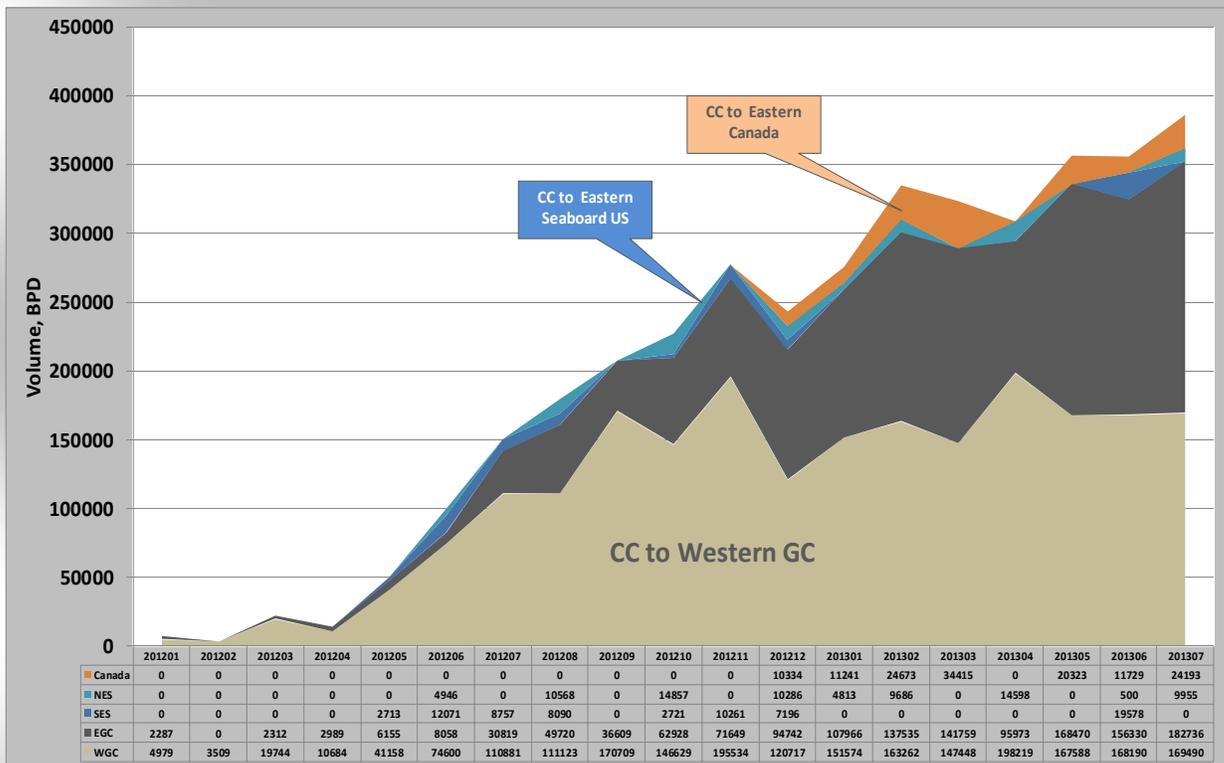


# ENERGY MOVEMENT OUTLOOK

- ✓ The limited availability of Jones Act Tankers resulted in relative high shipping costs with Gulf Coast to Northeast costs on the order of 5 to 6 dollars per barrel. Costs to move Eagle Ford to the Eastern Canadian market such as Valero’s Ultramar refinery are on the order of 2 to 3 dollars per barrel. Recent movements out of Corpus Christi to the East Coast have been to the Canadian market.
- ✓ Bakken crude is also competing for the Eastern Seaboard market with over 250,000 b/d inland/predominately Bakken crude currently moving to this market via rail. The rail costs are much approximately 2.5 times higher than Eagle Ford marine costs to access this market but the ability to displace foreign like grade crudes and pipeline limitations going south have made this sourcing and route a major outlet for Bakken crude. This will continue to be a major source of competition for Eagle Ford crude moving through Corpus Christi to Eastern Seaboard markets.

## Port of Corpus Christi: Energy Movement Trends Outbound: Crude Oil and Condensate

*The outbound long haul movements consist primarily of crude movements to Eastern Seaboard refineries in the U.S. and Canada. The outbound short haul movements consist primarily of crude movements to Gulf Coast markets with the Eastern Gulf Coast being the most rapidly growing of late*



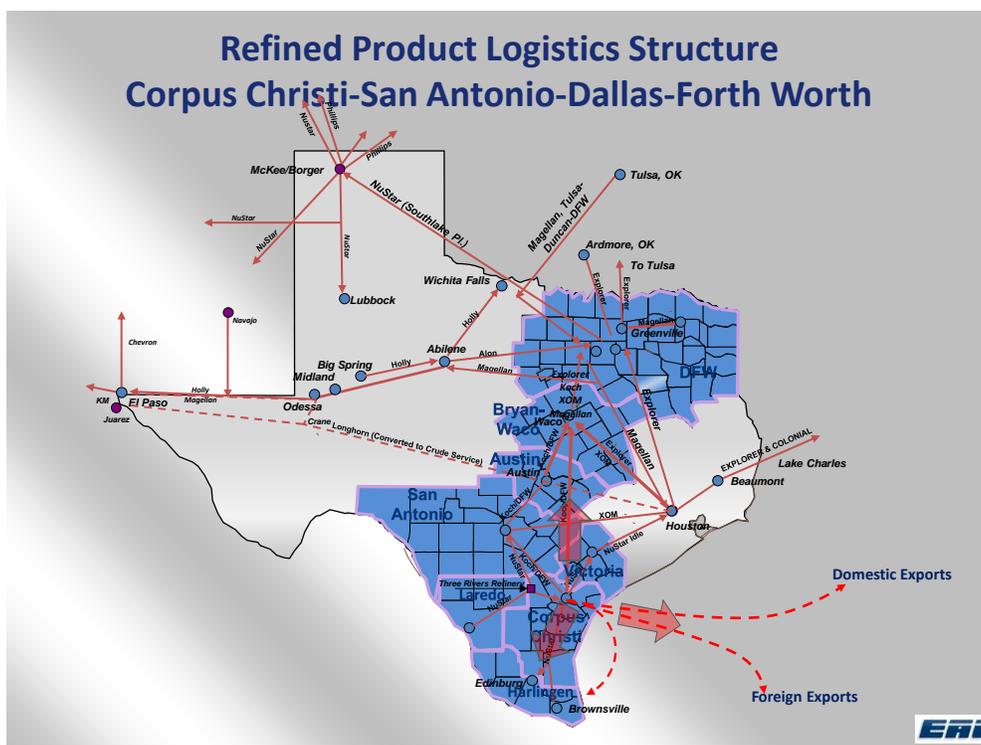
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# ENERGY MOVEMENT OUTLOOK

## INBOUND AND OUTBOUND: REFINED PRODUCTS

- ❑ **Supply-Demand Outlook:** EAI, Inc. is projecting a recovery of light product exports through the port in 2014 with refineries operating at normal capacity levels from 167,000 b/d in 2012 to 196,000 b/d in 2014. Post 2014, EAI, Inc. is forecasting moderately declining exports from 196,000 b/d in 2012 to 174,000 b/d by 2018 and then some recovery post 2018. This outlook is driven by increasing gasoline surplus in the Corpus Christi-Three Rivers area but offset by growing distillate demand and declining surplus for export. Export volumes via marine transport to foreign markets are expected to outpace marine movements to domestic markets.
- ❑ **Key Logistics and Port Business Drivers:** The outlook for light product movements through the port is driven by a number of key dynamics and fundamental shifts that are underway including the following:
  - Refineries in the Corpus Christi area are incentivized to maintain or increase crude runs with advantageous crude supply and pricing sourced in the Eagle Ford. Valero and Flint Hills are investing in their plants to run more light crude from the Eagle Ford by 2015. Flint Hills is expanding their crude run level by over 30,000 b/d (this is not included in EAI, Inc.'s refined product export volume).
  - Gasoline demand for refineries operating in the U.S. in general and in the CC-SAA-DFW corridor is in decline with consumption declining and, longer term, increasing penetration of the gasoline pool with ethanol. Refiners in the Corpus Christi area and other locations with port access are maintaining or growing their refinery output by moving more gasoline and distillate products to foreign markets.
  - The CC-SAA-DFW market corridor is supplied by a number of other refinery sources that compete with the Corpus Christi area refiners. These sources are expected to continue to push both diesel and gasoline output into this market corridor as they face deterioration of gasoline demand in other markets. The Magellan Pipeline between Oklahoma and DFW was recently reversed to move diesel south from southern Oklahoma to the DFW market with plans to move gasoline in the future.
  - The Corpus Christi refiners have been backed out of U.S. Gulf Coast and Eastern Seaboard product markets with similar patterns of demand declines and increasing competition from Gulf Coast refiners for their local and Eastern Seaboard markets. The availability and cost of Jones Act Tankers to move refined products has become very unfavorable thus accelerating the shift from domestic marine to foreign marine movements. This is expected to continue in the foreseeable future.

# ENERGY MOVEMENT OUTLOOK



- Corpus Christi Supply and Distribution Structure:** Refinery output of primary light products (gasoline, distillate and jet fuel) in Corpus Christi and Three Rivers is approximately 705,000 b/d with 630,000 b/d in Corpus Christi and the balance (75,000 b/d) out of the Valero Three Rivers plant. The total demand for light product in the Corpus Christi EAI, Inc. micro-market is approximately 32,000 b/d with 673,000 b/d distributed to other markets including:
  - Pipeline movements north to the San Antonio, Austin, Waco and Dallas-Ft. Worth Corridor markets
  - Pipeline and truck movements to Rio Grande Valley and Northern Mexico
  - Marine movements to domestic markets including the Gulf Coast, Eastern Seaboard and local Brownsville markets (Brownsville included in the CC-SAA-DFW corridor balance outlook).
  - Marine exports to foreign destinations

Koch owns and operates the northbound pipeline system to the Austin, Waco and DFW market areas. The CC-SAA-DFW market corridor is also supplied by WTX-NM refiners via the Alon Pipeline, Gulf Coast refiners via several pipeline systems (XOM, Explorer, Magellan and Sunoco) and the southern Oklahoma supply via the Magellan system.

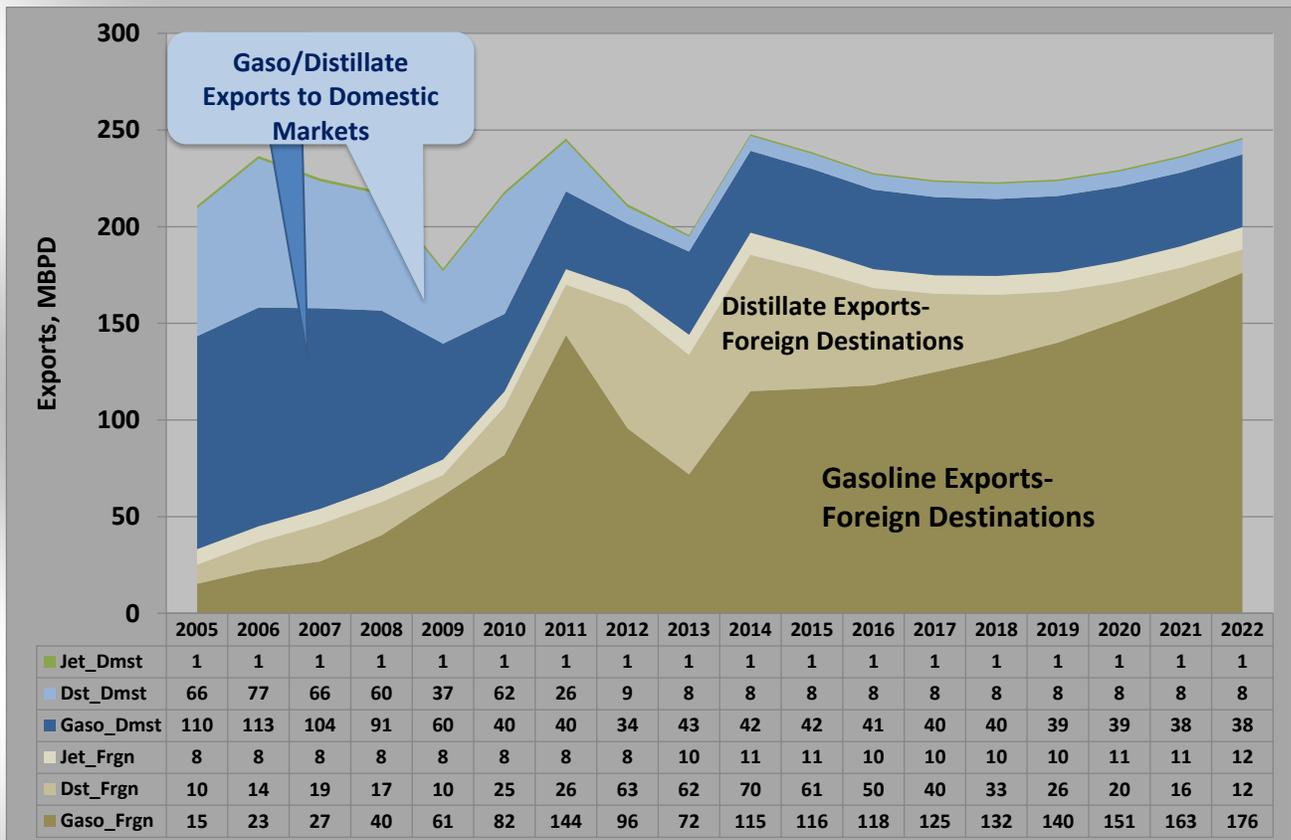
- Port of Corpus Christi Movements:** Inbound light product movements through the Port of Corpus Christi have declined to approximately 9,600 b/d from levels approaching 60,000 b/d in 2007 before the peak of light product consumption and the CC-SAA-DFW corridor growing long in light product supply particularly gasoline. Total foreign exports (through the Port of Corpus Christi) of light product have increased with this increasing supply length from 54,000 b/d in 2007 to 167,000 b/d in 2012 and 144,000 b/d for the first half of 2013. Exports were down in 2013 due to refinery facilities operating below normal levels due to maintenance or unscheduled disruptions.

# ENERGY MOVEMENT OUTLOOK

- Export Outlook:** EAI, Inc. projecting recovery and growth in 2014 and then moderate decline through 2017 in response to some demand recovery and strong growth for distillate. Post-2017, EAI, Inc. is projecting significant foreign export growth with accelerated demand declines and continued supply pressure on the Corpus Christi-San Antonio/Austin-Dallas/Ft. Worth market corridor

## Port of Corpus Christi: Energy Movement Outlook Inbound and Outbound: Petroleum Products

*Refined product exports increased through 2011 and have declined in 2012 and into mid-2013.*



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# ENERGY MOVEMENT OUTLOOK

## CONDENSATE SPLITTER PROJECTS

### FACILITIES USED TO CONVERT CONDENSATE INTO NAPHTHA FOR EXPORT

- ❑ ***Eagle Ford Condensate Production Growth Potentially Saturates Light End-Naphtha Market:*** As Eagle Ford condensate production increases along with other North American condensate streams, there is likely to be more difficulty absorbing these streams in the North American crude market. Condensate makes up about 35-45% of all liquids produced in the Eagle Ford. Most refiners are limited in the amount of light crude they can run (especially condensate grades) without plant investment and also are limited due to the declining North American gasoline market. A number of refiners have or are pursuing modifications to process additional light crude especially at Three Rivers, Corpus Christi, Sweeney, and Houston areas. Over the next couple of years, even with these investments, it is likely that the refiners will reach their saturation point to absorb very light/condensate type streams.
- ❑ ***Potential Need for Splitters:*** There have been a growing number of announcements by companies pursuing splitter projects with most of these projects in the U.S. Gulf Coast. These splitter projects are focused on fractionating condensate feed into light intermediates (primarily light and heavy naphtha with some distillate and gas oil) that can be used by local refineries or exported to foreign markets into the chemical feedstock market. The refinery light crude/condensate projects are really an integrated form of a stand-alone splitter. The primary driver potentially supporting these splitter projects is an excess of light crude and condensate in North America and the need to convert these materials into streams that can be exported and have values that support feedstock and splitter plant economics.
- ❑ ***Condensate Market Options:*** Once backed out of refineries due to oversupply, condensate (and/or condensate derivatives) can be shipped to Canada to be used as a diluent material for Alberta heavy crude/bitumen, or can be run through a splitter to produce naphtha intermediates. Condensate is a natural resource and cannot be exported, but naphtha is technically a refined product and can be exported. Naphtha is a chemical precursor which can be blended into gasoline or used as feedstock for ethylene and olefins plants. With growing length in North America and potentially high demand in Asia there appears to be support for condensate splitters located at port cities and having access to condensate supply.

### FACILITIES LOCATED IN CORPUS CHRISTI

- ❑ ***Most Condensate Splitters Planned In The Gulf Coast:*** Almost all are found on coastal industrial centers with export capability. The condensate rich Eagle Ford formation represents most of the Gulf Coast splitter project viability. Eagle Ford condensate can move on pipe to Houston (650,000 b/d capacity) or to Corpus Christi (1,160,000-1,260,000 b/d capacity). Condensate in Houston can also be shipped on pipeline to Canada for the bitumen diluent market.
- ❑ ***Corpus Christi Splitters:*** Condensate splitters at Corpus Christi are very practical due to the proximity of the port to the Eagle Ford formation. It costs under \$2 per barrel to transport

# ENERGY MOVEMENT OUTLOOK

liquids by pipeline from the Eagle Ford to Corpus Christi. The Port of Corpus Christi outbound capability allows midstream and trading companies to consider processing condensate into exportable naphtha. East bound movements to the Houston-Pasadena area represent another option for growing condensate supply with company's also considering or pursuing splitter projects.

- **Magellan:** With port-side storage, marine loading and a pipeline carrying condensate from Eagle Ford already in place, this port terminal is perfect for converting non-exportable condensate into naphtha. No timetable for construction or start up available yet.
- **Martin/Alinda:** Martin Midstream is now teamed with Alinda Capital. A land dispute at Harbor Island might have put this project on the shelf. The group announced they will build a splitter ready in 2016, will handle between 50,000-100,000 b/d of condensate. Project to cost between \$200-300 million.
- **Castleton Commodities International, LLC (CCI):** Expects a 50,000 b/d condensate splitter to be online in mid-2015, expandable if demand is in place.
- **Trafigura:** Because no news about a splitter has been released publicly, this splitter project is considered speculative. Trafigura has port-side storage and marine loading, and in November 2013 they entered into a JV pipeline to bring Eagle Ford crude/condensate to their facility.

## Condensate Splitter Projects All U.S. Regions: Existing, Proposed, and Speculative

COMPANY	PROJECT	CITY	PROJECT SIZE (MBPD)	PLANT COST (MMD)	PLANNED STARTUP DATE	STATUS	COMMENT
Kinder Morgan	Galena Park Condensate Processing Facility	Galena Park	50	200	6/1/2014	Construction	50 MBPD expandable to 140. BP leased 750 MMBbl product storage, commits to 40 MBPD condensate. KM announced Jan 2013 to construct new ship dock and storage vessel, 1.2 MMBbls. KM plans to send 95 MBPD condensate to Alberta.
BASF FINA Petrochemicals	Port Arthur Ethylene Cracker Feeder - Condensate Splitter	Port Arthur	75	N/A	1/10/2001	Operating (restarted in 2009)	Used at Port Arthur ethylene cracker facility, processes Eagle Ford condensate. Been used in naphtha cracker (to produce ethane) since 2001
Magellan	Corpus Christi Splitter	Corpus Christi	N/A	N/A	N/A	Planning	Magellan already has 3 MMBBI storage at Corpus Christi, plus a new addition of 500 MMBBI for crude/condensate storage. Double Eagle pipeline (Kinder Morgan JV) runs from Dimmit, LaSalle, and Karnes counties to Corpus Christi, 100 MBPD
Martin Midstream	Harbor Island	Harbor Island	50-100	200-300	5/1/2016	Unknown	Martin Midstream is under litigation over a canceled land sale at Harbor Island where the splitter was planned. The future of this project remains unclear. Martin recently partnered with Alinda Capital for future project investments. The Double Eagle pipeline delivers condensate from Eagle Ford directly to the Martin terminal at Corpus Christi.
CrossTex Energy	ORV Condensate Splitter	Marcellus / Utica Proximity	N/A	N/A	N/A	Speculative	Talked about condensate splitting in financial earning calls. Expect Ohio Valley (Utica/Marcellus) to increase condensate production 200-300% by mid 2014
Castleton Commodities International	Corpus Christi Condensate Splitter	Corpus Christi	50	223	1/7/2015	Planning	Castleton Commodities International LLC has filed permits for a 50,000 b/d splitter project on acreage leased from PCCA. A second phase is possible.
Oiltanking Partners	Beaumont Condensate Splitter	Beaumont	N/A	N/A	N/A	Speculative	Growing Eagle Ford condensate production will provide a cheap feedstock and a splitter can yield valuable products which can be exported. Looking for partner for JV splitter project. OTP Beaumont has 5.6 MMBBI storage, looking to expand.
Hydrex	Hydrex Terminal Fractionation Plant	Long Mott (Near Victoria, TX)	20	400	1/9/2016	Planning	Hydrex Inland Marine Enterprises announced they would open the Hydrex Terminal, in the Victoria Barge Canal. The terminal will have a condensate splitter and desulphurization unit to make a variety of products. Will export to refineries in Texas and Louisiana, and
VEOPS	VEOPS Refinery	Oakdale	40	100	1/12/2014	Construction	VEOPS said they would build a refinery that consisted of just a crude topping unit, but don't specifically say they will process condensate material. VEOPS is Virtual Engineering Operations.



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# ENERGY MOVEMENT OUTLOOK

## NATURAL GAS AND NGL OUTLOOK

- ❑ **Overall Trends:** Natural gas and associated NGL production has increased rapidly over the past three years as development expanded in the liquids rich West Texas and Eagle Ford trends. Early production was routed into Corpus Christi with much of the longer term incremental production destined for Mont Belvieu as indicated by pipeline and gas processing plans. Under the existing price conditions, oil and NGL development will govern natural gas production while local dry gas development will remain on the back burner until regional gas prices connect with global demand.
- ❑ **Eagle Ford Natural Gas Production Outlook:** EAI, Inc.'s Base Case scenario has Eagle Ford gas increasing from 3.3 billion cubic feet per day (BCFD) in 2013 to 6.0 BCFD by 2020. The Base Case natural gas outlook is shown as bars with casinghead gas in blue and gas wells as red bars. The Ultimate Potential case is represented by the shaded areas to show the impact of shifting the rig fleet over to gas condensate development in 2014 with an increase in overall rig count to 300 active horizontal rigs by 2015. The High Potential gas case increases to 9.0 BCFD over the same timeframe with the model showing continued growth if unconstrained by demand or infrastructure.
- ❑ **Natural Gas Liquids Production Outlook:** The high gas oil ratio of the new shale plays has caused a near doubling of area NGL output. The Eagle Ford leads this trend. However, each of the Wolfcamp, Bone Spring, Avalon, Granite Wash 'liquid' plays play a role in ramp-up of NGL stocks. The rich gas plays being pursued in the Barnett, Cotton Valley and other lean gas regions will add to the overhang but not nearly to the extent anticipated for West Texas and the Permian. Current NGL production in the Eagle Ford is in the range of 400 to 500 thousand barrels per day with both natural gas and NGL production expected to double by 2018.
- ❑ **Overall Gulf Coast Fractionation Facilities:** Gulf Coast fractionation capacity is projected to expand by over 1,000,000 b/d from 2012 levels based on current project plans; or from 2,453,000 b/d capacity in 2012, to 2,960,000 b/d during 2013 to 3,570,000 b/d by 2015. Area midstream operators are: DCP (Duke Energy-Spectra-Phillips 66), EPPL (Enterprise Product Partners, LP), Energy Transfer Partners (includes Sunoco Logistics and Regency), Kinder Morgan, Lone Star, Magellan, Williams, Markwest, and Targa.
- ❑ **Eagle Ford Gas Processing:** New plants have been built throughout the Eagle Ford trend with much of the new capacity located east of Corpus Christi in Lavaca, Jackson and Colorado counties. NGL from these plants is to be delivered by pipeline to fractionation facilities at Port Lavaca, Mont Belvieu, and connected facilities in coastal Louisiana. The latter two fractionation regions are connected to NGL systems that extend from the Permian Basin, Rocky Mountain, Midcontinent and soon to be connected Appalachian NGL supply.
- ❑ **NGL Logistics:** Based on EAI, Inc.'s assessment, most Eagle Ford liquids are being transported on NGL pipelines to the Houston/Pasadena area for further processing and distribution.
  - Mont Belvieu has a very established distribution network for both inbound NGL, wet gas,

# ENERGY MOVEMENT OUTLOOK

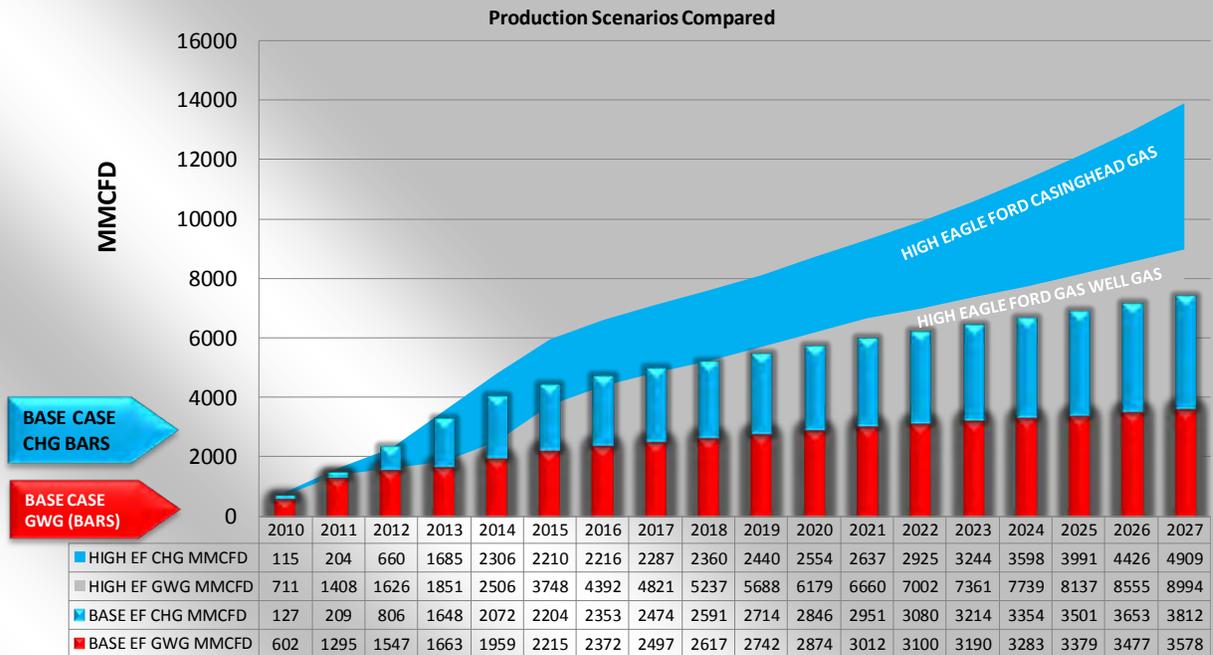
and products output including petrochemical feedstocks, and have recently added capacity to allow for increased marine export of NGL derived products.

- Corpus Christi NGL supply is transported by a complex network of existing pipelines, including connections from the Mont Belvieu area, the EPPL wet gas pipeline to their Shoup fractionator, Seadrift, Dean South and other lines.

- **NGL Export Growth:** The growing availability of LNG and NGL liquids (most notably propane) is expected to continue to impact the Gulf Coast distribution network, at least into 2017, and export facilities are viewed as one essential component for relieving local natural gas surfeit. This is a stark change of perspective from 2008 when LNG imports were expected to offset declining domestic production.

## Eagle Ford – Natural Gas Production Scenarios High Resource Potential – versus – Base Case

*The Base Case outlook is shown as bars with casing head gas in blue and gas wells as red bars. The Potential case represented by the shaded areas was designed to show the impact of shifting the rig fleet over to gas condensate development in 2014 with an increase in overall rig count to 300 active horizontal rigs by 2015. The base case scenario has Eagle Ford gas increasing from 3.3 BCFD in 2013 to 6.0 BCFD by 2020. The high Potential gas case increases to 9.0 BCFD over the same timeframe with the model showing continued growth if unconstrained by demand or infrastructure.*



CHG = casinghead gas  
MMCFD = million cubic feet per day

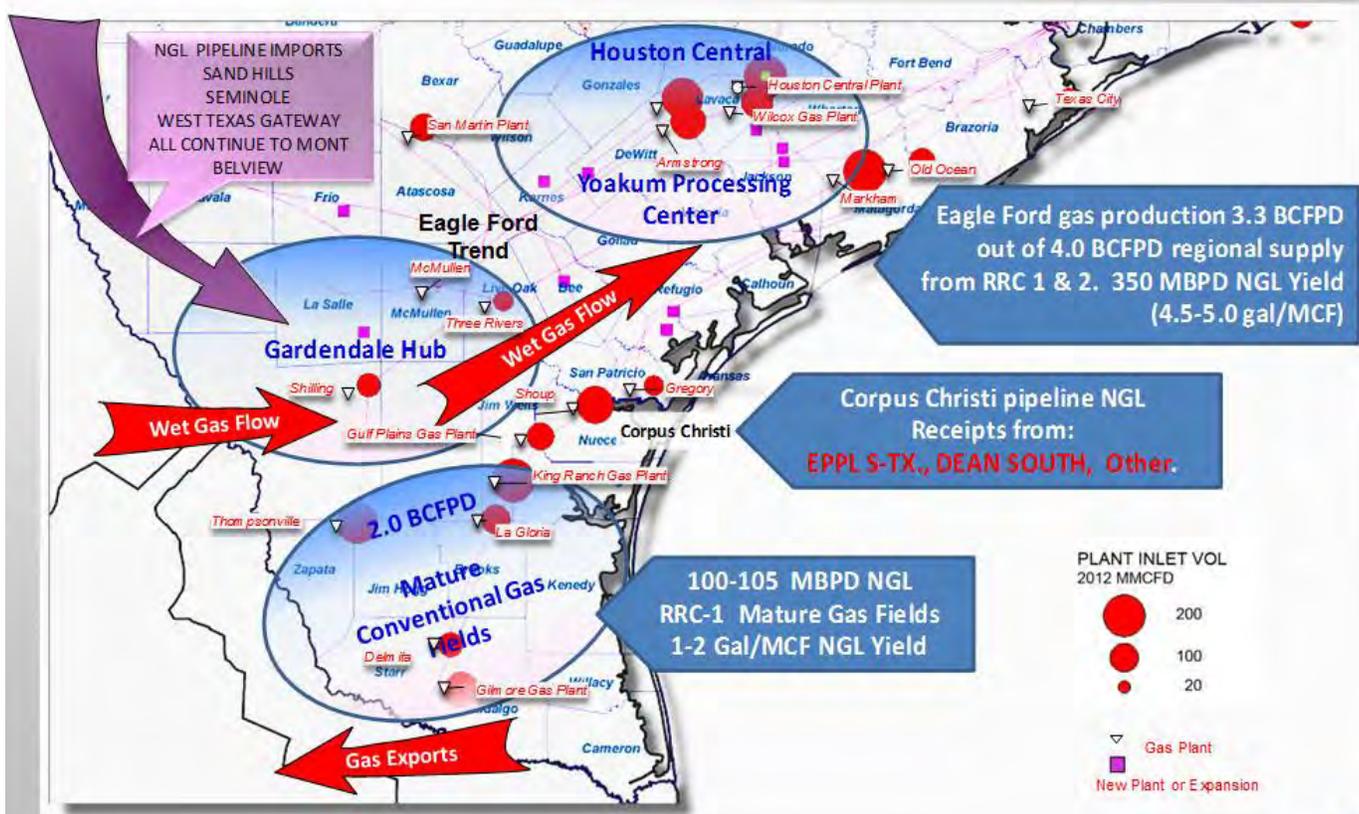
GWG = gas well gas  
BCFD = billion cubic feet per day



# ENERGY MOVEMENT OUTLOOK

## Corpus Christi – NGL Supply

Natural gas and NGL supply prior to Eagle Ford development was concentrated southwest of Corpus Christi as served by the natural gas plants shown below. Data not compiled for 2013 plant throughput.



EAI

### GULF COAST NGL – OVERVIEW OF NGL SUPPLY AND DISTRIBUTION

- Eagle Ford NGL:** Overall Gulf Coast production of Mixed NGL's as available to pipelines for delivery to fractionation markets has risen from 1,200,000 b/d in 2010 to an estimated 1,600,000 b/d in 2013. Most of the incremental new supply is coming from Eagle Ford development. Eagle Ford liquids are recovered at gas processing plants located east of the westernmost producing counties, (Webb, Dimmit, and western La Salle) which fields are currently served by wet gas pipelines. Gas processing demand rapidly outpaced existing capacity and lead to the construction of several new facilities as shown on the subsequent map exhibit.
- Gas Processing:** Estimated to be taking roughly 300,000-350,000 b/d of NGL from 3.0-3.5 BCFPD of mostly wet gas produced from Eagle Ford and adjoining west Texas counties (included in RRC Districts 1 & 2) between Gardendale and the Houston Central – Yoakum gas processing centers. The remaining 1.0-1.5 BCFPD of area gas is delivered into either Corpus Christi or Houston coastal gas plants and is estimated to contain another 80,000-400,000 b/d of NGL. Overall NGL yield from these plants is estimated as follows:

## ENERGY MOVEMENT OUTLOOK

Gas Processing Estimated for midyear 2013	Inlet MMCFD	NGL b/d	PCT ETHANE	PCT PROPANE	PCT BUTANES	PCT PENTANES PLUS
NGL AVAILABLE (GROSS)	5.5 GAL/ MCF	450,000-500,000	51-57%	25%	10-11%	10%
WESTERN EAGLE FORD	1,590	140,000	38%	34%	15%	12%
CENTRAL EAGLE FORD	1,948	220,000	42%	25%	15%	14%
Wet gas to other facilities	1,200	140,000-160,000	52%	27%	11%	9.50%

- ❑ **Fractionation Capacity in Corpus Christi** is estimated at: 105,000 b/d comprised of 77,000 b/d at Shoup and 28,000 b/d at Javalina. A 63,000 b/d fractionation unit is planned for LyondellBasell-66 in 2015. The Equistar petrochemical facility (JV with Lyondell) has an olefins unit expansion planned for startup in 2014. Fractionation capacity is being added at Bonnieview (Southcross 22,500 b/d in 2013), Armstrong (EPPL-100,000 b/d), Sweeny-Old Ocean (100,000 b/d addition) with approximately 2,500,000 b/d fractionation capacity located east of Houston at Mont Belvieu and in coastal Louisiana.
- ❑ **Gas Production Southwest of Corpus Christi:** Estimated at 2.1 BCFPD (RRC-District 4) most of which is marketed through Agua Dulce Hub and routed through either Corpus Christi or exported to Mexico. NGL yield is much lower than that of the Eagle Ford and is estimated at 100,000-105,000 b/d for 2013 or roughly 1-2 gallons per MCF with higher ethane and propane than Eagle Ford mix.

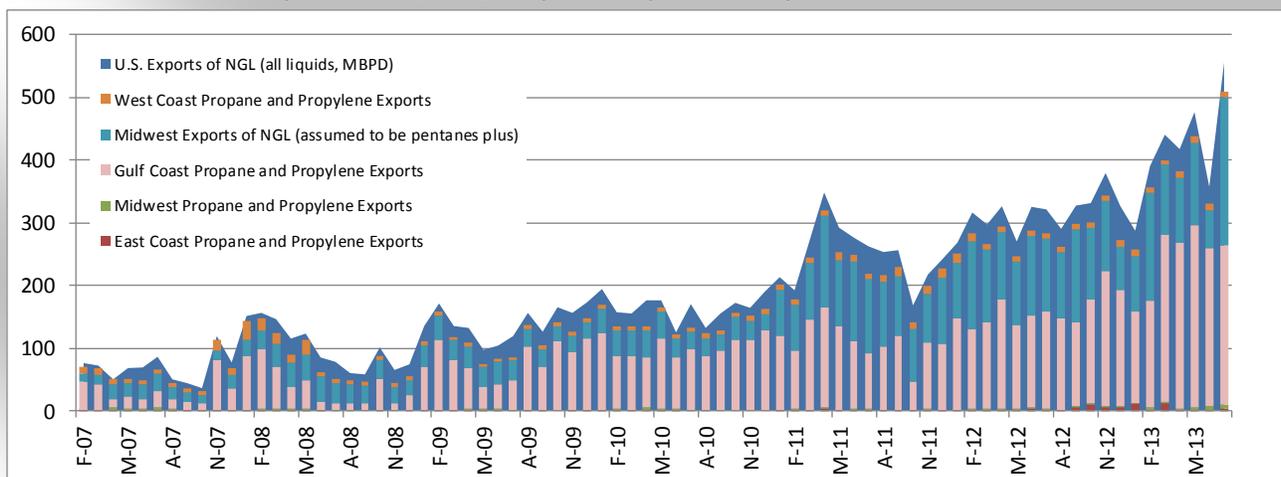
*Note: as new more efficient gas plant capacity come on stream during 2013 the relative Ethane capture will increase.*

# ENERGY MOVEMENT OUTLOOK

## Gulf Coast– NGL Export

### Overview of NGL trade

- NGL Exports:** Overall US NGL exports have increased from less than 100,000 b/d in 2008 to over 550,000 b/d in 2013. The Gulf Coast is exporting most of this volume at 290,000 b/d (primarily propane-propylene) with Midwest PADD II exports at 237,000 b/d of pentanes plus as of July 2013.



USA NGL Exports	b/d July 2013	Notes
Pentanes Plus	240,000	Primarily to Canada
Ethane-Ethylene	0	None reported
Propane and Propylene	276,000	
Butane-Butylene	49,000	
Isobutane-Isobutylene	0	
Total NGL Export	564,000	



## LNG EXPORT PROJECTS

### FACILITIES THAT LIQUEFY NATURAL GAS FOR MARINE SHIPMENTS

- Shale Gas And Current Export Laws:** Due to the shale oil and gas drilling revolution, an abundance of natural gas has hit the U.S. markets, but is driving the price of the commodity low because it has nowhere to go. The DOE predicts that U.S. natural gas demand will increase from 70.2 billion cubic feet per day (BCFD) to 72.1 in 2020 and 75.5 BCFD in 2030, an increase of about 0.4% per year. DOE also predicts the increasing production of natural gas in shale plays will make the U.S. a net exporter of natural gas before 2020. Under current export laws, natural gas cannot be exported to countries that are not under a free trade agreement (FTA) with the United States, unless they have a special license approved by the DOE. Most worldwide demand for natural gas is from countries not in an FTA with the U.S. Non-FTA export licenses are not as

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## ENERGY MOVEMENT OUTLOOK

easy to obtain and the DOE has only approved four of these licenses and has 20 more waiting for approval. The DOE has given no concrete timetable as to when the other licenses will be approved, or how many in total will be approved. Currently the U.S. exports natural gas via pipeline to Mexico and there is increasing pursuit of building more natural gas pipeline capacity to Mexico.

- ❑ **LNG Plants Needed To Send Natural Gas On Ships:** To transport natural gas on marine vessels, it must first be chilled to its liquid state, also known as liquefied natural gas (LNG). Liquefaction is an expensive and energy consuming process and requires a large capital investment with a long lead time to construct facilities. Plants which liquefy natural gas, LNG plants, are being considered to be built along the Gulf Coast, Eastern Seaboard, Pacific Northwest, Canadian West Coast, and in Alaska. So far, the DOE has approved three LNG plants in the Gulf Coast and one on the Eastern Seaboard.
  
- ❑ **LNG plants and the Port of Corpus Christi:** There have been two facilities which have applied for non-FTA export licenses which are planning to ship LNG out of the Port of Corpus Christi: Cheniere's Corpus Christi LNG, and Pangea LNG.
  - **Cheniere LNG Terminal:** Cheniere is still awaiting approval for non-FTA export, but is number five in order of DOE processing. It is likely that this facility will be granted a license and will export 1.8 BCFD. Cheniere is also the operator of the LNG plant that was awarded the first non-FTA export license.
  - **Pangea LNG Terminal:** This proposed 1.1 BCFD facility was a little late to apply for the non-FTA export license and they currently sit at number 13 in order of DOE processing. This project is no longer under active development.

### U.S. EXPORT LNG PROJECTS

All have been approved for export to countries with an FTA, only four approved for non-FTA export. Listed in order of DOE/FE processing. There are an additional 20 projects waiting for DOE approval. Projects are listed in order of processing, but the DOE has given no timeline to grant approval. As shown in the table below:

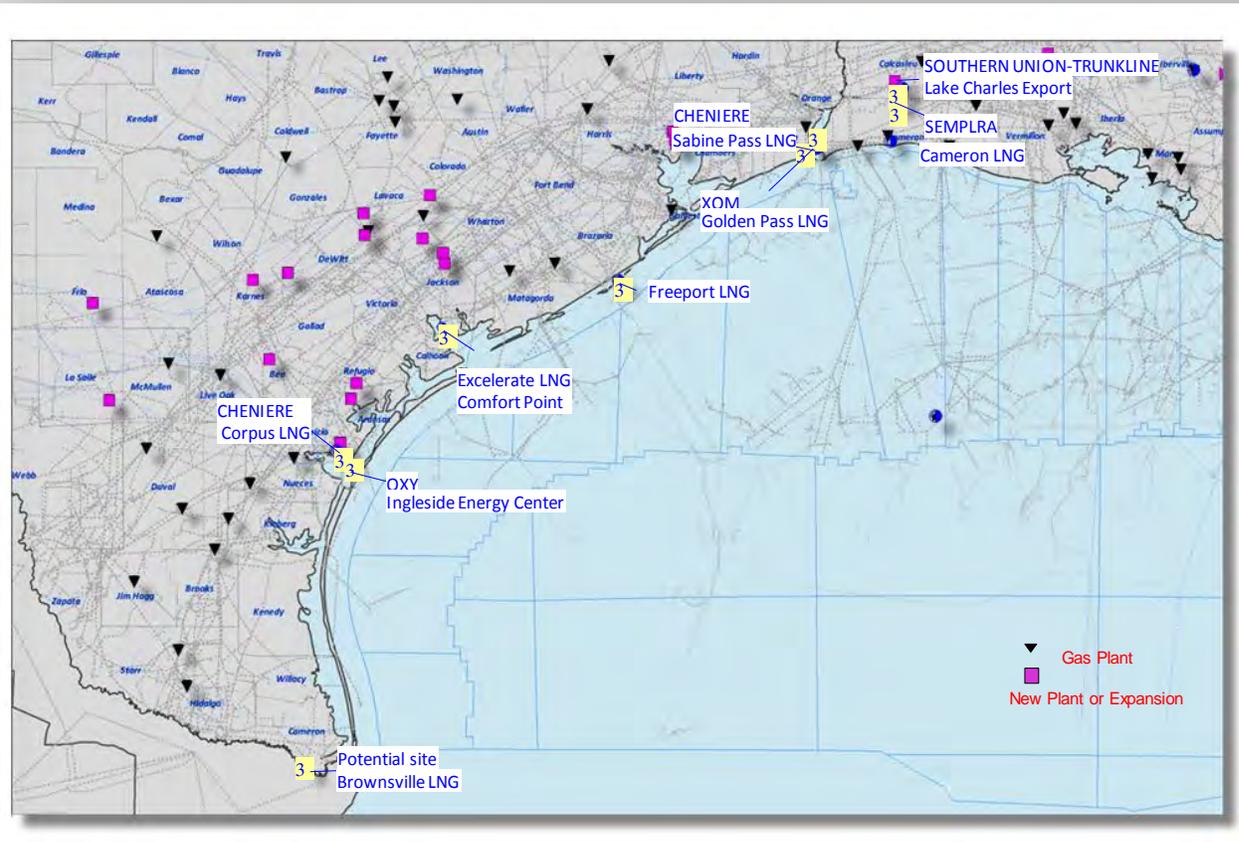
# ENERGY MOVEMENT OUTLOOK

Company	City, State	Date Approved	Date Online	Capacity BCFD	Comments
Sabine Pass Liquefaction (subsidiary of Cheniere)	Cameron Parish, LA	5/20/2011	1/1/2016	2.2	0.47 BCFD in a LTA with Korea Gas. Other LTAs with UK, Spain, India, France
Freeport LNG (Freeport 20%, Zachry American infrastructure 55%, Dow 15%, Osaka Gas 10%)	Freeport, TX	5/17/2013	3/1/2018	1.4	0.29 BCFD in LTA with SK E&S, other LTAs with Mitsubishi, Chubu Electric, Osaka Gas (all Japan). Applied for additional 1.4 BCFD
Lake Charles Exports (Southern Union & BG Group JV)	Lake Charles, TX	8/7/2013	1/1/2018	2	BG group (UK) has exclusive export rights on a tolling basis.
Dominion Cove point LNG	Cove Point, MD	9/12/2013	7/1/2017	1.0	Contracts with Sumitomo (Japan) and GAIL (India) each for 50% of export capacity. Closest LNG export to Utica/Marcellus
Freeport LNG (Freeport 20%, Zachry American infrastructure 55%, Dow 15%, Osaka Gas 10%)	Freeport, TX	11/15/2015	5/1/2018*	0.4	Addition to already approved non-FTA export capacity on two LNG trains, this approval would be four trains 1.8 BCFD. Freeport was hoping to get 1.4 approved, for a total of 2.8 BCFD
Cameron LNG Liquefaction (owned by Sempra LNG)	Hackberry, LA	5/1/2014**	7/1/2017*	1.7	20 year LTA with GDF Suez (Mitsubishi, Japan)
Jordan Cove Energy Project (Veresen 75%, Energy Projects 25%)	Coos Bay, OR	9/1/2014**	1/1/2018*	0.8	1.2 Bcf/d total, only 0.8 to non-FTA. Pacific Northwest, export gas sourced from Canada
Orgeon LNG (LNG Development Co., Leucadia National Corp)	Astoria, OR	1/1/2015**	1/1/2019*	1.3	Pacific Northwest, will export gas sourced from Canada
Corpus Christi Liquefaction (subsidiary of Cheniere)	Corpus Christi, TX	5/1/2015**	1/1/2019*	1.8	Was permitted for regasification (LNG imports), now seeking LNG export permits. No long term agreements to export LNG to foreign countries in place. Would be the first LNG facility at Port of Corpus Christi. Cheniere also owns LNG export plant at Cameron Parish
Excelerate Liquefaction - Floating Terminal	Lavaca Bay, TX	9/1/2015**	1/1/2020*	1.3	Floating facility moored at Port Lavaca with 100 acres of upland infrastructure
Corpus Christi Liquefaction (subsidiary of Cheniere)	Corpus Christi, TX	1/1/2016**	N/A	1.80	Was permitted for regasification, now has applied for permit to export LNG. Would be first LNG facility at Corpus Christi. Cheniere also has an LNG facility at Cameron Parish, LA
Carib Energy (recently bought by Crowley)	Jacksonville, FL	1/1/2016**	N/A	0.01	Only plans to ship LNG from the Gulf Coast to Caribbean and Latin American countries
Gulf Coast LNG Export	Brownsville, TX	1/1/2016**	N/A	2.00	3 LNG trains; 320,000 to 480,000 m3 storage, \$6 billion
Elba Island Terminal (Southern LNG Company, which is subsidiary of El Paso Pipeline/Kinder Morgan) (Shell 49% partner)	Elba Island, GA	1/1/2016**	N/A	0.35	Southern LNG Company; 1 LNG train; 550,000 m3 storage. No timeline, but construction started on phase 1 (1.5 MMTpy)
Gulf LNG (El Paso 50%, GE Energy Financial Services 46%, others 4%)	Pascagoula, MS	1/1/2016**	N/A	1.50	3 LNG trains, 320,000 m3 storage
CE FLNG (Cambridge)	Plaquemine Parish, LA	1/1/2016**	N/A	1.07	CE FLNG - Owned by Cambridge. Would have half of take away ready in March 2018, the rest in October 2018.
Golden Pass Products (Qatar Petro. 70%, ExxonMobil 30%)	Sabine Pass, LA	1/1/2016**	N/A	2.10	ExxonMobil - Golden Pass; 4 LNG trains; 5 tanks storage. Waiting for FERC final decision before beginning construction. Completion will be 5 years after construction begins
Pangea LNG (North America) Holdings	Corpus Christi, TX	1/1/2016**	N/A	1.07	This project is no longer under active development
Lake Charles Exports (Southern Union & BG Group JV)	Lake Charles, LA	1/1/2016**	N/A	2.00	2 BCFD expansion of existing 2 BCFD LNG export terminal
Main Pass Energy Hub / Freeport-McMoRan Energy	37 miles off of Venice, LA	1/1/2016**	N/A	3.22	Floating liquefaction vessels receive natural gas. Partnered with United LNG

# ENERGY MOVEMENT OUTLOOK

## Gulf Coast LNG Trade Facilities

*Existing and Planned*



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