

TxDOT Waterborne Freight Corridor Study

Task 1: Evaluation Criteria and Solution Packages

final report

prepared for

Texas Department of Transportation

prepared by

Cambridge Systematics, Inc.

with

Moffatt & Nichol
HNTB
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November 29, 2011

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Summary

- A **five-step benefit assessment methodology** was developed in order to transform the project list into a prioritized investment plan. Though this report focuses on the first two steps, the entire process is summarized within in order to provide context and to clarify the intent of these early steps.
- A **multimodal, “master” project/strategy list** (Step I) was created that represent a wide swath of ongoing, planned, and conceptual projects targeted to improving the efficiency, safety, and throughput of Texas’ waterborne freight system. Several sources were instrumental to develop this list, including one-on-one interviews with waterborne freight system stakeholders, discussions with the project Stakeholder Advisory Committee, and through analysis of existing studies and ongoing projects. This list included almost 200 multimodal projects and strategies.
- Projects and strategies were also grouped into three different **Performance Definitions**– maintenance, capacity enhancement, or strategic investment. Criteria used to categorize each project included: the project intent, the availability of funding, project readiness, implementation timeline, technology needed, and infrastructure/capital needs.
- **Tier I screening metrics** (Step II) were developed in order to screen out those projects and strategies that are underway, conceptual, or locally based, and therefore do not belong in a statewide, system-level plan. They include metrics such as the potential of a project to enhance or maintain system-level capacity and mobility, as well as the potential of the project to be implemented (in terms of multiple beneficiaries, existing funding sources, or existence of preliminary planning work). Those projects/strategies that perform well under the Tier I metrics will be forwarded into a Tier II (quantitative) assessment. Those that do not perform well will be dropped from consideration as part of this strategic, statewide planning process.
- **A Tier I assessment was performed** on the “master” list of projects (Step II). The results of this assessment are provided in this report. In all, 49 projects and strategies performed sufficiently well on the Tier I assessment to be advanced into the next stage of analysis.
- These **49 projects** constitute the solution packages. These solution packages will be forwarded to the Step III quantitative assessment of benefits; the Step IV evaluation of impacts; and, ultimately, the development of a strategic investment plan to guide TxDOT’s participation in the waterborne freight system (Step V).

1.0 Introduction and Goals

The overall goal of the Texas Waterborne Freight Corridor Study is to create a strategic vision for the State’s waterborne freight system, as well as a phased implementation plan to guide TxDOT and its partners (ports, port authorities, MPOs, railroads, USACE, and others) to achieve this vision. To this end, an extensive list of infrastructure, operational, and policy solutions has been developed that addresses critical bottlenecks and deficiencies on the State’s marine terminals, navigable waterways, inland highway, and rail connections. Each of these projects and strategies has been assessed in terms of completion costs, implementation timelines, and the status/feasibility of an identified funding stream.

However, there are several remaining steps of analysis that must be completed to transform this project list into a strategic investment plan. First, though some of these projects are stand-alone solutions, others will benefit from being packaged with other complementary infrastructure, operational, or institutional projects. As well as to make the individual projects stronger, the packaging may benefit a broader set of stakeholders, allowing for a sharing of costs, increased support for the projects, and a greater contribution to statewide and regional mobility goals. Second, the costs and benefits of solutions need to be estimated with an economic assessment tool, in order to fully understand the economic implications of potential investments along the State’s waterborne system. And finally, the solution packages need to be prioritized and organized into a phased implementation strategy to guide the direction of investment in the short, medium, and long terms.

This report addresses the first of these steps. Specifically, it defines what is meant by a “solution package,” and describes a five-step framework by which to screen potential projects/solutions for inclusion within (or exclusion from) the scenarios to be tested within our economic model. It also discusses the results of the first “Tier I Assessment,” which narrowed the list of potential projects to a smaller number of “solution packages.” These “solution packages” will be moved forward into the impact assessment phase, and will ultimately be prioritized into recommendations for TxDOT’s involvement in the waterborne freight system.

1.1 GOALS AND GUIDING PRINCIPLES

This effort builds on work completed in Phase I of the TxDOT's Waterborne Freight Corridor Study project. Phase I developed an understanding of the regional, national, and global trends that impact freight demand at Texas ports and waterways. It also identified key chokepoints that impact the efficiency and safety of the waterborne freight system. Finally, it described some of the key mobility, economic, and community/environmental impacts being caused by (or exacerbated by) the growth trends, bottlenecks, and issues.

Phase II is intended to build on this work by accomplishing several goals:

1. To identify infrastructure, operational, and institutional recommendations to help the State and its local partners to address the issues and bottlenecks identified in the Phase I effort. The focus of this effort are the 16 key deep-water and shallow draft ports identified in the Phase I report, as shown in Figure 1.1, and the Gulf Intracoastal Waterway (GIWW).
2. To describe the costs and benefits of these solutions.
3. To develop a phased implementation strategy for consideration by the State and other stakeholders.

Figure 1.1 The TxDOT Waterborne Freight Corridor System



Source: TxDOT Waterborne Freight Corridor Study Phase I Report.

Guiding Principles

These goals will be met by ensuring that Phase II work recognizes and is responsive to a set of “guiding principles.” These guiding principles, listed below, will help ensure that the final set of strategies:

- Address systemwide issues on the Texas waterborne transportation system and landside access needs, (again focusing on the system shown in Figure 1.1);
- Comprise logical groupings of operational, infrastructure, and policy-level solutions;
- Are realistic and implementable;
- Provide measurable public or public/private benefits on a regional or state-wide scale;
- Minimize the safety, health, or environmental impacts to surrounding communities/environments; and
- Address the short-, medium-, and long-term needs of the waterborne transportation system, GIWW, and associated landside access facilities.

These guiding principles have influenced every step of the process to date, from the initial selection of projects to the development of the Tier I and Tier II evaluation metrics. They will continue to guide the benefit assessment process and project/strategy prioritization efforts throughout the remainder of the Phase II effort. Doing so will ensure that this Phase II effort fulfills the three goals outlined by TxDOT at the onset of the project.

2.0 Framework for Analysis

Phase II of this TxDOT Waterborne Freight Corridor Study was tasked with developing a set of infrastructure, operational, and policy solutions to address the needs identified in Phase I. Moreover, TxDOT requested that this be accomplished in a manner that is transparent, can respond to changing stakeholder needs, and is easily reproducible.

In order to fulfill TxDOT's goals, a five-step evaluation process was developed. This process is meant to provide a framework by which projects and strategies can be selected, evaluated against each other, and ultimately moved into a prioritized investment plan for the State's Waterborne freight system.

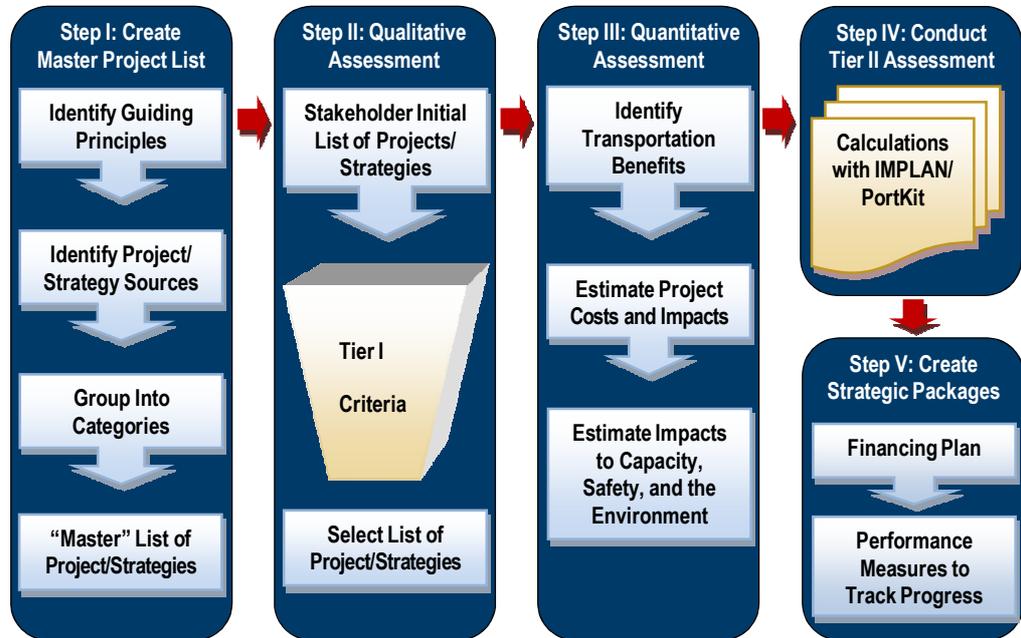
This report describes the *first two steps* of this multiphase benefit assessment methodology – i.e., the creation of a master list and the Tier I qualitative assessment. However, Figure 2.1¹ and accompanying text provide a brief overview of the entire five-step process. Doing so may help to frame the information contained within this report. It will also clarify the steps that remain to transform the “master” project/strategy list into a strategic investment plan.

- **Step I** - Create Master Project List;
- **Step II** - Conduct a Tier I (qualitative) screening assessment on the “master”² list of multimodal projects and strategies to narrow the list of projects/strategies to a group of solution packages (Included in this report);
- **Step III** - Conduct a Tier II (quantitative) benefit screening assessment on those projects that satisfy the Tier I criteria (To be included a later deliverable);
- **Step IV** - Perform an impact assessment of the projects that satisfy the Tier II screening using IMPLAN economic assessment tool (To be included a later deliverable); and
- **Step V** - Create strategic, multimodal packages of projects and strategies (To be included a later deliverable).

¹ This methodology was proposed to TxDOT in May 2011. It is included here to clarify the contribution of the Tier I methodology to overall project goals.

² The “master” list refers to the more than 200 project and strategy list prepared in coordination with TxDOT and the stakeholder group.

Figure 2.1 Five-Step Project Evaluation Process



3.0 Step I - Creation of “Master” Project List

The first step of the project evaluation process is to create a “master” project list that contains all known planned, ongoing, and conceptual projects targeted to improving the efficiency, safety, and throughput of the Texas waterborne freight system. Several sources were consulted in the development of this list, including one-on-one interviews with waterborne freight system stakeholders, discussions with the project Stakeholder Advisory Committee, and an analysis of existing studies and ongoing projects. The following sections provide detail on how projects were identified, categorized, and grouped within a final “master” project list.

3.1 PROJECT IDENTIFICATION

The project team identified multimodal projects and strategies using several different methods. Some of the projects were identified throughout the TxDOT’s Waterborne Phase I effort, which culminated in a final report in July 2010. Additional projects and strategies have been added throughout the TxDOT’s Waterborne Phase II effort, mostly throughout the fall and winter of 2010/2011. Other methods include:

- One-on-one interviews with waterborne freight system stakeholders, including individual ports, some key shippers, pilot groups, academics specializing in the State’s waterways, regional governments and economic development agencies, and other local and regional organizations and governments;
- Discussions with our Stakeholder Advisory Committee – which is comprised of representatives from Texas seaports, economic development agencies, regional and MPOs, the USACE, Class I railroads, TxDOT districts, and other stakeholders;
- Recommendations from other ongoing port capacity, maintenance, and mobility projects relevant to the statewide waterborne freight system; and
- Other recent studies, including work completed by the USACE, specific ports, and the TxDOT’s Waterborne Freight Study Phase I report.

These discussions and research efforts resulted in a list of about 200 multimodal projects, strategies, and policies. The projects and strategies vary tremendously in terms of estimated project cost, project size and timeline, and geographic location. However, they are similar in that each one has been chosen by the

Stakeholder Advisory Committee for its contribution to the efficiency and capacity of the Texas waterborne freight system.

3.2 PROJECT CATEGORIZATION

Categorization into Three Performance Definitions

The projects were then grouped into one of three categories:

- **Maintenance Projects** – Those required to elevate the system to an acceptable, national standard (such as 12’ channel depth or 286K rail capacity), and/or allow the system to maintain existing market share and natural growth.
- **Capacity Enhancement Projects** – Those designed to enhance current market share, or allow the system to capture additional traffic in the near term. This may include new highway capacity or connectors, channel deepening and rail grade separations.
- **Strategic Investment** – Those designed to respond to long term freight, population, and trade trends – such as new terminals, new rail mainlines or highways, or major bridge replacements.

These are broad categories that are defined primarily by the intent of the project, but may also be defined by project readiness, availability or presence of funding sources, infrastructure or capital needs, technology needs, and estimated time-frame from start to completion of project. We used modal knowledge and expertise to determine which of the criteria are actually driving the categorization of any of the projects. The performance definitions, as well as the criteria used to evaluate them, are described in more detail in Table 3.1.

Table 3.1 Performance Definitions Used to Categorize Projects, Strategies, and Policies

Title	Definition	Criteria
Maintenance	Projects that are required to elevate the system to an acceptable, national standard (e.g., 286K rail capacity, 12’ channel depth), maintain and preserve the existing system elements at those standards, and/or allow the system to maintain existing market share and keep up with natural growth in traffic in the short term	<p>Intent: Project will contribute to maintaining the current waterborne system “as is,” be currently underway, or assumed to be necessary to support the port’s current operational strategy.</p> <p>Funding: Likely to be fully or partially funded, or at least have likely funding sources identified.</p>

Title	Definition	Criteria
	(1-5 years).	<p>Project Readiness: Is fairly “shovel-ready,” it has passed one or more of its major environmental review periods, may have some permits authorized. No barriers in sight to moving towards project implementation.</p> <hr/> <p>Implementation Timeline: Can vary, but tend to be short term and can be completed within 5 years.</p> <hr/> <p>Technology: Will likely not need any specialized, rare, or “under-development” technology.</p> <hr/> <p>Infrastructure/Capital Needs: Can vary considerably in this category, though tend to have zero-to-minor infrastructure needs.</p>
Capacity Enhancement	Projects that are designed to enhance current market share, or allow the system to capture additional traffic in the midterm (10-15 years).	<p>Intent: Project adds capacity or operational improvements to fully maximize the current (and projected) cargo levels.</p> <p>Funding: Likely to have some funding sources identified, may have taken steps to apply for certain funding sources.</p> <p>Project Readiness: Project has some specificity.</p> <p>Implementation Timeline: Can vary, but likely on a slightly longer timeframe (5-10 years) than maintenance projects.</p> <p>Technology: May require some specialized or rare technology that may add time to the project planning and implementation timeline.</p> <p>Infrastructure/Capital Needs: Tends to have minor – to substantial – infrastructure or capital investment needs.</p>
Strategic Investment	Projects that are designed to respond to long term (10-20 years) freight, population, and trade trends and keep Texas competitive.	<p>Intent: Project responds to local, national, or global trends; and works to increase the global competitiveness of Texas ports.</p> <p>Funding: Likely does not have funding sources identified or secured.</p> <p>Project Readiness: Project is generally conceptual or at the sketch-planning level.</p> <p>Implementation Timeline: Project will likely be on a longer timeframe (10-20 years) to complete.</p>

Title	Definition	Criteria
		Technology: May require technology that is either currently under development, not available, or conceptual in nature.
		Infrastructure/Capital Needs: Can vary, but may require significant infrastructure or capital investment needs.

Source: Cambridge Systematics, Inc., 2010.

Additional Data and Information Gathering

In order to gain a broader understanding of each project and its role in the Texas waterborne freight system, we gathered several other types of information for each project, including:

- **Affected Port** – The primary beneficiary port(s) of each improvement project, strategy, or policy. In general, this is the port that is promoting the project, or the port where the project is located. If the project/strategy will benefit all ports, it is noted as such.
- **Anticipated Cost** – In many cases, the project/strategy has a published cost estimate, which was listed here. Other project costs were calculated by application of engineering unit costs to known project specifics.
- **Status of Project/Solution** – The stage of the project at time of matrix creation (i.e., early 2011).³ Potential categories include conceptual, under study, partially funded, fully funded, underway, or completed.
- **District** – The TxDOT District that contains the project.
- **Region** – The TxDOT Region that contains the project.

A sample of the handout is shown as Figure 3.1. Almost 200 projects/strategies were included in this master matrix⁴ and project handouts.

³ This column is continuously updated as the project assessment proceeds. If a project status changed during the course of the study, it was updated accordingly in the project matrix.

⁴ The master matrix is included as Appendix A to this document

Figure 3.1 Sample of the Master Project List

TXDOT Waterborne Freight Corridor Study Project List						
South Region						
Updated 06/20/11						
Potential Project / Solution	Performance Definition	Port*	Anticipated Cost	Status of Project / Solution	District	Region
Maintenance Projects						
La Quinta Terminal Rail Capacity - Sidings	Maintenance Projects	PCC	\$10.4 Million	Conceptual	Corpus Christi	South
KCS Laredo Sub Capacity - Signal Improvements	Maintenance Projects	PCC	\$16.3 Million	Under Study	Corpus Christi/Laredo	South
Colorado Structures - Mooring Maintenance	Maintenance Projects	All	\$250,000 / year	Conceptual	Corpus Christi	South
Port Lavaca - UPRR Angleton Sub Rail Capacity - Sidings	Maintenance Projects	PL / CPA	\$6.1 Million	Conceptual	Yoakum	South
UPRR Brownsville & Angleton Subs Rail Capacity - Load Capabilities of bridges	Maintenance Projects	All Central TX	\$35.7 Million	Conceptual	Corpus Christi/Laredo/Yoakum/Pharr/Cameron	South
Rail Bridge Crossings at Angelton and Placedo	Maintenance Projects	PB	\$20 Million		Houston/Yoakum	East/South
UPRR Brownsville Sub Capacity - Sidings & Signal Improvement	Maintenance Projects	PB	\$102.3 Million	Conceptual	Pharr	South
Brownsville Port Line - Capacity	Maintenance Projects	PB	\$6.7 Million	Conceptual	Pharr	South
USACE Maintenance Dredging - GIWW Corpus Christi Ship Channel to Port	Maintenance Projects	All Ports	\$10 Million	Partially Funded	Corpus Christi/Pharr	South
USACE Maintenance Dredging - Channel to Port Mansfield	Maintenance Projects	PPM	\$7.5 Million	Fully Funded	Pharr	South
USACE Maintenance Dredging - Brownsville Ship Channel	Maintenance Projects	PB	\$8.3 Million	Fully Funded	Pharr	South
USACE Maintenance Dredging - Port Isabel Ship Channel	Maintenance Projects	PPI	\$2.5 Million	Fully Funded	Pharr	South
USACE Maintenance Dredging - Channel to Port Harlingen	Maintenance Projects	PH	\$1.8 Million	Fully Funded	Pharr	South
Capacity Enhancement Projects						
La Quinta Terminal Road Access to US-181	Capacity Enhancements	PCC	\$25 Million	Completed 2011	Corpus Christi	South
UPRR New Tracks Between Fulton Wye & Corpus Christi Terminal Railroad	Capacity Enhancements	PCC	\$8.2 Million	Conceptual	Corpus Christi	South
SH 44 Between US-77 and US-59 - Upgrade	Capacity Enhancements	PCC	\$350 Million	Conceptual	Corpus Christi	South
Corpus Christi Ship Channel Lift Bridge Removal	Capacity Enhancements	PCC	\$7-8 Million	Partially Complete	Corpus Christi	South

4.0 Project Evaluation

4.1 TIER I AND TIER II SCREENING ASSESSMENT SUMMARY

This screening approach is designed to evaluate waterborne system projects and strategies for their contribution to statewide, system-level freight mobility and capacity goals. The term “systems level” throughout this report refers to projects where the impacts (benefits) are felt at a statewide or multiregional level.

The screening approach will include two “Tiers” of evaluation criteria:

- **Tier I Evaluation Metrics** – Are qualitative metrics that will screen out those projects and strategies that are underway, conceptual, or locally based, and therefore are not appropriate for inclusion within a statewide, system-level plan. Evaluation metrics include an assessment of the potential of a project to enhance or maintain system-level capacity and mobility, as well as the potential of the project to be implemented (in terms of multiple beneficiaries, existing funding sources, or existence of preliminary planning work). Those projects/strategies that perform well under the Tier I metrics were forwarded into a Tier II (quantitative) assessment. Those that do not perform well were referred to more localized planning efforts. Tier I screening metrics are described more on the following pages. Results from the Tier I assessment are provided in Section 4.3.
- **Tier II Evaluation Metrics** – Are quantitative metrics that will be used to determine which projects/strategies are likely to provide the largest statewide-/system-level benefits. The projects that perform well under this assessment will be packaged with other projects, as necessary, and forwarded into the benefit assessment phase (Phase 3 in Figure 3.1). These screening metrics, and the results from their assessment, will be included in a later deliverable to TxDOT.

Finally, it is important to remember throughout this process that “Maintenance” projects will be evaluated separate from “Capacity” and “Strategic” projects. Similar metrics will be used to evaluate both sets of projects, but they will be compared on parallel tracks rather than against each other.

4.2 TIER I SCREENING METRICS

Tier I Screening Metrics are all qualitative measures of project performance. For each of the three Tier I screening metrics, simple “Yes” or “No” answers will be used to allow for relative comparison against other projects. Though the

definitions will vary based on the screening metric, the following two-tiered system will be used for evaluation of most of the screening metrics:

Yes	No
Project/strategy addresses or satisfies the screening metric	Project/strategy does not satisfy or address the screening metric

Following the Tier I Screening Process, projects that do not satisfy these criteria were dropped from consideration as part of this statewide freight planning effort. However, these projects will be referred to an individual port, TxDOT district, or other localized planning effort for further planning and/or implementation.

Screening Metric 1a – Maintain or Create New Capacity

Definition

The purpose of this metric is to assess the contribution of the project/strategy to the capacity of the freight system. Maintenance projects will be evaluated for their potential to maintain existing system capacity. Capacity projects will be evaluated for their ability to enhance or increase system capacity.

Rating System Description

The rating system for this metric will utilize the “yes” and “no” scale, as shown in Table 4.1.

Table 4.1 Relative Rating Guidelines – Maintain or Create New Capacity

Relative Rating	General Guidelines
Yes	The project/strategy preserves (for maintenance projects) or enhances (for capacity and strategic projects) existing throughput of the freight system (marine terminal, rail terminal, intermodal terminal, etc.).
No	The project/strategy will not have any measurable impact on existing throughput.

Source: Cambridge Systematics, Inc., 2010.

Screening Metric 1b – Maintain or Improve System Mobility

Definition

The purpose of this metric is to assess the contribution of the project/strategy to overall freight system mobility (compared to a no-build scenario). Maintenance projects were evaluated for their potential to maintain existing system mobility. Capacity and strategic projects were evaluated for their ability to enhance system mobility.

Projects that satisfy this metric may include those that add connectivity to the freight system (rail spurs, highway connections, or new/enhanced channels), as well as those that reduce potential for conflict (i.e., at rail highway crossings or between freight and recreational vessels).

Rating System Description

The rating system for this metric utilizes the “yes” and “no” scale, as shown in Table 4.2.

Table 4.2 Relative Rating Guidelines – Maintain or Improve System Mobility

Relative Rating	General Guidelines
Yes	The project/strategy preserves (for maintenance projects) or enhances (for capacity projects) existing freight system mobility by maintaining or enhancing connectivity, reducing conflict between modes or uses, or other actions that enhance system mobility.
No	The project/strategy will not have any measurable impact on freight system mobility.

Source: Cambridge Systematics, Inc., 2010.

Screening Metric 1c – Meets Strategic Statewide Goals

Definition

Freight is a derived demand, and therefore responds to changes in the global economy, as well as to global trade, transportation, and logistics trends. Fluctuating demand and supply in container shipping, the increased capacity and lower cost of the Panama Canal, the changing role of air cargo – all have implications for what is shipped to and from the Texas ports and waterborne freight system. In addition, statewide budget concerns, projected freight growth, and other localized issues will all impact the amount and types of freight moving on the waterborne system. The consideration of these trends within the strategic planning process is essential to the creation of a strategic waterborne freight system – one that is ready to adapt and respond to key statewide, national, and international trends.

The purpose of this metric is to assess the ability of the project/strategy to meet strategic statewide goals. For all categories of project (maintenance, capacity, and strategic), this will be determined by satisfying two key points:

1. There is regional or statewide demand and need for the project/strategy based on current and/or future logistics and trade forecasts; and
2. The project/strategy will support businesses that support the State’s economy or quality of life.

Rating System Description

The rating system for this metric utilizes the “yes” and “no” scale, as shown in Table 4.3.

Table 4.3 Relative Rating Guidelines – Meets Strategic Statewide Goals

Relative Rating	General Guidelines
Yes	The project/strategy has potential for statewide- or systems-level benefits, and the impacts are felt at the statewide level (or at least in multiple regions).
No	The project/strategy does not appear to meet the strategic goals of the State.

Source: Cambridge Systematics, Inc., 2010.

Screening Metric 1d – Implementable

Definition

There are several different indicators that comprise an “implementable” project:

- Does the project have more than one beneficiary? This will help to determine the level of support that a project has among stakeholders, elected officials, the public, transportation agencies, and other key stakeholders. It also helps to gauge the potential of funding a project from multiple sources (for example, a Public Private Partnership).
- Is the project part of an existing Federal, statewide, or local plan? Is it consistent with long-range planning goals?
- Has the project already passed through a key planning phase? For example, has it received record of decision or categorical exclusion? Or has a preliminary funding availability assessment been performed?

Rating System Description

The rating system for this metric uses a “Yes” or “No” answer shown in Table 4.4. The ratings are focused on determining how “real” a project is by identifying beneficiaries, completed planning assessment work, and consistency of the project/strategy with long-term planning goals.

Table 4.4 Relative Rating Guidelines – Implementable

Relative Rating	General Guidelines
Yes	The project/strategy satisfies one or more of the “implementable” indicators. This may be due to a wide range of beneficiaries/stakeholders, or existing planning work (environmental review or financial assessment), as well as the compatibility of the project/strategy with long-range planning goals.
No	The project/strategy does not satisfy any of the “implementable indicators.

Source: Cambridge Systematics, Inc., 2010.

4.3 TIER I EVALUATION RESULTS AND FORMATION OF SOLUTION PACKAGES

The Tier I assessment was performed on all projects and strategies in the “master” project list. The “master” list included almost 200 total projects and strategies, and included information as summarized in Figure 2.1. Information gathered throughout this project, augmented with project team research, published studies, web sites, and discussions with the Stakeholder Advisory Committee, allowed for the completion of a Tier I evaluation for each project/strategy. Each project has been recommended to one of three actions: 1) advance to the Tier II assessment, 2) drop from consideration, and 3) forward directly to the strategic packaging phase (Phase 4 of Figure 3.1).

Assumptions

Several assumptions guided the work of the project team to assess projects and strategies in the Tier I assessment process:

- Grade separation projects included in the list were drawn primarily from the 2010 Texas Rail Plan list of prioritized improvements.⁵ Therefore, determination whether to advance a project or not was based on the Benefit/Cost (B/C) ratio calculated in the 2010 Texas Rail Plan.⁶
- USACE maintenance dredging projects are primarily funded and promoted by the USACE. Since they have already been through a process (by the USACE) to prioritize and plan, they are automatically advanced through our process. They will be reintroduced in Phase 4, to create strategic packages of projects and strategies.
- Policies are automatically advanced through our process. They will be reintroduced in Phase 4, to create strategic packages of projects and strategies.
- Projects that are already underway, strictly a local issue, fail one or more of the Tier I criteria, or purely conceptual in nature are dropped from consideration.

⁵ Work performed during the Texas Rail Plan, performed by the TxDOT Department of Transportation in November 2010.

⁶ TxDOT Rail Plan, Chapter 7: Short- and Long-Term Rail Program, retrieved from http://www.txdot.gov/public_involvement/rail_plan/trp.htm.

Summary of Tier I Evaluation

A summary of the Tier I assessment is included in Table 4.5.

Table 4.5 Summary of Tier I Assessment

Tier I Recommendation	South Region Projects	East Region Projects	Total
<i>Projects Forwarded to Tier II Evaluation (Solution Packages)</i>	13	36	49
<i>Projects forwarded to packaging phase (Policies and USACE projects)</i>	20	18	38
<i>Projects dropped from consideration – did not satisfy Tier I criteria</i>	24	51	75
<i>Duplicates, overlapping, etc. – dropped from consideration</i>	15	15	30
Total Projects	72	120	192

In total:

- **Forty-nine projects** satisfied the Tier I (qualitative) assessment. These projects were identified as “solution packages” and will be forwarded to the Tier II (quantitative) assessment. They are also included as Figures 4.1, 4.2, and 4.3.
- **Thirty-eight projects** are either policies or USACE projects and (according to the assumptions outlined above) are advanced directly to the project-packaging phase.
- **Seventy-five projects** did not satisfy the Tier I assessment. These projects are either underway, conceptual, or do not belong in a statewide, systems-level analysis. It is recommended that these projects be included in localized or port-specific planning processes.
- **Thirty projects** were either overlapping, duplicates, or included in other projects so were dropped from consideration to prevent double counting.

Solution Packages

As shown in Table 4.5, 48 projects satisfied the Tier I Screening Evaluation Process, and will be forwarded as “Solution Packages” through the next phases of assessment. These lists of multimodal projects and strategies are shown in Figures 4.1, 4.2, and 4.3.

Figure 4.1 South Region Tier I Assessment Results and Solution Packages
All Projects

			Tier 1 Screening Evaluation				
Potential Project / Solution	Port*	Anticipated Cost	Maintain / Enhance Capacity	Maintain / Enhance Mobility	Meet Strategic Statewide Goals	Potential to Implement	Recommendation
Maintenance Projects							
Rail Bridge Crossings at Angelton and Placedo		\$20 Million	Yes	Yes	N/A	No	Advance to Tier 2
UPRR Brownsville Sub Capacity - Sidings & Signal Improvement	PB	\$102.3 Million	Yes	Yes	Yes	N/A	Advance to Tier 2
Capacity Enhancement Projects							
New bridge at the Corpus Christi Harbor Bridge	PCC	\$600 Million	Yes	Yes	Yes	Yes	Advance to Tier 2
Port O'Connor - Encroachment Removal & Mooring relocation	All	\$2 Million	Yes	Yes	Yes	N/A	Advance to Tier 2
Matagorda Bay Re-Route	All	\$20 Million	Yes	Yes	Yes	Yes	Advance to Tier 2
Viola Channel Interchange Yard - New Capacity	PCC	\$25 Million	Yes	Yes	Yes	Yes	Advance to Tier 2
Ingleside Industrial Corridor	PCC	\$23 Million	No	Yes	Yes	No	Advance to Tier 2
Strategic Investments							
US-77 Between I-37 and US-83 - Upgrade to	Central & South TX	\$180 Million	Yes	Yes	N/A	N/A	Advance to Tier 2
UPRR Brownsville & Angleton Subs Rail Capacity - Load Capabilities of bridges	All Central TX	\$35.7 Million	Yes	Yes	Yes	No	Advance to Tier 2
Lydia Ann Channel mooring capacity & maintenance	All	\$3 Million	Yes	Yes	Yes	Yes	Advance to Tier 2
Corpus Christi Ship Channel Capacity Dredging	PCC	\$450 Million	Yes	Yes	Yes	Yes	Advance to Tier 2
Widening and Deepening of Brownsville Ship Channel	PB	?	Yes	Yes	Yes	N/A	Advance to Tier 2

*Port Key
Port of Corpus Christi = PCC
Port Lavaca / Calhoun Port Authority= PL / CPA
Port of Palacios = PP
Port of Victoria=PV
Port of West Calhoun= PWC
Port of Brownsville = PB
Port of Harlingen = PH
Port of Port Isabel = PPI
Port of Port Mansfield = PPM

Figure 4.2 East Region Tier I Assessment Results and Solution Packages
Maintenance Projects

			Tier 1 Screening Evaluation				
			Maintain / Enhance Capacity	Maintain / Enhance Mobility	Meet Strategic Statewide Goals	Potential to Implement	Recommendation
Potential Project / Solution	Port*	Anticipated Cost					
Maintenance Projects							
DOW Chemical Plant near Freeport Harbor - Rail Siding	FH	\$9.5 Million	Yes	Yes	Yes	Yes	Advance to Tier 2
SH 36 - Upgrade	POF	\$167.5 Million	Yes	Yes	Yes	No	Advance to Tier 2
FM 523 - Upgrade	POF	\$53.4 Million	Yes	Yes	Yes	Yes	Advance to Tier 2
SH 146 - Upgrade	POH	\$595.4 Million	Yes	Yes	Yes	Yes	Advance to Tier 2
Spencer Hwy and Redbluff Rd - Upgrade	POH	\$35.2 Million	Yes	Yes	Yes		Advance to Tier 2
SH 288 Upgrade	POF	\$124 Million	Yes	Yes	Yes		Advance to Tier 2
Belt Jct. - Double Track Extension	POH	\$11 Million	Yes	Yes		Yes	Advance to Tier 2
Settegast Yard - Sidings	POH	\$7 Million	Yes	Yes	No	Yes	Advance to Tier 2
Pierce Yard - Upgrade	POH	\$16 Million	Yes	Yes		Yes	Advance to Tier 2
Additional Track Between Englewood Yard & Sheldon	POH	\$50 Million	Yes	Yes		Yes	Advance to Tier 2
Jacintoport Blvd - Upgrade	POH	\$9.6 Million	Yes	Yes	Yes		Advance to Tier 2
West Belt Sub Capacity - Additional Track Between Tower 81 & Double Track Jct.	POH	\$20 Million	Yes	Yes	No	Yes	Advance to Tier 2
Rail Capacity Between Galena Jct. & Manchester Jct. - Doubletracking	POH	\$42 Million	Yes	Yes	Yes		Advance to Tier 2
Cedar Bayou Channel - Markings	POH	\$100K	Yes	Yes	No	Yes	Advance to Tier 2

Figure 4.3 East Region Tier I Assessment Results and Solution Packages
Capacity Enhancement and Strategic Projects

Capacity Enhancement Projects							
Freeport Wiggles - Widening & Straightening	POF	\$5 Million	No	Yes	Yes	Yes	Advance to Tier 2
Brazos River Floodgates - Removal / Reconfiguration	FH	\$7 Million	Yes	Yes	Yes	No	Advance to Tier 2
Brazos River Intersection - Mooring Capacity	FH	\$3 Million	Yes	No	Yes	Yes	Advance to Tier 2
Rollover Bay - Channel Widening	POG / POTC /	\$4 Million	Yes	Yes	Yes	Yes	Advance to Tier 2
Port Bolivar - Channel Widening	All	\$2 Million	Yes	Yes	Yes	Yes	Advance to Tier 2
Pelican Island Mooring Capacity & Basin Widening	All	\$4 Million	Yes	Yes	Yes	Yes	Advance to Tier 2
Rail Bridge 5A - PTR A Sub - Doubletrack	POH		Yes	Yes		Yes	Advance to Tier 2
Rail Bridge 16 - East Belt Sub - Doubletrack	POH	\$10 Million	Yes	Yes		Yes	Advance to Tier 2
West Belt Sub Improvement - grade separations and/or crossing closure	POH	\$53.4 Million	Yes	Yes		Yes	Advance to Tier 2
SH 225 - Connectivity to Other Roads	POH	\$30 Million	Yes	Yes	Yes		Advance to Tier 2
Velasco Terminal Construction	POF	\$380 Million	Yes			Yes	Advance to Tier 2
Freeport Channel Widening / Deepening	POF	\$330 Million	Yes	Yes		Yes	Advance to Tier 2
KCS Bridge Across Port of Beaumont Ship Channel (Neches River)- Upgrade	PB	\$16 Million	Yes	Yes	Yes	Yes	Advance to Tier 2
High Island Wiggles - Straightening of the Bends	All	\$5 Million	Yes	Yes		Yes	Advance to Tier 2
Grade separation - Shepherd/ Durham - Terminal	POH	\$30.7 Million					B/C = 5.02
Grade separation - Houston - Terminal	POH	\$13.8 Million					B/C = 3.14
Grade separation - Bellaire - Terminal	POH	\$17 Million					B/C = 1.59
Grade separation - San Felipe - Terminal	POH	\$32.9 Million					B/C = 3.24
Grade separation - Richmond - Terminal	POH	\$29.7 Million					B/C =2.16
Grade separation - Westheimer - Terminal	POH	\$66.8 Million					B/C =2.33
Grade separation - Canal - East Belt	POH	\$11.7 Million					B/C =1.05
Strategic Investments							
East Houston Rail Bypass - New line Between Dayton & Cleveland	POH	\$283.4 Million	Yes	Yes		Yes	Advance to Tier 2

*Port Key
Freeport Harbor = FH
Port of Freeport = POF
Port of Galveston = POG
Port of Houston = POH
Port of Texas City = POTC
Port of Beaumont = PB
Port of Port Arthur = PPA
Port of Orange = PO

A. Appendix: TxDOT Waterborne Freight Corridor Study Master Project List

Project ID	Chokepoints/Critical Issues	Source	Landside/ Waterside	Port Impacted	Issue	Remedy	Type	Total Cost	% Cost TxDOT vs. % Other Sources	Status	Maintenance, Capacity Enhancement, or Strategic Investments
All Ports											
1	Insufficient maintenance dredging of shallow draft waterways, including the GIWW and tributaries. This is the umbrella project to 1a-1k.	USACE	Waterside	All	In recent years, the USACE has been unable to maintain the waterway to its authorized 12-ft depth because of the scarcity of dredging equipment and the high price of fuel. Insufficient depth reduces potential barge payloads and overall efficiency.	Increase USACE maintenance funding.	Maintenance dredging	\$160,000,000	100% Federal	GIWW: 3.1 million CY in USACE FY11 budget; Central Coast: 1 million CY in USACE FY11 budget; South Coast: 850,000 CY in USACE FY11 budget.	Maintenance
1a	GIWW High Island to Galveston Bay	USACE	Waterside	All	Average water depths 5-10 ft.	Maintenance dredging.	Maintenance dredging	\$6,000,000	100% Federal	USACE FY12 O&M.	Maintenance
1b	GIWW Galveston Bay To Chocolate Bayou	USACE	Waterside	All	Average water depths 10-11 ft.	Maintenance dredging.	Maintenance dredging	\$7,500,000	100% Federal	USACE FY12 O&M.	Maintenance
1c	GIWW Freeport Harbor to San Bernard River	USACE	Waterside	All	Average water depths 5.5-12.5 ft (5.5-8 ft Freeport Harbor to Brazos River).	Maintenance dredging.	Maintenance dredging	\$17,000,000	100% Federal	1.2M CY USACE FY11 budget; and 2.25M CY additional USACE FY11.	Maintenance
1d	GIWW San Bernard to Colorado River	USACE	Waterside	All	Average water depths 9-11 ft.	Maintenance dredging.	Maintenance dredging	\$23,000,000	100% Federal	1.9M CY USACE FY11 budget; 1.5M CY USACE FY11 additional; and 1.2M CY USACE FY12 O&M.	Maintenance
1e	GIWW Colorado River to Matagorda Bay	USACE	Waterside	All	Average water depths 7 ft.	Maintenance dredging.	Maintenance dredging	\$8,000,000	100% Federal	USACE FY11 additional.	Maintenance
1f	GIWW Matagorda Bay to Port O'Conner	USACE	Waterside	All	Average water depths 5-9 ft.	Maintenance dredging.	Maintenance dredging	\$5,000,000	100% Federal	USACE FY12 O&M.	Maintenance
1g	GIWW Port O'Conner to San Antonio Bay	USACE	Waterside	All	Average water depths 7.5-10 ft	Maintenance dredging.	Maintenance dredging	\$5,000,000	100% Federal	USACE FY12 O&M.	Maintenance
1h	GIWW Aransas Bay to Corpus Christi Ship Channel	USACE	Waterside	All	Average water depths 5-11 ft.	Maintenance dredging.	Maintenance dredging	\$6,500,000	100% Federal	USACE FY12 O&M.	Maintenance
1i	GIWW Alternate Lydia Ann Channel	USACE	Waterside	All	Average water depths 7.5-12 ft.	Maintenance dredging.	Maintenance dredging	\$4,000,000	100% Federal	USACE FY12 O&M.	Maintenance
1j	GIWW Corpus Christi Ship Channel to Port Brownsville (Laguna Madre section of GIWW)	USACE	Waterside	All	Average water depths 6-12.5 ft (<10 ft S. Bird Island to Light 175 and Arroyo Colorado to Port Brownsville); sections of the GIWW in Laguna Madre shoal up frequently, and high winds are also a problem.	Maintenance dredging.	Maintenance dredging	\$10,000,000	100% Federal	1.65M USACE FY11 additional; and 352,000 USACE FY12 O&M.	Maintenance
1k	San Bernard River Channel Entrance	M&N	Waterside	All	Average water depths 2-6 ft (design: 9 ft.)		Maintenance dredging	\$1,300,000	100% Federal	USACE FY11 additional.	Maintenance
2	Rollover Bay	M&N	Waterside	All	Existing channel width combined with current and wind conditions greatly limit doubled-up tow movements. Meeting situations are especially difficult. Groundings and buoy discrepancies result.	Widen of Rollover Bay by about 50-80 feet to the south. Section 216 report: Create sediment trap between GIWW and Bird Islands and maintain Rollover Pass.	New dredging	\$4,000,000	100% Federal with TxDOT providing ROW/ Easements	Rollover Pass to be closed by GLO. Fishing pier may be built if pass closed (cost not included in total cost).	Capacity Enhancement

Project ID	Chokepoints/Critical Issues	Source	Landside/ Waterside	Port Impacted	Issue	Remedy	Type	Total Cost	% Cost TxDOT vs. % Other Sources	Status	Maintenance, Capacity Enhancement, or Strategic Investments
3	Port Bolivar	M&N	Waterside	All	Tight channel entrance forces tows to "crab" as they transit in order to counteract current and wind conditions. Repeated knockdowns and buoy hull discrepancies show traffic is repeatedly set along the green (southern) side of the channel.	Widen of the southern side of Bolivar Peninsula (locally known as the Bolivar Buoys) from mile 349.4 to mile 348.6.	New dredging	\$2,000,000	100% Federal with TxDOT providing ROW/Easements		Capacity Enhancement
4a	High Island Wiggles (Bends)	M&N	Waterside	All	Curves, width limitations and one-way barge traffic, average of 4 accidents/year.	Dredge and reconfigure geometry of the GIWW at this location.	New dredging	\$5,000,000	100% Federal with TxDOT providing ROW/Easements	One-way traffic only at current bridge. In order to have 2-way traffic, new bridge is required.	Strategic Investment
4b	High Island Bridge	M&N	Waterside	All	Width of bridge restricts to one-way traffic	Replace with wider non-movable bridge.	Structures	\$20,000,000	100% TxDOT?	Widening channel needed in conjunction with bridge.	Strategic Investment
5	Northeast of Halls Lake	M&N	Waterside	All	Very rapid erosion of the islands on the south side of the GIWW is occurring in this area.	Reestablish the south bank to prevent shoaling in the waterway and eventual erosion of the north bank. This specific problem was not identified in the reconnaissance phase of the 216 study, and is therefore not currently being addressed. Alternate funding will have to be pursued for this project.	Erosion protection	\$2,000,000	100% Federal		Maintenance
6	Freeport Wiggles	M&N	Waterside	All	Curves, width limitations, and one-way barge traffic.	USACE has examined bend widening/easing and channel realignment opportunities for the GIWW at this location. Simulations show that widening and easing will have little impact. The realignment alternative did improve navigation, but at a high cost and with adverse environmental impacts.	New dredging	\$5,000,000	100% Federal with TxDOT providing ROW/Easements	The study received limited funds in FY 05. The project is not currently in the FY 06 budget. Therefore, this segment of the GIWW was omitted from the 2003 feasibility report. However, these issues will be addressed during subsequent studies, when additional GI funds are received.	Capacity Enhancement
7	Dangerous currents at the Brazos River Floodgates	M&N	Waterside	All	Strong currents, believed to be the result of sedimentation at the mouth of the San Bernard River push barges entering the GIWW from via the western floodgates underwater. The current has increased significantly in the west gate over time. Approach to both gates is hazardous in high water.	Remove or reconfigure flood gates and/or dredge the mouth of the San Bernard River. Initiated Section 216 Study GIWW Modifications to examine possible modifications to existing structure. Short term: Add mooring structures to accommodate tripping.	New dredging structures	\$7,000,000	100% Federal with TxDOT providing ROW/Easements	San Bernard River Mouth has been dredged. Repairs to east and west floodgates underway (est. completion 11/30/10). The GIWW Modifications Study was suspended in FY 2004, was not funded in FY 2006, and is not in the President's Budget for FY 2007.	Capacity Enhancement
8	Pelican Island Moorings	M&N	Waterside	All	Insufficient mooring buoys available. Tows double up on buoys creating traffic hazard and damaging buoys. Mooring area not large enough to handle demand.	Install at least 3 additional buoys to the west of existing buoys. The bottom of the mooring basin will be widened 80 feet to the north, yielding a total width of 155 feet. In conjunction with the widening, the 13 existing mooring buoys will be cut away from their anchors and set back 80 feet.	New dredging structures	\$4,000,000	100% Federal with TxDOT providing ROW/Easements	This segment of the GIWW received limited PED funding in FY 05. FY 06 funds were dedicated to developing "draft" P&S for the Texas City Wye and Pelican Island Moorings segments of the GIWW system.	Capacity Enhancement

Project ID	Chokepoints/Critical Issues	Source	Landside/ Waterside	Port Impacted	Issue	Remedy	Type	Total Cost	% Cost TxDOT vs. % Other Sources	Status	Maintenance, Capacity Enhancement, or Strategic Investments
9	Texas City Wye	M&N	Waterside	All	Turning channel difficult to navigate; pilots use main Texas City Channel instead resulting in average of 9 accidents/year at Texas City Channel and GIWW intersection area.	Section 216 study: Widen Main Texas City Channel and GIWW Intersection (triangle shaped turning area). Create marsh with dredge material	New dredging	\$3,600,000	100% Federal with TxDOT providing ROW/Easements	Part of 216 report with Pelican Island Moorings, does not appear to be pressing issue.	Strategic Investment
10	West Bay Washout	M&N	Waterside	All	West Bay breached this entire section on the south bank of the GIWW. USACE replaced 1/3 of the bank with dredge material that is eroding. Some fabric tubes were used.	Install 24-foot circumference by 10,058-foot-long geotubes between GIWW and the West Bay, offset 300 feet from the centerline of the channel. Additionally, install a concrete barrier along the channel's north shoreline, which would separate the GIWW from Halls Lake.	Erosion protection	\$3,000,000	100% Federal	This segment of the GIWW received limited PED funding in FY 05. FY 06 funds were dedicated to developing "draft" P&S for the Texas City Wye and Pelican Island Moorings segments of the GIWW system.	Maintenance
11	Sievers Cove	M&N	Waterside	All	Initial: Shoaling north bank at Sievers Cove. USACE determined that widening the GIWW channel along the west approach to the gap is the selected alternative. The bottom channel will be widened 75' on its north side of the GIWW.	Initial: Consider reestablishing north bank to reduce shoaling and strong currents in the GIWW. Discarded following 216 study. Final: Widen west bank of channel (1400LF x 75' wide by 16' deep) and create marsh on bay shoreline with dredge material and geotube.	Erosion protection	\$1,000,000	100% Federal	This segment of the GIWW received limited PED funding in FY05. FY 06 funds were dedicated to developing "draft" P&S for the Texas City Wye and Pelican Island Moorings segments of the GIWW system.	Maintenance
14	Mile 363 Bend	M&N	Waterside	All	Possible location for new mooring area, less exposure to wind and current than Red Can Bend	Install moorings (assume 10).	Structures	\$2,000,000	100% Federal		Capacity Enhancement
15	Bolivar Moorings	HNTB	Waterside	All	Need 2 nd mooring basin.	Install moorings (assume 10).	Structures	\$2,000,000	100% Federal		Strategic Investment
16	Greens Lake Mooring Facility ?		Waterside	All	Need mooring buoys at this location to provide safe "waiting weather" spot for Galveston Bay crossing. Currently, tows push into the bank of Greens Lake to wait-out weather	Install 6 mooring buoys on south bank near Greens Cut. Insure placement out of main navigation channel. The Section 216 study (2003) recommends that a new mooring basin with 7 mooring buoys be constructed at the mouth of Greens Lake.	Structures	\$2,000,000	100% Federal	This segment of the GIWW has received limited PED funding in FY 05. FY 06 funds were dedicated to developing "draft" P&S for the Texas City Wye and Pelican Island Moorings segments of the GIWW system.	Capacity Enhancement
17	Brazos River Intersection	?	Waterside	All	Of the 10 buoys placed just east of the Brazos intersection, only 5 are functional (2 on the north bank and 3 on the south bank). Mooring area not large enough to handle demand.	Repair or replace nonfunctional buoys and double the number of buoys available. New "floating anvil" style buoys will be placed for evaluation in April or May. If the new design works well, additional buoys of the same type should be feasible without much deliberation.	Structures	\$3,000,000	100% Federal	Contract issued, but work not underway as of 12/2010.	Capacity Enhancement

Project ID	Chokepoints/Critical Issues	Source	Landside/ Waterside	Port Impacted	Issue	Remedy	Type	Total Cost	% Cost TxDOT vs. % Other Sources	Status	Maintenance, Capacity Enhancement, or Strategic Investments
18a	Matagorda Bay Reroute (Entire Project)	M&N	Waterside	All	Shoaling, because this is an area of significant crosscurrent and requires more frequent dredging than in the past. Install ranges on westernmost reach of Matagorda Bay Alternate Route.	Relocate GIWW further north to take advantage of the natural deep water and avoid these strong crosscurrents.	New dredging structures	\$20,000,000	100% Federal with TxDOT providing ROW/ Easements	Feasibility report was completed in June 2002. Project authorization pending. Preconstruction, Engineering, and Design (PED) phase was stopped due to funding shortfall in FY 04. Survey of the beneficial use sites is needed; however, core borings efforts are complete. USCG marked, not dredged.	Capacity Enhancement
18b	Matagorda Bay Reroute Marking Existing Channel	M&N	Waterside	All	Install ranges on westernmost reach of Matagorda Bay Alternate Route.	Install ranges (assume 10).	Navigation	\$100,000	100% Federal	Alternate channel complete. Channel marked sufficiently, but need range established.	Capacity Enhancement
19	"Hole in the Wall" Gap in GIWW at north end of Corpus Christi Bay	M&N	Waterside	All	Narrow gap between two islands difficult to navigate.	Widen channel.	New dredging	\$1,000,000	Likely 100% Federal with TxDOT providing ROW/ Easements	Conceptual.	Capacity Enhancement
20	Caney Creek Wiggles	M&N	Waterside	All	Curves, width limitations, and one-way barge traffic.	Recommend shaving of banks to straighten bends.	New dredging	\$5,000,000	100% Federal with TxDOT providing ROW/ Easements		Capacity Enhancement
21	Dangerous currents at the Colorado River Locks and Colorado Locks Bypass Channel	M&N	Waterside	All	Tows are experiencing cross-current related-tow control problems. USACE has imposed tow size limits at higher current rates, requiring tripping. This area is extremely hazardous for both commercial and recreational vessels.	Study removal of both locks and increasing the depth of the bypass channel at the intersection with the GIWW. The feasibility study for the GIWW Modifications was suspended in FY 2004. Additional modeling is required.	New dredging structures	?	100% Federal with TxDOT providing ROW/ Easements	No funds were received in FY 2006 for the diversion channel or jetty analysis, and no funds are in the President's FY 2007 budget. Conceptual.	Strategic Investment
22	Port O'Connor	M&N	Waterside	All	Need to reestablish mooring basin and resolve dangerous encroachment issue in the GIWW. Possible sites are the south side of the GIWW west of Air Force Channel, near MM 470-481 WHL.	Relocate moorings (assume 10).	Structures	\$2,000,000	100% Federal	GICA trying to get under study, #1 priority.	Capacity Enhancement
23	Lydia Ann Channel	M&N	Waterside	All	Unsafe or inadequate mooring structures.	Increase capacity and improve existing mooring structures (assume 14).	Structures	\$3,000,000	100% Federal	Not high priority, but would replace lost moorings at Ingleside.	Strategic Investment
24	Colorado Structures	M&N	Waterside	All	Structures need to be regularly maintained.	Maintenance.	Structures	?	100% Federal		Maintenance
25	UP Brownsville Subdivision Capacity	Lower Rio Grande Valley and Laredo Region Freight Study, TxDOT	Landside	All	At capacity.	Sidings and signal improvements to accommodate projected growth.	Sidings/mainline capacity	\$102,300,000		Analyzed, modeled in RTC in TxDOT Lower Rio Grande Valley and Laredo Region Freight Study, not yet published.	Maintenance

Project ID	Chokepoints/Critical Issues	Source	Landside/ Waterside	Port Impacted	Issue	Remedy	Type	Total Cost	% Cost TxDOT vs. % Other Sources	Status	Maintenance, Capacity Enhancement, or Strategic Investments
26	UPRR Angleton and Brownsville Subcapacity – load capability of bridges	WB Phase I Report (BNSF comments)	Landside	All	Structures not rated for 286k loading.	Upgrade or replace bridges to allow for 286k load rating.	286K upgrade	\$35,700,000		Analyzed, modeled in RTC in TxDOT Lower Rio Grande Valley and Laredo Region Freight Study, not yet published.	Maintenance
147	I-69 Capacity	HNTB	Landside	All	Interstate Highway Connectivity to the Ports.	Upgrading U.S. 59, U.S. 77, and U.S. 281 to become Interstate 69.	Highway capacity upgrade	\$4.6 billion priority/\$10.2 billion on complete	100% TxDOT?	Under analysis as part of I-69 Corridor Program.	Capacity Enhancement
Port of Beaumont/Port of Port Arthur											
27	KCS bridge across Port of Beaumont Ship Channel (Neches River)	WB Phase I Report, CTR 5068-1 Report	Landside	Beaumont	Low speeds and single track.	Upgrade and double track.	Rail bridge	\$16,000,000		In design.	Capacity Enhancement
28	Sabine-Neches Canal	?	Waterside	Port Arthur/ Beaumont	Average water depths 15-40 ft (design: 30-40 ft).	Maintenance dredging.	Maintenance dredging	\$25,500,000	100% Federal	3.4M CY USACE FY11 budget; and 1.72M CY USACE FY12 O&M.	Maintenance
29	Erosion of SH 87 and SH 82 in the Pleasure Island area on the GIWW	?	Waterside	Port Arthur/ Beaumont	Waves and wake from passing barges on the GIWW are undermining SH 87 and SH 82 in the Pleasure Island area.	Place riprap alongside the highways to shield the highway from waves eroding the roadbed.	Erosion protection	\$15,000,000	Approx. 50% TxDOT/50% other		Maintenance
30	Air draft limitations at the Martin Luther King (16 miles inland on the SNWW)	?	Waterside	Port Arthur/ Beaumont	Air draft limitations limit access to ports by tall ships.	Raise bridges.	Structures	\$900,000,000	100% TxDOT?		Capacity Enhancement
31	Sabine-Neches Waterway Depth individual segments are listed in Deep Draft Channels worksheet	?	Waterside	SNWW Ports	The waterway is not maintained to its Federally authorized depth. Many components of the waterway are 6-12 ft shallower than their authorized depths of 40-42 ft.	Maintenance dredging.	Maintenance dredging	\$81,000,000	100% Federal	5.2 million CY in USACE FY11 budget	Maintenance
32	Sabine Pass	?	Waterside	SNWW Ports	Average water depths 20-42 ft (design: 40-42 ft), not including anchorage basin.	Maintenance dredging.	Maintenance dredging	\$50,500,000	100% Federal	1.8M CY USACE FY11 budget (channel); and 8.3M CY USACE FY12 O&M.	Maintenance
Port of Brownsville											
33	Lack of Interstate Highway connectivity at the Port of Brownsville.	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	Brownsville	Lack of Interstate Highway access.	The Port Access Road project provides a connection from the Port to SH 550, which connects to U.S. 77. Requires upgrades to U.S. 77 to interstate standards.	Roadway connection	\$2,600,000		Constructed in 2011.	Capacity Enhancement
34	Delays for rail freight accessing UPRR main line at Brownsville	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	Brownsville	Delays accessing UPRR main line.	Brownsville Port Line Capacity Upgrades.	Rail capacity	\$6,740,000		Conceptual.	Maintenance
35	Lack of intermodal ramp in the Port of Brownsville	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	Brownsville	The nearest intermodal ramp to the Port of Brownsville is in San Antonio, adding 250 highway miles that containers must be drayed before being put on trains. This greatly reduces the competitiveness of container freight in Brownsville and southern Texas.	Construct a new intermodal ramp in the Brownsville area.	Rail yard	\$175,000,000		Requested by stakeholder in Phase 1 surveys. Has not been studied to determine feasibility or if the project is economically or operationally justified.	Strategic Investment
36	Harlingen Yard	Cameron County	Landside	Brownsville	Vehicular safety and impedance at at-grade roadway/ rail crossings in Harlingen.	Relocate RVSC switching operations to new yard outside of Harlingen. (Near Olmita)	Rail yard	\$17,000,000	100% City and County Sources	Conceptual. UPRR operations relocated to Olmito Yard as 1 st step.	Strategic Investment

Project ID	Chokepoints/Critical Issues	Source	Landside/ Waterside	Port Impacted	Issue	Remedy	Type	Total Cost	% Cost TxDOT vs. % Other Sources	Status	Maintenance, Capacity Enhancement, or Strategic Investments
37	Commerce Street Congestion in Harlingen	Cameron County	Landside	Brownsville	Vehicular impedance and safety concerns associated with train operations in Harlingen.	Commerce Street Connection will eliminate crossings.	Connection	\$5,500,000		Preliminary design done by UPRR. Cameron County anticipated to fund this project in near term (<5 years).	Capacity Enhancement
38	Brownsville Ship Channel individual segments are listed in Deep Draft Channels worksheet	M&N	Waterside	Brownsville	The waterway is not maintained to its Federally authorized depth and may need to be deepened to accommodate larger ships.	Maintenance dredging.	Maintenance dredging	\$8,300,000	100% Federal	250,000 CY USACE FY11 budget; 750,000 USACE FY11 additional; 650,000 USACE FY12 O&M; fully funded.	Maintenance
52	Insufficient connectivity between Kosmos and Brownsville Subdivisions	Corpus Christi Freight Study	Landside	Brownsville	Insufficient connection between rail lines	Construct rail connection.	Connection	\$3,240,000		Fully funded and underway – will be completed in June 2012.	Maintenance
159	Rail Bridge Crossings at Angelton and Placedo	Port of Brownsville Staff	Landside	Brownsville		Rail bridge crossings at Angelton and Placedo.	Rail crossings	\$20,000,000	Applied to TIGER Grant – did not receive	Under study.	Maintenance
160	SH 550 – Phase I	Port of Brownsville Staff	Landside	Brownsville				\$35,000,000	Under construction – fully funded	Phase I – under construction; and Phase II – partially funded and under study.	Capacity Enhancement
160a	SH 550 – Phase II	Port of Brownsville Staff	Landside	Brownsville				\$57,000,000		Currently under design.	Capacity Enhancement
160b	SH 550 Direct Connectors	Port of Brownsville Staff	Landside	Brownsville		This would provide a new tolled direct connection to US 77/83. It would include a new tolled main lane extending to the east of Old Alice Roads, with an overpass at Old Alice Road.	Highway Connections	\$36,400,000	Cameron County / TxDOT	Letting scheduled for Jan. 2012	Capacity Enhancements
161	Widening and Deepening of Brownsville Ship Channel	PB	Waterside	Brownsville				?	Under study	Under study.	Capacity Enhancement
53	UPRR Brownsville Subcapacity	Corpus Christi Freight Study	Landside	Brownsville	Insufficient capacity.	Construct new siding at MP 171.	Sidings/mainline capacity	\$6,700,000		Conceptual.	Maintenance
175	Veterans International Bridge Expansion	Port of Brownsville Staff	Landside	Brownsville	Insufficient capacity.	New 4-lane twin bridge.	Highway capacity	\$5,800,000	Cameron County / TxDOT	Currently under construction	
176	SH 32 – New Connection	Port of Brownsville Staff	Landside	Brownsville	Connectivity	New connection from US 77/83 to US 4- provides a direct connection to the Port of Brownsville.	Highway capacity	\$38,800,000	CCRMA / TxDOT	Letting scheduled for April 2013	
177	US 281 Connection	Port of Brownsville Staff	Landside	Brownsville	Connectivity	New connection of US 281 near FM 1577 to US 77 near SH 100.	Highway Connectors	\$140,000,000	Unknown	Conceptual	Strategic Investment
178	US 77 Upgrades	Port of Brownsville Staff	Landside	Brownsville	Capacity, safety, and mobility concerns	Several different portions are recently funded (as of November 2011). These include the section from SH 44 to FM 892, FM 892 to .8 miles South of CR 28, the Overpasses at Caesar Avenue and Sarita, and the conversion of 2-way frontage roads.	Highway Capacity	\$420,000,000 (all segments combined)	Cameron County / TxDOT	Recently funded, under design and/or construction	Capacity Enhancement
Calhoun Port Authority											
39	Limited land available for future growth at the Calhoun Port Authority	Stakeholder Meeting	Waterside	Calhoun Port Authority	Lack of available land for future growth.	Zone remaining available land for port uses.	ROW	?			Capacity Enhancement

Project ID	Chokepoints/Critical Issues	Source	Landside/ Waterside	Port Impacted	Issue	Remedy	Type	Total Cost	% Cost TxDOT vs. % Other Sources	Status	Maintenance, Capacity Enhancement, or Strategic Investments
40	Lack of Interstate Highway connectivity at the Calhoun Port Authority.	Stakeholder Meeting	Landside	Calhoun Port Authority	Lack of Interstate highway access at the Calhoun Port Authority.	Widen SH 35 and SH 172 from the Calhoun Port Authority to U.S. 59.	Roadway connection	\$103,900,000		Conceptual.	Capacity Enhancement
41	Matagorda Ship Channel Individual segments are listed in Deep Draft Channels worksheet	?	Waterside	Calhoun Port Authority	Current depth of 35 ft and width of 200 ft restricts traffic to one-way and forces over 93% of deep draft ships to be light-loaded when transiting.	Deepen (to 45 ft) and widen (to 400 ft) the channel. TxDOT working with USACE to modify channel dimensions.	New dredging	\$540,000,000	75% Federal/ 25% Local (could include TxDOT)	3M CY USACE FY11 budget; 3.4M CY USACE FY11 additional; and 3.55M CY USACE FY12 O&M.	Strategic Improvements
42	Port Lavaca	M&N	Waterside	Calhoun Port Authority	Average water depths 3.5-5.5 ft (design: 12 ft).	Maintenance dredging.	Maintenance dredging	\$16,500,000	100% Federal	1.5M CY USACE FY11 additional; and 1.8M CY USACE FY12 O&M.	Maintenance
43	Railroad siding length: Angleton – Port Lavaca	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	Port Lavaca	14-mile industrial lead linking the UP Angleton Subdivision with Port Lavaca.	Lengthen sidings on key freight corridors.	Sidings/mainline capacity	\$6,070,000		Conceptual.	Maintenance
Cedar Bayou											
44	Cedar Bayou Channel	M&N	Waterside	Cedar Bayou	The portion of the Cedar Bayou Channel from the Houston Ship Channel to the land cut portion of Cedar Bayou is marked only on the red side. With current increases in barge traffic, there is also increasing risk of groundings.	Industry requests USACE to investigate placement of navigation aids on the green side of the channel, resulting in both sides of the channel being marked.	Navigation	\$100,000	100% Federal		Maintenance
153	Cedar Bayou Navigation Channel	Stakeholder Meeting	Waterside	Cedar Bayou		8-mile project to extend the existing channel, providing same depth and dimension as the authorized channel.		\$16,000,000	Federal authorized – unfunded		Capacity Enhancement
Port of Corpus Christi											
45	Insufficient connectivity between La Quinta Terminal and U.S. 181	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	Corpus Christi	Port of Corpus Christi's La Quinta terminal access road does not provide sufficient connectivity to U.S. 181.	Enhance capacity or construct alternate access route.	Roadway connection	\$25,000,000		Completed in 2011.	Capacity Enhancement
46	Insufficient sidings to accommodate increasing rail freight at the La Quinta Terminal at Port of Corpus Christi	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	Corpus Christi	Insufficient rail capacity to serve expected rail freight growth.	Construct new sidings.	Sidings/mainline capacity	\$10,400,000		Conceptual.	Maintenance
47	Nueces River Rail Yard	Corpus Christi Port Authority/Corpus Christi Terminal Railroad	Landside	Corpus Christi	New switching and storage capacity for Corpus Christi Terminal Railroad.	Construct new rail yard to replace existing CCTR yard.	Service tracks	\$21,500,000	26% POCCA, 28% BNSF, KCS, UP, CCTR. Applied for TIGER grant for remainder.	Under-design – study (new capacity).	Strategic Investment
48	KCS Laredo Subdivision Capacity	Lower Rio Grande Valley and Laredo Study	Landside	Corpus Christi	Insufficient capacity for projected growth.	Signal improvements (controlled switches) at all sidings.	Sidings/mainline capacity	\$16,300,000		Analyzed, modeled in RTC in TxDOT Lower Rio Grande Valley & Laredo Region Freight Study, not yet published.	Maintenance
49	NW Ingleside Dr (Gregory) – Brownsville	Corpus Christi Freight Study	Landside	Corpus Christi	Vehicular safety and impedance.	Grade separation.	Grade separation	\$8,000,000		Analyzed in Corpus Christi Region Freight Study, TxDOT, included in rail plan.	Capacity Enhancement

Project ID	Chokepoints/Critical Issues	Source	Landside/ Waterside	Port Impacted	Issue	Remedy	Type	Total Cost	% Cost TxDOT vs. % Other Sources	Status	Maintenance, Capacity Enhancement, or Strategic Investments
50	Sinton St (Sinton) – Brownsville	Corpus Christi Freight Study	Landside	Corpus Christi	Vehicular safety and impedance.	Grade separation.	Grade separation	\$5,600,000		Analyzed in Corpus Christi Region Freight Study, TxDOT, included in rail plan.	Capacity Enhancement
51	Park Ave (Odem) – Brownsville	Corpus Christi Freight Study	Landside	Corpus Christi	Vehicular safety and impedance.	Grade separation.	Grade separation	\$6,700,000		Analyzed in Corpus Christi Region Freight Study, TxDOT, included in rail plan.	Capacity Enhancement
139	La Quinta Channel Extension	M&N	Ship	Port of Corpus Christi	Extend channel – 41 ft depth to new terminal.			\$75,000,000	Thus far 100% Federal and Port Partner Funding	Partially funded, under construction.	Strategic Investment
140	Ingleside Industrial Corridor	M&N	Landside	Port of Corpus Christi	Highway/bypass to Kiewet and others off of TX-381.		New Highway/ relief route to serve industrial operations along La Quinta Ship Channel	\$23,000,000	County and TxDOT Funding	Design.	Capacity Enhancement
54	ROW conflicts at Port of Corpus Christi	HNTB	Landside	Corpus Christi	Removal of Tule Lake Lift Bridge requires KCS to operate over UPRR tracks (and past UPRR Viola Yard) between Fulton Wye and CCTR Savage lane line.	Construct additional KCS track between Fulton Wye and CCTR facilities.	Sidings/mainline capacity	\$8,200,000		Conceptual.	Capacity Enhancement
55	Upgrade U.S. 77 to interstate standards	Corpus Christi MPO	Landside	Corpus Christi	Insufficient capacity.	Upgrade U.S. 77 to I-69.	Roadway capacity	\$180,000,000		(Note: \$180M is cost for interim project, ultimately \$850M for full project).	Strategic Investment
56	Insufficient capacity on SH 44	Corpus Christi MPO	Landside	Corpus Christi		Upgrade SH 44 between Corpus Christi and U.S. 59.	Roadway capacity	\$350,000,000		Conceptual.	Capacity Enhancement
141	Corpus Christi Ship Channel	M&N	Ship	Corpus Christi	Deepening (45-52 ft) and widening (to 500 ft).		Capacity dredging	\$450,000,000	100% Federal?	Design has been authorized, but not funded.	Strategic Investment
142	Garcitas Creek and Colorado Bridges on UPRR	TIGER App: ftp://ftp.dot.state.tx.us/pub/txdot-info/rail/tiger/ south_tex/grant_app.pdf	Landside	Corpus Christi and Brownsville	Currently load restricted to 268k lbs, want to get to 282k lbs, shared BNSF and KCS line but mostly used by BNSF.	Capacity upgrades at the Angleton Subdivision. Construction of two large rail bridges and improvements to 31 smaller timber structure so that each one in 286,000 rail car compliant.	Bridge construction/ rehabilitation	\$16,500,000		Unfunded. Did not receive TIGER Grant. Would be mixture of Federal, state, Local?	Strategic Investment
57	Former railroad lift bridge over the Corpus Christi Ship Channel	Stakeholder Meeting	Waterside	Corpus Christi	Bumpouts in the channel for bridge supports prevent 2-way ship traffic.	Remove or reconfigure bridge.	Structures	\$7,000,000- \$8,000,000	100% others (could include TxDOT)	Bridge removed, abutments and fenders remain.	Strategic Investment
58	Air draft limitations at the Corpus Christi Harbor Bridge	Stakeholder Meeting	Waterside	Corpus Christi and the SNWW ports	Air draft limitations limit access to ports by tall ships.	New bridge.	Structures	\$600,000,000 (Note: This number from TxDOT, but someone else handed sheet saying \$350M.)	100% TxDOT?	Status: EIS to be completed in 2013, ROD in 2014.	Capacity Enhancement
Port of Freeport											
59	FM 523	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	Freeport	Poor pavement condition, limited capacity for trucks	H-GAC TIP: Smart Streets project from SH 36 to SH 332, pavement rehab from SH 32 to Dow Wastewater Canal, widening project from FM 2004 to SH 332 and from SH 332 to FM 1495.	Roadway capacity	\$53,400,000		Conceptual.	Maintenance

Project ID	Chokepoints/Critical Issues	Source	Landside/ Waterside	Port Impacted	Issue	Remedy	Type	Total Cost	% Cost TxDOT vs. % Other Sources	Status	Maintenance, Capacity Enhancement, or Strategic Investments
60	SH 36	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	Freeport	Lack of capacity and access controls on many segments	Widen from U.S. 59 to the Port of Freeport.	Roadway capacity	\$167,500,000		Conceptual.	Maintenance
13	UPRR Swing Bridge over the Old Brazos River Channel near the Port of Freeport	Pete Reixach, Port Director	Waterside	All	Poor condition. Bridge occasionally becomes stuck.	Construct new bridge.	Structures	\$124,000,000	100% railroads/ Non-TxDOT	Replacement bridge under construction: Recycled lift bridge from Houma, LA – completed 2011.	Capacity Enhancement
61	SH 288	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	Freeport	Low capacity, lack of access controls on some segments.	Construct grade separations to increase capacity.	Roadway capacity	\$124,000,000		Conceptual.	Maintenance
62	Lack Interstate Highway access	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	Freeport	Lack of interstate highway access at the Port of Freeport	Construct new Interstate Highway connection (62a), or upgrade and reclassify an existing facility (62b).	Roadway connection	Delete – This project is accomplished through project #60 (widening of SH 36 to U.S. 59).		Conceptual.	Capacity Enhancement
63	New Freeport Access	HNTB	Landside	Freeport	Indirect access to future intermodal yards in Rosenberg, and capacity constraints on existing mainline due to eventual build-out of new Freeport terminals.	Extend and add new mainline to existing Freeport corridor.	Sidings/mainline capacity	\$32,990,000		Conceptual.	Strategic Investment
64	Capacity between Angleton and UP Hoskins Yard	HNTB	Landside	Freeport	Insufficient capacity.	New 10,000-foot siding between Angleton and UP Hoskins Yard.	Sidings/mainline capacity	\$12,610,000		Conceptual.	Maintenance
65	Freeport Harbor	POF	Waterside	Freeport	Outer Bar Channel to Brazosport Turning Basin average water depth 36-43 ft (design: 45-47 ft).	Maintenance dredging.	Maintenance dredging	\$39,000,000	100% Federal	2.3M CY USACE FY11 budget (entrance); 1.8M CY USACE FY11 additional (maintenance assumption); 3.7M CY USACE FY12 O&M (entrance and maintenance).	Maintenance
66	Capacity at DOW Chemical Plant	HNTB	Landside	Freeport	Insufficient capacity.	New dedicated siding track at DOW Chemical Plant.	Sidings/Mainline capacity	\$9,500,000		Conceptual.	Maintenance
67	FM 1495	Stakeholder Meeting	Landside	Freeport	Insufficient capacity.	Widen roadway from FM 523 to SH 288.	Roadway capacity	\$35,500,000		Conceptual.	Maintenance
137	Freeport Channel	Port of Freeport/Alan Meyers	Waterside	Freeport		Widen and deepen channel from 400-600 ft wide and 55 ft deep.		\$330,000,000	Under study/fully funded	Expect to be permitted spring 2011.	Capacity Enhancement
138	Lack of Capacity in Marine Terminals – Velasco Terminal Construction	Port of Freeport/Alan Meyers	Landside	Freeport		Phase I, 800 ft berth complete, 22 acres stabilized, 90 acres total; multipurpose terminal capable of handling 780,000 TEUs and an elevated intersection at FM 1495 and SH 36, which we are partnering with the County and State on design and funding.		\$380,000,000			Capacity Enhancement
156	Number of Grade Crossing Projects/Rail Bridge Crossings at Angleton and Placedo	Stakeholder Meeting	Landside	Freeport				Need more info to complete cost estimate. Not sure of source of project.		Could not show us due to insufficient map detail.	Capacity Enhancement

Project ID	Chokepoints/Critical Issues	Source	Landside/ Waterside	Port Impacted	Issue	Remedy	Type	Total Cost	% Cost TxDOT vs. % Other Sources	Status	Maintenance, Capacity Enhancement, or Strategic Investments
157	Rail Storage Facility	Alan Meyers	Landside	Freeport		Capacity to build unit trains – 5 tracks.		Need more info to complete cost estimate. Not sure of source of project.		Conceptual.	Capacity Enhancement
152	Capacity on Hwy 36 and 288 from Freeport	HNTB	Landside	Freeport				Delete – This project is accomplished through project #60 (widening of SH 36 to U.S. 59) and #61 (grade separations along SH 288).			Capacity Enhancement
158	Freeport Harbor Deepening	Stakeholder Meeting	Waterside	Freeport		55-ft project deepening from 45 ft, expect USACE chief's report Sept 2011.		\$300,000,000	Federal/Port/ Other?	Unfunded.	Capacity Enhancement
Port of Harlingen											
68	W. Colorado Avenue (Rio Hondo, TX) Lift span bridge over the Arroyo Colorado (~22 miles inland of GIWW)	?	Waterside	Harlingen	The bridge needs to be lifted about once a day to allow passage for Port of Harlingen waterway traffic, needs regular inspections and maintenance, and has been out of operation for multiple days on several occasions.	Replace with a new liftspan bridge or a higher nonmovable bridge.	Structures	\$20,000,000	100% TxDOT?		Capacity Enhancement
69	Channel to Port Harlingen	?	Waterside	Harlingen	Average water depths 8-13 ft (design: 12 ft).		Maintenance dredging	\$1,800,000	100% Federal	USACE FY11 budget	Maintenance
Houston-Galveston Area Ports											
70	Lack of rail access to Pelican Island	HNTB	Landside	Galveston	Lack of rail access. As Pelican island is further developed, this will become more of an issue.	Construct new rail bridge.	Rail bridge	Delete – Only need if Houston Container Facility is located on Pelican Island. Not able to discuss due to NDA.			Strategic Investment
71	Galveston Harbor Channel Depth *Individual segments are listed in Deep Draft Channels worksheet	N/A	Waterside	Galveston	The waterway is not maintained to its Federally authorized depth. Some components of the waterway are significantly shallower than their authorized depths, particularly the anchorage basin, which is 12-17 ft shallower than its authorized depth of 34 ft.	Maintenance dredging.	Maintenance dredging	\$51,000,000	100% Federal	Galveston: 4.75M CY in USACE FY11 budget; Texas City: 200,000 CY in USACE FY11 budget. Note: Texas City is separate port from Galveston, should be kept separate.	Maintenance
72	Galveston Harbor	M&N	Waterside	Galveston	Average water depths 23-48 ft (design: 40-47 ft), not including anchorage basin.	Maintenance dredging.	Maintenance dredging	\$29,000,000	100% Federal	4.75M CY USACE FY11 budget; 1.9M CY USACE FY12 O&M; and Phase II funded (as of 2009).	Maintenance

Project ID	Chokepoints/Critical Issues	Source	Landside/Waterside	Port Impacted	Issue	Remedy	Type	Total Cost	% Cost TxDOT vs. % Other Sources	Status	Maintenance, Capacity Enhancement, or Strategic Investments
73	Railroad-highway grade crossing at FM 1960 east of SH 249	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	H-GAC area ports	Identified as an auto-train collision hotspot.	Improve grade crossing safety.	Grade separation	\$11,700,000		Conceptual.	Capacity Enhancement
74	Railroad-highway grade crossing at Hillcroft Street near Main Street (U.S. 90A)	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	H-GAC area ports	Identified as an auto-train collision hotspot.	Improve grade crossing safety.	Grade separation	\$18,000,000		Conceptual.	Capacity Enhancement
75	Railroad-highway grade crossing at Bellfort near Mykawa Road	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	H-GAC area ports	Identified as an auto-train collision hotspot.	Improve grade crossing safety.	Grade separation	Delete – No impact on ports, not located near the ports or on key routes to/from the ports.			Capacity Enhancement
76	Railroad-highway grade crossing at Alameda-Genoa near Mykawa Road	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	H-GAC area ports	Identified as an auto-train collision hotspot.	Improve grade crossing safety.	Grade separation	Delete – No impact on ports, not located near the ports or on key routes to/from the ports.			Capacity Enhancement
77	Railroad-highway grade crossing at Antoine Drive near Tidwell	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	H-GAC area ports	Identified as an auto-train collision hotspot.	Improve grade crossing safety.	Grade separation	Delete – No impact on ports, not located near the ports or on key routes to/from the ports.			Capacity Enhancement
78	Railroad-highway grade crossing at Park Terrace near Galveston Road	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	H-GAC area ports	Identified as an auto-train collision hotspot.	Improve grade crossing safety.	Grade separation	\$12,000,000		Conceptual.	Capacity Enhancement
79	Railroad-highway grade crossing at Fairmont Parkway	?	Landside	H-GAC area ports	Identified as an auto-train collision hotspot.	Improve grade crossing safety.	Grade separation	Delete – Already grade separated			Capacity Enhancement
80	Jacintoport Blvd	?	Landside	Houston	Limited capacity, lack of median and shoulders.	Widen from BW 8 to Peninsula.	Roadway capacity	\$9,600,000		Conceptual.	Maintenance
81	Spencer Hwy and Redbluff Rd	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	Houston	Poor pavement condition, low bridge clearances, lack of access controls, poor turning radii.	H-GAC TIP: Grade separation at Spencer Hwy, widen Redbluff to 6 lanes.	Roadway capacity	\$35,150,000			Maintenance
82	SH 146	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	Houston	Poor pavement condition, congestion, grade crossing issues.	Pavement maintenance, capacity enhancement, and grade crossing upgrades included in H-GAC TIP.	Roadway capacity	\$595,427,341			Maintenance
83	SH 225	?	Landside	Houston	Poor connectivity to I-610 and Beltway 8, and safety issues.	Direct connectors to BW8.	Roadway connection	\$30,000,000		Conceptual.	Capacity Enhancement
84	Loop 610 bridge	Stakeholder Meeting	Landside	Houston	Low clearance.	Raise bridge.	Roadway bridge	This is not a land use issue – it is a waterside project.			Capacity Enhancement
85	Rail bridge 5A – PTR	Houston Region Freight Study	Landside	Houston	Insufficient capacity – single-track bottleneck on double-track corridor.	Double track.	Rail bridge	\$10,000,000		Analyzed, modeled in RTC in TxDOT Houston Region Freight Study, 2007 and GCRD Study, 2009.	Capacity Enhancement

Project ID	Chokepoints/Critical Issues	Source	Landside/Waterside	Port Impacted	Issue	Remedy	Type	Total Cost	% Cost TxDOT vs. % Other Sources	Status	Maintenance, Capacity Enhancement, or Strategic Investments
86	Belt Jct.	Houston Region Freight Study	Landside	Houston	Insufficient capacity.	Double track.	Sidings/mainline capacity	\$11,000,000		Analyzed, modeled in RTC in TxDOT Houston Region Freight Study, 2007 and GCRD Study, 2009.	Maintenance
87	Galena Jct to Manchester Jct.	Houston Region Freight Study	Landside	Houston	PTRA required to use trackage rights on UPRR line.	Double track.	Sidings/mainline capacity	\$42,000,000		Analyzed, modeled in RTC in TxDOT Houston Region Freight Study, 2007 and GCRD Study, 2009.	Maintenance
88	Englewood Yard to Sheldon	Houston Region Freight Study	Landside	Houston	Insufficient capacity	Additional mainline track from Englewood Yard to Sheldon.	Sidings/mainline capacity	\$50,000,000		Analyzed, modeled in RTC in TxDOT Houston Region Freight Study, 2007 and GCRD Study, 2009.	Maintenance
89	Rail bridge 16 – East Belt	Houston Region Freight Study	Landside	Houston	Insufficient capacity – single track bottleneck on double-track corridor	Double track.	Rail bridge	\$10,000,000		Analyzed, modeled in RTC in TxDOT Houston Region Freight Study, 2007 and GCRD Study, 2009.	Capacity Enhancement
90	New Container Terminal Facility	Port of Houston Terminal Next	Landside	Houston	Port of Houston needs additional container capacity.	Build new container terminal.	Rail yard	Unable to discuss due to confidentiality agreement with POH.		Being analyzed by the Port of Houston currently.	Strategic Investment
91	West Belt Improvement Project	Gulf Coast Rail District	Landside	Houston	Vehicular safety and impedance at at-grade roadway/rail crossings on the West Belt Subdivision.	Grade separation or closure of the at-grade crossings.	Grade separation	\$53,400,000		Feasibility analysis/ conceptual design under contract by GCRD.	Capacity Enhancement
92	Overweight Truck Facilities	?	Landside	Houston	84,000-lb limit on highways.	Authorization of permits for overweight trucks on roadways near the port of Houston. Increased trucking fees would be required to compensate for the increased maintenance and shortened service life of the roadways.	Roadway capacity	No Infrastructure cost – this is a policy issue.		Conceptual.	Maintenance
163	Port Road	Port of Houston Authority	Landside	Houston	Accommodate increased traffic for Bayport terminal	Widen Port Road to divided 6-lane (SH 146 to Todville Rd)	Roadway Capacity (2 new lanes)	\$13,364,094	Federal – with local share	Conceptual	Capacity Enhancement
164	SH 146	Port of Houston Authority	Landside	Houston	Access management from Port Road to SH 146	Construct connector Eastbound from Port Road to SH 146	Roadway Capacity (New connector)	\$2,943,369	TxDOT – with local share	In Construction	Strategic Investment
165	Spencer Highway	Port of Houston Authority	Landside	Houston	Intermodal Traffic Management	Construct grade separation over Double rail	Roadway Capacity (new roadway)	\$12,518,818	Federal – with local share	Conceptual	Strategic Investment
166	Clinton Drive	Port of Houston Authority	Landside	Houston	Poor roadway condition for road w/heavy truck traffic	Clinton Drive Improvements (widening, lighting, drainage)	Roadway Capacity (new lanes)	\$8,724,141	TxDOT – COH share	Will go to procurement in 2012	Capacity Enhancement
167	SH 146(new connector)	Port of Houston Authority	Landside	Houston	Facility road needed for terminal access to SH146	Construct direct connector from SB lanes of SH 416 to Bayport Southern Access	Roadway Capacity (new lanes)	\$13,379,661	Unknown	Conceptual	Strategic Investment
168	Southern Access Road	Port of Houston Authority	Landside	Houston	Facility road needed for Terminal Access to SH146	Construct two new lanes with raised median on Southern Access Road from Old SH146 to terminal	Roadway Capacity (new lanes)	\$13,538,650	Unknown	Conceptual	Capacity Enhancement

Project ID	Chokepoints/Critical Issues	Source	Landside/ Waterside	Port Impacted	Issue	Remedy	Type	Total Cost	% Cost TxDOT vs. % Other Sources	Status	Maintenance, Capacity Enhancement, or Strategic Investments
169	Southern Access Road	Port of Houston Authority	Landside	Houston	Anticipated traffic to cruise terminal	Widen Southern Access Road to four-lane divided highway from old SH 146 to Bayport Cruise terminal	Roadway Capacity (new roadway)	\$5,716,418	Unknown	Conceptual	Strategic Investment
170	Jacintoport Road	Port of Houston Authority	Landside	Houston	Roadway existing conditions are fair to poor and have heavy truck traffic	Widen Jacintoport Road to four lanes, improve rail crossings from Beltway 8 to Houston Ship Channel	Roadway Capacity (new lanes)	\$33,965,568	Unknown	Conceptual	Strategic Investment
171	Penn City Road	Port of Houston Authority	Landside	Houston	Roadway existing conditions are fair to poor and have heavy truck traffic	Widen Penn City Road from two to four lanes (from I-10); make drainage, lighting, and other improvements	Roadway Capacity (new lanes)	\$23,317,632	Unknown	Conceptual	Strategic Investments
172	610 Bridge	Port of Houston Authority	Landside	Houston	IH 610 truck off-ramp to Port frequently backs up	New truck entrance from 610 loop for all traffic crossing the 610 bridge	Roadway Capacity (new lanes)	\$20,000,000	Unknown	Conceptual	Strategic Investments
173	Broadway Street	Port of Houston Authority	Landside	Houston	Traffic flow on Broadway needs to accommodate increased volumes	Widen Broadway (from Barbours Cut Blvd to North L St.), increase to four lanes	Roadway Capacity (new lanes) and improvements	\$2,632,282	Unknown	Conceptual	Strategic Investments
174	Old SH 146	Port of Houston Authority	Landside	Houston	Provide improved road to connect to warehouse development	Improve Old SH 146 (Port Road to Red bluff)	Roadway Improvements	\$3,325,000	Unknown	Conceptual	Strategic Investments
93	Scott/ York – West Belt	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance.	Grade separation.	Grade separation	\$11,700,000		Feasibility analysis/ conceptual design under contract by GCRD.	Capacity Enhancement
94	Leeland – West Belt	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance.	Grade separation.	Grade separation	\$7,400,000		Feasibility analysis/ conceptual design under contract by GCRD.	Capacity Enhancement
95	Navigation/Commerce – West Belt	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance.	Grade separation.	Grade separation	\$26,500,000		Feasibility analysis/ conceptual design under contract by GCRD.	Capacity Enhancement
96	Lyons – West Belt	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance.	Grade separation.	Grade separation	\$6,400,000		Feasibility analysis/ conceptual design under contract by GCRD.	Capacity Enhancement
97	Shepherd/Durham – Terminal	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance.	Grade separation.	Grade separation	\$30,700,000		Conceptual.	Capacity Enhancement
98	Houston – Terminal	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance.	Grade separation.	Grade separation	\$13,800,000		Conceptual.	Capacity Enhancement
99	Bellaire – Terminal	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance.	Grade separation.	Grade separation	\$17,000,000		Conceptual.	Capacity Enhancement
100	San Felipe – Terminal	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance.	Grade separation.	Grade separation	\$32,900,000		Conceptual.	Capacity Enhancement
101	Richmond – Terminal	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance.	Grade separation.	Grade separation	\$29,700,000		Conceptual.	Capacity Enhancement
102	TC Jester – Terminal	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance.	Grade separation.	Grade separation	\$8,900,000		Conceptual.	Capacity Enhancement
103	Westheimer – Terminal	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance.	Grade separation.	Grade separation	\$66,800,000		Conceptual.	Capacity Enhancement

Project ID	Chokepoints/Critical Issues	Source	Landside/Waterside	Port Impacted	Issue	Remedy	Type	Total Cost	% Cost TxDOT vs. % Other Sources	Status	Maintenance, Capacity Enhancement, or Strategic Investments
104	Market – Strang	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance.	Grade separation.	Grade separation	\$4,900,000		Conceptual.	Capacity Enhancement
105	Lyons – Strang	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance.	Grade separation.	Grade separation	\$5,300,000		Conceptual.	Capacity Enhancement
106	Wallisville – Strang	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance	Grade separation.	Grade separation	\$9,000,000		Conceptual.	Capacity Enhancement
107	Federal – PTR A	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance	Grade separation.	Grade separation	\$7,400,000		Conceptual.	Capacity Enhancement
108	Wallisville – East Belt	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance	Grade separation.	Grade separation	\$8,700,000		Conceptual.	Capacity Enhancement
109	Hirsch – East Belt	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance	Grade separation.	Grade separation	\$6,500,000		Conceptual.	Capacity Enhancement
110	Harrisburg – East Belt	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance	Grade separation.	Grade separation	\$14,800,000		Conceptual.	Capacity Enhancement
111	Canal – East Belt	Houston Region Freight Study	Landside	Houston	Vehicular safety and impedance	Grade separation.	Grade separation	\$11,700,000		Conceptual.	Capacity Enhancement
112	Connectivity at Tower 76	Houston Region Freight Study	Landside	Houston	Connectivity between the HB&T East Belt with the UP Lufkin Subdivision	Wye connection in northeast quadrant.	Sidings/mainline capacity	\$3,000,000		Analyzed, modeled in RTC in TxDOT Houston Region Freight Study, 2007.	Maintenance
113	West Belt Capacity	Houston Region Freight Study	Landside	Houston	Insufficient capacity	Additional mainline from Tower 81 to Double Track Junction on the West Belt Subdivision.	Sidings/mainline capacity	\$19,100,000		Analyzed, modeled in RTC in TxDOT Houston Region Freight Study, 2007.	Maintenance
114	Capacity and Allowable Speeds on Galveston Subdivision from Tower 30 to GH&H Junction	Houston Region Freight Study	Landside	Houston	Insufficient capacity	Upgrade track and signals from Tower 30 to GH&H Junction on UPRR Galveston Subdivision.	Sidings/mainline capacity	\$5,300,000		HRFS.	Maintenance
115	Pierce Yard	Houston Region Freight Study	Landside	Houston	Yard movements occupying mainline tracks on East Belt Subdivision.	Lengthen yard tracks.	Rail yard	\$15,900,000		HRFS.	Maintenance
116	Settegast Yard	Houston Region Freight Study	Landside	Houston	Through movements through yard are blocked.	Construct 9,000-ft siding track.	Rail yard	\$6,700,000		Analyzed, modeled in RTC in TxDOT Houston Region Freight Study, 2007.	Maintenance
117	East Houston Bypass	TxDOT Houston Region Freight Study and Texas Rail Plan	Landside	Houston	Constraints and congestion between Belt Junction and Basin Yard on the East Belt Subdivision.	32 mile bypass from Baytown Subdivision at Dayton to Cleveland with a connection to Lufkin Subdivision (new rail line)	Rail bypass	\$283,400,000		Analyzed, modeled in RTC in TxDOT Houston Region Freight Study, 2007.	Strategic Investment
151	Harborside Drive Corridor on Pelican Island	HNTB	Landside	Houston				Delete. Only need if Houston Container Facility is located on Pelican Island. Not able to discuss due to NDA.			Strategic Investment

Project ID	Chokepoints/Critical Issues	Source	Landside/ Waterside	Port Impacted	Issue	Remedy	Type	Total Cost	% Cost TxDOT vs. % Other Sources	Status	Maintenance, Capacity Enhancement, or Strategic Investments
118	Fort Bend Bypass	Harris County Regional Freight Rail Improvement Plan	Landside	Houston	Vehicular safety and impedance associated with rail traffic on the Glidden Subdivision.	34-mile bypass through Fort Bend County from Rosenberg to Arcola (new rail line).	Rail bypass	\$932,600,000		Currently being studied by Fort Bend County. Modeled in RTC in TxDOT study – has public benefit, but no private benefit (increased maintenance and operational costs).	Strategic Investment
119	Bell Main	Houston Region Freight Study	Landside	Houston	Upgrade condition of track	Track and signal improvements, upgrades to restore line to service.	Sidings/mainline capacity	\$6,600,000		Modeled in RTC in GCRD/ TxDOT study. Shown to have relatively small benefit.	Maintenance
120	PTRA North Shore	HNTB	Landside	Houston	Single-track constraints to primarily double tracked line.	Double-track sections and construct bridges.	Sidings/mainline capacity	\$13,230,000		Conceptual.	Maintenance
121	Houston Ship Channel and Tributaries *Individual segments are listed in Deep Draft Channels worksheet	N/A	Waterside	Houston	Portions of the waterway are not maintained to their authorized depth and depths need to be increased to accommodate larger post-Panamax ships.	Maintenance dredging.	Maintenance dredging	\$54,000,000	100% Federal	Barbours and Bayport: 3 million CY in USACE FY11 budget.	Maintenance
122	Houston Ship Channel	M&N	Waterside	Houston	Average water depths 33-46 ft (design: 45 ft); depths need to be increased for larger Post-Panamax ships/	Maintenance dredging.	Maintenance dredging	\$15,000,000	100% Federal	USACE FY12 O&M	Maintenance
148	Boliver Bridge	HNTB	Landside	Houston/ Galveston	This has been extensively studied and may not be deemed feasible.			Delete – Project determined not feasible in previous study.		Has been studied previously. Study was terminated due to political opposition, significant environmental issues, and engineering constraints. The bridge will not be built.	Capacity Enhancement
123	Bayport Channel	?	Waterside	Houston	Average water depths 25-40 ft (design: 40- 45 ft); depths need to be increased for larger Post-Panamax ships.	Maintenance dredging.	Maintenance dredging	\$12,000,000	100% Federal	1.4M CY USACE FY11 budget; and 900,000 CY USACE FY12 O&M.	Maintenance
149	Pelican Island Bridge for Rdwy access	HNTB	Landside	All	Vehicular access was damaged in Hurricane Ike.			\$117,000,000		Unfunded, concept design plan to be made public in 30-60 days.	
150	Extend heavy haul permits for FM 1405 to Cedar Bayou (policy issue)	HNTB	Landside	All				No Infrastructure cost – this is a policy issue.		Conceptual.	Capacity Enhancement

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153	Tower 55 Grade Separation (Fort Worth)	HNTB		Port of Houston	Tower 55 in Fort Worth is one of the most heavily traveled railroad intersections in the U.S. (approximately 100-120 trains per day), and is a major cause of congestion for north-south train traffic in Texas.	BNSF has been spending substantial sums of money to improve the infrastructure (double tracking, siding extensions, rail yard improvements) on its Mid Continent (Mid-Con) Corridor in order to accommodate existing energy-related business and to prepare for growth in this international trade. Improve conditions at Tower 55. These short-term improvements include additional north-south tracks through the intersection, redesigned centralized traffic control (CTC) signals, improved interlocker capabilities, and street improvements that support the closure of some highway-rail grade crossings. However, these improvements are only intended to lessen deficiencies that exist in current railroad capacity, evident by 90-minute train delay times during peak operating hours of the day, and do not resolve the long-term capacity problems of this intersection. This railroad intersection will ultimately need to be grade separated by constructing new railroad bridge structures that allow for the efficient movement of freight between Houston and the Midwest as port traffic continues to grow.		\$87,000,000	TIGER, BNSF/UP, City of Fort Worth, TxDOT	\$34 million in TIGER II funding, combined with investments from BNSF and UP totaling \$51 million, \$1 million from the City of Fort Worth, and \$1 million from TxDOT.	Capacity Enhancement
12	Galveston Railroad Bridge Widening	?	Waterside	All	The Galveston Railroad bridge presents a major hazard and chokepoint for barges on the GIWW because of its 105-ft width between its supports.	Reconstruct the bridge with 300-ft wide opening.	Structures	\$80,000,000	100% Others?	Bridge under construction. TxDOT installed 6 25-foot wide dolphins between Railroad and highway bridges in interim (\$2.3 million). Underway and fully funded – completion June 2012.	Capacity Enhancement
155	Galveston Channel Deepening	Submitted during meeting	Waterside	Port of Galveston	45-ft deepening. The authorized channel work is completed with an extension and turning basin work underway.			\$42,000,000	Fully funded – Federal appropriations for the extension and turning basin work are anticipated, but not yet received.		Capacity Enhancement
124	Barbours Terminal Channel (Exxon Oil Slip to Hunting Bayou)	?	Waterside	Houston	Average water depths 34-44 ft (design: 40-45 ft); depths need to be increased for larger Post-Panamax ships.	Maintenance dredging.	Maintenance dredging	\$27,000,000	100% Federal	1.6M CY USACE FY11 budget (Exxon to Carpenters); 1.9M CY USACE FY11 additional (Greens to Hunting); and 1.9M CY USACE FY12 O&M (Carpenter to Greens).	Maintenance
125a	Houston Ship Channel to Smith Point (Tributary)	?	Waterside	Anahuac	Average Water Depths 1-2 ft (design 9 ft).	Maintenance dredging.	Maintenance dredging	\$6,500,000	100% Federal	USACE FY11 additional.	Maintenance
125b	Double Bayou	?	Waterside	Oak Island	Average water depths 0-4 ft (design: 7 ft).	Maintenance dredging.	Maintenance dredging	\$3,500,000	100% Federal	USACE FY11 additional.	Maintenance
126	Greens Bayou Channel	?	Waterside	Houston	Average water depths 10-11.5 ft (design: 15 ft) Parker Brothers Slip	Maintenance dredging.	Maintenance dredging	\$1,500,000	100% Federal	USACE FY12 O&M.	Maintenance

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Port of Texas City											
127	Loop 197	H-GAC TIP	Landside	Texas City	Limited capacity, lack of access control, poor geometrics for truck traffic.	Direct connectors to Port of Texas City.	Roadway capacity	\$55,000,000			Maintenance
128	At-grade crossing at the intersection of Loop 197 and SH 3	?	Landside	Texas City	Congestion and safety issues.	Grade separation.	Grade separation	\$20,000,000			Capacity Enhancement
129	Texas City Harbor	?	Waterside	Texas City	Average water depths 30-41 ft (design: 40 ft)	Maintenance dredging.	Maintenance dredging	\$22,000,000	100% Federal	200,000 CY USACE FY11 budget; 4.2M CY USACE FY12 O&M and deepening to 45 ft authorized and funded with stimulus \$ (as of 2009).	Maintenance
Port of Orange											
130	Sabine River Channel	?	Waterside	Orange	Average water depths 5-30 ft (design: 25-30 ft)	Maintenance dredging.	Maintenance dredging	\$4,500,000	100% Federal	USACE FY12 O&M.	Maintenance
162	Alabama Street Terminal Major Investments	Port of Orange	Landside	Orange and GIWW Terminals	Complete Rebuild after Hurricane Rita and Meeting DHS Security Needs, including Gates	Alabama Terminal Projects \$3.1 million (2006-2010); Transmodal Marine Yard \$7.6 million (2009-2011); Security Enhancements \$3.9 million (2006-2010) and Railroad Dockside Improvements \$ 2.0 million (2006-2011)	Terminal Capacity	\$16.6 million	0 Grants \$ 5.7 million, Port Funding 10.9 million	Port Alabama and Security completed, Transmodal and Rail to be completed by 01/2012	Capacity Enhancement and Strategic GIWW
163	Floating Crane to serve GIWW traffic and Local shipyard	Port of Orange	Waterside	Orange and GIWW Terminals	Crane Investment final element in serving containers on barge to local plants and shippers (including Dow and International paper) who currently transport containers on IH-10. Submitted as a TIGER II Grant based on a calibrated Cost-Benefit Model	Discount rates of 3% and 7% linked to crane cost, operating and crane maintenance cost and IH-10 congestion assumptions, together with vehicle operating cost, agency savings, safety and emission benefits yielded a C-B ratio of 2.95 at 7% and 3.81 at 3%.	Terminal Capacity	\$9 million	0 Port of Orange local match \$1.8 million, TIGER II request \$7.2 million	TIGER II unsuccessful, seeking other funding sources	Capacity Enhancement and Strategic GIWW
Port of Port Mansfield											
131	Channel to Port Mansfield	?	Waterside	Mansfield	Average water depths 7.5-14.5' (design: 12-16')	Maintenance dredging.	Maintenance dredging.	7500000	100% Federal	500,000 CY USACE FY11 budget; 600,000 CY USACE FY11 additional; and 350,000 CY USACE FY12 O&M.	Maintenance
Port of Port Arthur											
132	UPRR Sabine Industrial Lead	Texas Waterborne Freight Corridor Study, Phase I Report	Landside	Port Arthur	Lack of connection between UPRR Sabine Industrial Lead and the Port.	Construct rail connection.	Rail Connection			No Infrastructure cost – This is a policy issue. Infrastructure exists, but trackage rights would be needed to provide access.	
Port of Port Isabel											
133	Port Isabel Ship Channel *Individual segments are listed in Deep Draft Channels worksheet	?	Waterside	Port Isabel	The waterway is not maintained to its Federally authorized depth (36 ft). Average water depths 27-37 ft.	Maintenance dredging.	Maintenance dredging	\$2,500,000	100% Federal	Not included in USACE O&M USACE FY11 or USACE FY12; quantity approximated from survey results. Fully funded.	Maintenance

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Port of Victoria											
134	Channel to Victoria	?	Waterside	Victoria	Navigation aids cannot be kept in place in “Y” of intersection with Victoria Barge Canal due to narrow channel width in the turn.	Increase width of channel throughout intersection turns. At this time, the total removal of the split appears to be the best alternative. A ship simulation is required; however, the project has been temporarily suspended due to lack of funds.	New dredging	\$1,000,000	100% others (Federal and Port) with TxDOT providing ROW/ Easements	In addition to maintenance dredging.	Capacity Enhancement
146	Extend KCS Rosenberg to Victoria line south to Robstown and extension to Port of Victoria	M&N	Landside	Victoria				Need more info to complete cost estimate – project does not seem valid.			Capacity Enhancement
145	Maintenance dredging of Channel to Palacios	M&N	Ship			Needs additional dredging.		?			Maintenance
144	Maintenance dredging of Channel to Victoria	M&N	Ship					?			Maintenance
135	Channel to Victoria	?	Waterside	Victoria	Average water depths 4-14 ft (design: 12 ft)	Maintenance dredging.	Maintenance dredging	\$18,500,000	100% Federal	Funding uncertain.	Maintenance
Port of Bay City											
136	Colorado River Mouth and Channel	?	Waterside	Bay City	Average water depths 0-10 ft (design: 9 ft)	Maintenance dredging/	Maintenance dredging	5300000	100% Federal	USACE FY12 O&M	Maintenance