Exhibit D
Expert Report of Robert N. Stearns, Ph.D.

I. Experience and Qualifications

I have had a 40-year career as both teacher and practitioner in public policy and economics. The Corps of Engineers Civil Works program has been a major focus of my work, starting in 1976 when I served as an economist for the U.S. Coast Guard (Department of Transportation) and continuing today in my capacity as a consultant. For nearly ten years (1986-1995), I worked for the Department of the Army, first as a senior policy advisor for the Corps’ Civil Works program and later as Deputy Assistant Secretary for Project Management. In these capacities, I had extensive experience in developing new policies and presenting ideas to Congress, the Office of Management and Budget (OMB) and other high ranking government officials. More recently, I served as a senior analyst for the National Academy of Public Administration for its 2007 study, “Prioritizing America’s Water Resources Investments: Budget Reform for Civil Works Projects at the U.S. Army Corps of Engineers.”

These experiences have given me an extensive knowledge of Corps water resources projects and a wide range of planning and budgetary issues. While my primary focus has been on the economics of transportation projects, my responsibilities have required me to be fully informed on virtually every aspect of the Civil Works program.

My career includes 15 years teaching economics, quantitative methods, and statistics at the college level, most recently as an adjunct professor at the University of Maryland’s School of Public Policy. I received a Ph.D. in economics from Yale University and a B.A. in mathematics from Swarthmore College.

II. Materials Reviewed

In performing this work, I have reviewed all of the following:

- Draft General Re-Evaluation Report for Savannah Harbor Expansion Project Chatham County, Georgia and Jasper County, South Carolina, 15 November 2010 (GRR).
- Economics Appendix to above referenced GRR, November 2010.
- Savannah Harbor Expansion Project Regional Port Analysis (Attachment to Economics Appendix), July 2007.
III. Summary

I have been retained by the Southern Environmental Law Center (SELC), which is preparing comments on the Savannah Harbor Expansion Project (SHEP). SELC has requested that I review and evaluate the economic analyses that the Army Corps of Engineers (Corps) has performed for SHEP. Specifically, I have been asked to provide my expert opinions on the following subjects:

(i) whether the Corps performed an appropriate National Economic Development (NED) analysis on SHEP;

(ii) whether the Corps performed the “multi-port analysis” correctly;

(iii) whether the air draft issues involving the Talmadge Bridge were adequately considered in the economic analysis;

(iv) whether the purported benefits of the project will accrue to the United States or will be spread around the international community; and

(v) to what extent will this project help the United States meet other primary national economic goals.

Based on my background, education, training, experience, and the materials I have reviewed prior to formulating my opinion, I have concluded the following:

(i) statements by the Georgia Ports Authority (GPA) and other business and community leaders indicate their belief that this project is needed for the port’s underlying business, thereby contradicting the Corps’ contention that the port’s growth rate will be the same with or without the project. The GRR and the DEIS fail to rectify these divergent views;

(ii) the Corps’ so-called “multi-port analysis” and “regional port analysis” are based on inconsistent assumptions and fail to address the most important question of which port (or ports) in the southeast could be enlarged to accommodate the Post-Panamax ships with the least cost and fewest environment impacts;

(iii) the Corps’ forecasts made in 2004 did not anticipate the 2008-09 international economic downturn and therefore are overly optimistic in predicting future economic conditions.
container traffic levels. Less container traffic reduces project benefits. The Corps’ attempts to account for this downturn are inadequate;

(iv) the trend in larger ships calling at Savannah, induced in part by the deeper channel, may create new incentives to raise the Talmadge Bridge to accommodate even larger ships, leading to significant additional costs that taxpayers will have to bear;

(v) the Corps fails to acknowledge that many of the so-called “national” economic benefits from the cost savings associated with the proposed improvements to the port may actually accrue to foreign manufacturers and shipping lines rather than U.S. consumers and industries, and consequently the Corps fails to raise important national policy issues that should have been considered;

(vi) the benefits of deepening U.S. ports such as Savannah to reduce the cost of imports must be seriously weighed against the impact this has on the competitive position of U.S. manufacturers in international commerce; and

(vii) the Corps provides no evidence that any permanent jobs will result from the Port expansion, especially in light of the analytical assumption that the Port of Savannah’s market share will not change because of the expansion.

IV. The Corps’ Assumption that Deepening is Unrelated to Market Share is Contrary to Views Held by the GPA and Others in the Port Community.

The Corps’ Planning Guidance Notebook states that in conducting a “National Economic Development” analysis, the Corps must base its analysis on the most likely with- and without-project scenarios.1 In analyzing this project, the Corps assumed that the growth rate of the port as measured by tonnage received and shipped would be the same regardless of whether the port was deepened or not:

Under with-project conditions, the same volume of cargo is assumed to move through Savannah Harbor, however, a deepening project will allow shippers to load their vessels more efficiently or take advantage of larger vessels. This is the main driver of the NED benefits.2

This “assumption” is repeated in the Corps’ Multiport Analysis:

[Under a ‘least total cost analysis’ with-project conditions [a deeper channel] should not be expected to shift any containerized cargo away from

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competing ports for the major benefiting services and their current deployments.3

There is no doubt that the GPA believes that market share would be lost if the harbor is not deepened. GPA spokespersons have stated repeatedly that failure to deepen the harbor will put Savannah at a substantial competitive disadvantage and that without the harbor deepening, the container traffic through the port would remain at its current level or may even decrease as larger ships decide to call on other, deeper ports. Curtis Foltz, the new executive director of the GPA, recently stated in a speech to the House and Senate appropriations committees: “The ships and jobs will only come to Savannah if the harbor is deepened.”4 Mr. Foltz has also said that, “The Savannah harbor deepening project is critically important to continued economic growth in the southeastern United States.”5 Expanding still further, Mr. Foltz commented recently that, “expanding the Port of Savannah is a linchpin to the continued competitiveness of Georgia, the Southeast and indeed the United States in the global economy.”6

In fact, the GPA is so convinced that deepening the harbor is going to have a dramatic impact on container traffic that it is reported to be ready to spend $20.4 million7 to have the Corps dredge an extra foot so the harbor will reach a depth of 48 feet instead of the 47 feet that the Corps selected as the plan with greatest net benefits. In addition, GPA “expects to spend another $1.1 billion on cranes and rail yards to accommodate twice as many containers [by 2020].”8

The Corps acknowledged that shippers have similar views:

Each of the carriers interviewed were very supportive of channel modifications at Savannah Harbor and stated that without a deeper channel, shipping inefficiencies would worsen given the growth in cargo and the increased vessel sizes…. The carriers emphasized repeatedly that East Coast ports would need to be able to receive loaded Post-Panamax vessels upon Panama Canal expansion or risk losing services to ports which can accommodate this traffic.9

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7 Mary Carr Mayle, Harbor Deepening Gets Big Boost, Savannah Morning News, July 17, 2010. The Corps has estimated the incremental construction costs from 47 to 48 feet to be 33.4 million. GRR at 180. All of these incremental costs must be picked up by the local sponsor.
9 Economics Appendix at 29.
Retailers also agree. For example, Mark Holifield, the Home Depot executive in charge of logistics, has remarked that, “It is critical to maintain the competitive advantage that Savannah provides to Georgia and the region,” because “if trade advantages shift, we would have to re-evaluate our investments” by considering other ports.10

Politicians, too, have touted the expansion as a big boon to the economy. U.S. Representative Lynn Westmoreland recently said the following:

This expansion will increase the freight capacity of the port of Savannah by 20 percent, all the while creating 10,800 new jobs and $242 million in additional income for employees. Some federal investment in this project would provide a significant return for the American taxpayer while bringing one of our country's top ports into the next generation of ocean commerce.11

Likewise, Georgia’s new governor, Nathan Deal, just announced Georgia’s willingness to add another $32 million dollars to the project.12 This amount is on top of the $150 million that the state has already guaranteed.13

Even the Corps itself has cast some doubt on its own assumption that serves as the foundation of its NED analysis, as the following statement shows:

Harbor development remains the most likely action to adversely affect the salt and brackish marshes remaining in the Savannah River estuary. Harbor deepening would increase the amount of goods brought into the Savannah port. This could trigger the need for additional distribution centers and other support facilities or the expansion of existing ones. These new or expanded support facilities could impact wetlands. In-kind mitigation would be required where wetland impacts are unavoidable.14

In light of the divergent views between the Corps’ economic models and the shipping community’s assessment of the effect the project would have on container traffic, the Corps has not adequately explained why its assumption is valid and the shipping community’s assessment is invalid. The answer to this question is paramount because:

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14 Draft Tier II Environmental Impact Statement for Savannah Harbor Expansion Project Chatham County, Georgia and Jasper County, South Carolina, p. 33, November 15, 2010 (emphasis added).
• if the Corps is correct, then there is no need to deepen the channel to keep Savannah Harbor functional and competitive; or

• if the shipping community is correct, then the Corps’ economics analysis is fundamentally flawed because the Corps’ NED analysis rests on its assumption that the with and without project scenarios would produce the same amount of container traffic.

The following example is not taken from any Corps document, but it will help to illustrate that if traffic levels are not the same for the with- and without-project conditions, then some of the Corps’ assumptions and conclusions are flawed. In this hypothetical example, a year after the deeper Panama Canal is opened, a shipper has decided to import 1,000 twenty-foot containers from the Far East into the United States through Savannah. If the Channel depth at Savannah is 42 feet, he will hire a Generation One Post Panamax ship to carry this cargo. If the Channel depth is 48 feet, he will hire a Generation Two Post Panamax ship, which will allow the shipper to save $20 per container. As a result, use of the bigger ship and deeper channel will result in a total cost savings of $20,000 for the shipper. In the Corps’ economic analysis, this savings could be added to other similar savings to obtain the major component of the anticipated project benefits.

If GPA and other members of the shipping community are correct, the failure to deepen the harbor may lead the shipper to look for a deeper port that can accept the bigger ship. This will most likely be a cost-based decision. It may mean, for example, that instead of using Savannah at 42 feet, the shipper might choose Norfolk as the port of entry. The savings associated with switching ports could be as much as $19,999. But for purposes of this example, if the savings associated with switching to Norfolk are only $9,000, then the benefits attributable to a deeper Savannah Harbor would only be $11,000 instead of the full $20,000 that results from the Corps’ assumption of no-diversion. This hypothetical shows that project benefits could be smaller if the shipping community is right about Savannah Harbor losing traffic if the channel is not deepened. And, if the project benefits are smaller than calculated by the Corps, then net benefits (benefits minus costs), which drive the decision for a deeper channel, will also be less than reported in the NED analysis.

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15 Assumption Two listed in the “Summary of Assumptions” is that “[Post Panamax] ships will call on the Savannah Harbor in both the without and with-project conditions on the larger trade routes which are currently constrained by the Canal.” Economic Appendix at 74. In the without project case, this can be accomplished by such actions as “riding the tide” (Economics Appendix at 23-24), or not using Savannah as the first port of call into the South Atlantic Coast (Economic Appendix at 12).

16 See Assumption Three in the Economics Appendix at 74.

17 According to the Corps’ Multiport Analysis, the cost savings per twenty foot container (TEU) for vessels moving from the Far East (FE) to the East Coast of the United States (ECUS) and thence to Europe (EU) will be $18.74. Multiport Analysis, Table 39 at 100.

18 The savings associated with switching to Norfolk could not be more than $20,000 because if this were true, the shipper would be using Norfolk, with or without the deeper harbor at Savannah. Of course, land shipment costs to the final destination must also be factored into the analysis.
V. The “Multi-Port” Analysis Omits Material Factors and is based on Inconsistent Assumptions.

For purposes of the multiport analysis, the Corps has failed to adequately consider the interplay between different ports and competing port expansions. Economic principles dictate that to be complete, a comprehensive multiport analysis for SHEP should include each of the following study elements:

(i) the extent to which the port of Savannah would lose or gain container traffic depending on whether deepening occurs and to what depth;

(ii) the effect deepening of Savannah Harbor would have on container traffic at other neighboring ports;

(iii) whether instead of deepening multiple ports on the eastern seaboard, a single “super port” should be created with the other ports functioning as “feeder” ports; and

(iv) whether, in light of the limited availability of federal funds, the Federal government could deepen a different port in the southeast more cost effectively and with fewer impacts on the environment.

The Corps’ NED approach to study elements (i) and (ii) is to assume that there would be no traffic gains or losses (see Section IV above). These questions are then revisited extensively in the Corps’ Multiport Analysis that was completed in July 2006. The conclusion of this study, based on “least cost routing” models, is that deepening Savannah Harbor would not divert traffic from other ports. This finding is consistent with the Corps’ NED assumption that market share is independent of channel depth, yet (as described above), conflicts with the position of the port community.

Study element (iii) is covered in the Corps’ Regional Port Analysis that was completed in July 2006. This study element was motivated by stakeholder concerns:

[S]ome project stakeholders expressed that there should be a study of allocating Federal improvement funds at one regional port in the South Atlantic range, rather than deepening several ports. They seemed to believe that this would make sense economically (since fewer funds would be expended) and environmentally (since the impact of dredging would only occur at one port rather than at several).19

The Corps methodology was (1) to assume that all growth traffic in the South Atlantic port area would flow through the designated “super port;” and (2) to evaluate whether or not any of the existing ports had the existing or planned terminal capacity to accommodate the traffic:

A regional port concept that concentrates existing capacity and/or future growth in demand at a particular “port” in the region was examined by shifts in port throughput (Table 6) and shifts in growth of container volumes among adjacent ports (Table 7).20

The Corps’ conclusion is that a “super port” concept would not work because no port has the (current and planned) land side capacity to handle the entire growth potential for the southeast Atlantic Coast.

As an initial matter, it is interesting to note that for purposes of this report, the Corps has concluded that deepening can affect market shares, an assumption clearly at odds with the NED analysis. In addition to this inconsistency, the Regional Port Analysis is flawed because the authors failed to at least consider the possibility that ports would still be able to compete successfully for at least some of the projected growth traffic even if they were in competition with a single “super port.” If the authors had considered this possibility, they might have come to a significantly different conclusion. For example, with the construction of a so-called “super port,” it is possible (consistent with the assumption of the Corps Regional Port Study) that as the overall level of traffic grows, most of the incremental containers shipped to the East Coast would arrive on Post Panamax ships and that those ships would almost always call on the super port.

It would seem more likely that even with a super port, smaller ships would still make direct calls on smaller ports and light-loaded larger ships would as well. Unless the Corps cannot rule out this more likely scenario, then it cannot assume that all incremental cargo shipped to the East Coast would head directly to the super port. The conclusions of the Regional Port Analysis, however, conveniently support the scenario of deepening multiple ports. By failing to consider the possibility that smaller ships would still make direct calls on smaller ports and larger ships would continue to light load, the stakeholders concerns have not been adequately addressed. At the same time, the inconsistency in the assumptions of the Regional Port Analysis that deepening can affect market shares are in stark contrast to the Corps’ other study elements and are a major weakness in the Corps’ overall analysis.

By focusing on terminal capacity constraints, the Corps’ Regional Port Study missed a major opportunity to develop a strategic plan for federal spending on port improvements throughout the Southeast Atlantic Coast region. This question, clearly one of the stakeholder concerns as acknowledged by the Corps (see above) is equivalent to my Study Element (iv). It was apparently not considered even though it is a critical issue of national importance. With limited federal resources available for port development projects, it is essential to determine where incremental port development funding can be most efficiently spent.

By failing to determine where incremental port development funding can be most efficiently spent, the Corps has not completed a rational and complete assessment of the

20 Id. at 7 (emphasis added).
benefits and costs of this project. If, for example, there is only sufficient funding to
deepen one harbor in the southeast at this time and another already-existing port in the
region could be deepened to 48 feet for $200 million and cause limited environmental
impacts, whereas the Savannah Harbor project will cost over $500 million dollars and
will cause greater environmental impacts, it would make little sense to move forward
with SHEP. Without this type of comparison, the NED analysis is flawed.

VI. The Traffic and Fleet Forecasts Used by the Corps Likely Overstate Project
Benefits in a Significant Way.

The projected benefits for this project depend crucially on two forecasts. The first
is the baseline commerce measured in either tons or in the number of containers\(^{21}\)
that Savannah is predicted to import or export. The second is the world fleet of container
ships available to use in the delivery of these products to or from Savannah. The trade
forecasts are a statistical projection of past trends and are “optimistic” in the sense that
future levels far exceed current levels.\(^{22}\)

Historically, economies and trade between nations has grown in correlation. The
recent downturn in world economies is a significant departure from the long-term trends
and may be a more important indicator of possible changes in this trend. The trade data
(from U.S. Census) shows that imports fell 21 percent between 2008 and 2009, while
exports fell by 13 percent.\(^{23}\) These same statistics (available through November 2010)
show that while there has been a rebound in 2010, this rebound is not likely to bring trade
back to the 2008 level.

By using baseline commodity forecasts completed in 2004, the Corps could not
have anticipated these recent events. Since lower traffic levels mean fewer project
benefits, changes in the world economy could seriously alter the basic benefit/cost
equation. The Corps “considered” the dip in trade in one of its sensitivity scenarios and
concluded that it would reduce project benefits by only one percent.\(^{24}\) The recent
economic downturn appears to have affected the Corps’ forecasts, but only slightly.

This conclusion raises two important questions. First and most obviously: is it
based on sound economic analysis? While the Corps “used” 2009 data in its sensitivity
scenario, it did not simply use 2009 traffic as its new forecasting baseline. Instead, it
calculated a baseline by taking the average for trade-route specific data from 2005
through 2009.\(^{25}\) Thus, the downturn was given only a 20 percent weight in a revised
baseline. This procedure is arbitrary and raises serious questions about the projected

\(^{21}\) While there is some non-container port traffic, the argument for deepening Savannah Harbor is based
primarily on the effect it would have on container ship traffic.
\(^{22}\) For example, the expected level of imports in 2020 is predicted to be almost twice the level in 2008.
\(^{23}\) U.S. Census Trade Data is available at http://data.usatradeonline.gov/View/dispview.aspx . Percentage
drops are based on containerized vessel tonnage only. 2010 data is available only through November.
While year to date exports through November are almost at 2008 levels, imports remain well below 2008.
\(^{24}\) GRR at 232.
\(^{25}\) A fuller (although not complete) explanation of the methodology of this sensitivity analysis is given in
the Economics Appendix at 119-120.
totals for future years, especially in the next decade. As a consequence of the procedure chosen, the Corps’ forecast for 2010 is significantly higher than actual tonnage. The forecasts predicted that container traffic (combined exports and imports) would be 10.1 percent higher in 2010 in comparison to 2008. Using Census data that is now available through November 2010, the actual tonnage (while rebounding from the extraordinary losses in 2009), is only 0.1 percent above the 2008 levels.

The second question is: if commodity forecasts should be lowered, what difference would it make? If traffic is growing at a slower rate, the benefits may not even exceed project costs, a possibility that the Corps acknowledges:

This is not to say that there are no future circumstances in which there is not a plan with benefits exceeding costs, but rather such circumstances are not likely. For example, a no-growth or very low-growth scenario with substantially less PPX vessels, such as Sensitivity 9, could result in plans wherein benefits do not exceed costs.

Even if the Corps’ conclusion that such scenarios are not likely, with actual traffic failing to meet the Corps’ short term forecasts, consideration should be given to delaying the start of the project. Because net benefits are calculated by discounting future years, the project’s net benefits and benefit-to-cost ratio may actually be higher with a later startup date. Postponing construction may not only be better from a benefit/cost (NED) perspective, but it would also support the broader federal objective of deficit reduction that has become a critical national priority. In light of these concerns, the Corps should include a sensitivity scenario that gives greater weight to recent trade data and show what happens to project economics if the trade developments are significantly below the baseline forecasts. A full evaluation of this scenario would include consideration of timing alternatives for the project and disclose the comparative benefits and costs of differing construction schedules. Failure to conduct this analysis would be unreasonable.

VII. The Corps Dismisses the Possibility that a Deeper Channel May Induce Even Larger Ships and thereby Ignores the Cost of Raising the Talmadge Bridge.

As larger and larger ships enter Savannah Harbor, new issues arise concerning the safety of the trip. One particular concern is the Talmadge Bridge that allows vehicular traffic to cross over the Savannah River between the harbor facilities and the open ocean. This issue was considered, and the Corps reached a conclusion that it would not be an issue for the ships expected to be used in Savannah. The problem was described as follows:

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26 See Economics Appendix at 40-41.
27 Census data is available at http://data.usatradeonline.gov/View/dispview.aspx. To estimate full 2010 figures (December amounts are not yet available), the 2009 share of traffic in December was assumed to be the same as the 2010 share of traffic in December.
28 Economics Appendix at 129.
The Talmadge (Savannah River) bridge has an air draft height of 185 ft. above MHHW, as per design drawings provided by Georgia DOT. See Figure 6.2.4.3-1. This height is based on the lower edges of the span above the navigation channel. Height above MHHW actually ranges from 192 ft. to 200 ft. in the middle of the span. The 185 ft. distance is used by the Savannah Harbor pilots as the official (conservative) air draft of the bridge.

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The Savannah office for the USCG deferred to the Savannah River Harbor Pilots Association for restrictions on air draft. The Savannah River Harbor Pilots Association stated that there was no official policy regarding the air draft of vessels coming into the harbor. From information gained, a vessel’s air draft is provided to the pilot and the Coast Guard before the vessel enters the channel. One carrier interviewed stated they use 3 ft as minimum allowance.29

The Corps concludes that the Talmadge Bridge presents no air draft problems for Generation Two Post-Panamax ships, the so-called “design vessels” that are expected to call at Savannah if the Harbor is deepened to 48 feet:

USACE was provided with proprietary information listing vessels that were considered to make up the design fleet. The “workhorse” for the projected fleet is expected to be an 8200 (+/- 400) TEU [Generation Two] vessel. The upper height limit for these vessels was listed at 62 m (meters) or 157 ft for the design draft of 47.6 ft. Even if the superstructure was raised 10 ft to accommodate another tier of containers and the vessel was light loaded by an additional 10 ft (any more would not be economically considered according to IWR), the air draft would only increase to 177 ft which is still within an acceptable tolerance considered by the Savannah River Harbor pilots.30

So, the Corps’ “worst case” scenario would involve the ship missing the bridge by 8 feet. Since the minimum “safe” distance appears to be 3 feet, the Talmadge Bridge does not present a height restriction problem for the ships the Corps expects to see entering the harbor. Simply stated: “Neither the design vessel nor the design fleet mix will violate the air draft restriction presented by the Talmadge (Savannah River) Bridge.”31 The key to this conclusion is the word “design.” It is inevitable that larger ships will be built (Generation Three Post-Panamax ships). In fact, the Corps baseline forecast of Post-Panamax fleet composition shows Generation Three ships becoming 18 percent of the total fleet by 2015, up from the current share of two percent.32 Not surprisingly, given the information provided above, the Corps expects that such ships would encounter problems going under the Talmadge Bridge:

30 Id. at 68-69. “IWR” refers to the Corps’ Institute for Water Resources.
31 Id. at 69 (November 10, 2010).
32 Economics Appendix at 52 (see Table 28).
Another major constraint at Savannah is the Talmadge Memorial Bridge, a 20-year old, cable-stayed bridge, which provides a vertical clearance of 185 feet. The keel-to-mast height of the Emma Maersk is reported to be 251 feet, so even after adjusting for tide and retractable masts, its air draft exceeds the allowable clearance of the bridge. If such vessels do indeed call at Savannah, they would need to be light loaded considerably.\textsuperscript{33}

The Corps contends that the larger Generation Three ships will not call on Savannah Harbor, but will instead be used elsewhere in the world, where ports are bigger and deeper. Therefore, a Generation Three ship was not used as the “design” vessel for this project.

If a major bridge alteration were part of SHEP, there is a real possibility that the high cost of this related work would mean that SHEP would not generate any net economic benefits as traditionally defined by the Corps. The analytical assumption that Generation Three ships will not call at Savannah Harbor is a convenient way to dismiss this potential problem. If the Corps’ baseline vessel forecast is right,\textsuperscript{34} there is a strong probability that the largest ships would be calling at some ports on the Southeast Atlantic Coast. Given the shipping lines’ business practice of multiple ports of call, GPA may soon want to accommodate these larger ships at Savannah Harbor. The height of the Talmadge Bridge will become an increasingly contentious issue.

There is a fundamental two-way relationship between channel depths and vessel sizes. Deeper channels induce larger ships and larger ships induce deeper channels. Recent comments by Curtis Foltz, the new executive director of the GPA illustrate this point: “Anything short of 48 feet is something that we would be disappointed with. Ships aren’t getting any smaller. They’re only getting bigger.”\textsuperscript{35} The Talmadge Bridge’s height restriction may not actually be a long-term constraint on ship size despite the Corps NED assumptions for SHEP. A deeper channel for Savannah Harbor significantly increases the likelihood that raising the bridge will soon be requested.

\textsuperscript{33} Economics Appendix at 51.
\textsuperscript{34} In this case the Corps says that the economic recession may have significantly altered the possibility of Generation Three Ships being built: “Despite a flurry of ship building following the introduction of the Emma Maersk and MSC Daniela to the world fleet, many ship builders have cancelled orders or scaled back the dimensions of their requested vessels in the orderbook. Part of this was due to the contraction in the global economy.” Economics Appendix at 51. This is a fundamentally different view of the effect of the recession on commodity forecasts, where the Corps’ sensitivity analysis is that the downturn would effect transportation cost savings (and therefore benefits) by only one percent. Economics Appendix at 120.
VIII. **The Corps Does not Establish that the Benefits of the Harbor Deepening Would Benefit the United States’ Economy.**

As with all other navigation projects, the Corps bases its economic analysis on the United States Water Resources Council’s “Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies,” March 10, 1983. These principles were written to provide guidance to studies of water resource projects. They require that agencies calculate “national economic benefits;”

Contributions to national economic development (NED) are increases in the net value of the national output of goods and services, expressed in monetary units. Contributions to NED are the direct net benefits that accrue in the planning area and the rest of the Nation.36

The Corps implementing guidelines for applying these Principles and Guidelines are contained in the Corps’ Planning Guidance Notebook (ER 1105-2-100). For Savannah Harbor, the relevant portion of this document states:

National Economic Development Benefits. The base economic benefit of a navigation project is the reduction in the value of resources required to transport commodities. Navigation benefits can be categorized as follows:

(a) Cost reduction benefits for commodities for the same origin and destination and the same mode of transit thus increasing the efficiency of current users. This reduction represents a NED gain because resources will be released for productive use elsewhere in the economy…

Examples for deep draft navigation are reductions in costs associated with the use of larger vessels, with more efficient use of existing vessels, with more efficient use of larger vessels, with reductions in transit time, with lower cargo handling and tug assistance costs, and with reduced interest and storage costs.37

Under the guidance of the Planning Guidance Notebook, it is permissible to include in NED benefits the transportation cost savings for any commodity movement regardless of origin or destination. This would include imports from other countries or exports to other countries. To the contrary, the underlying Principles and Guidelines require a measurement of benefits accruing in the planning area and to the rest of the nation and should therefore exclude benefits accruing to foreign entities. There are clearly important differences between these two documents.

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37 Corps Planning Guidance Notebook at 3-5.
A primary source of benefits attributed to this project by the Corps is derived from the fact that a deeper harbor leads to lower transportation costs of goods imported into this country, mostly from the Far East. Such savings, assuming that they occur, will be distributed among various entities. The savings may be absorbed by the exporting company or by shipping companies (thereby generating what economists define as “producer surplus”), or passed on to the consumer (“consumer surplus”). Determining how the savings would be distributed would depend on a number of factors, including the elasticities of supply and demand. The Principles and Guidelines clearly state that the Corps’ analysis should be focusing on benefits to the planning area and the rest of the nation. The analysis for Savannah Harbor Expansion is therefore incomplete unless the Corps attempts to determine where SHEP benefits are likely to accrue.

From a U.S. policy perspective, in the “worst case” scenario, there would be virtually no injection of any money into the U.S. economy as a result of project deepening. Foreign manufacturers and shipping lines may keep the savings of shipping through Savannah for themselves and pass none of these savings to U.S. consumers. Under such circumstances, the U.S. taxpayer would be asked to foot the bill to pay for a project that generates greater profits or lower prices for producers and consumers in other countries. In an era of huge federal deficits, the project might actually be financed by the very countries who obtain the greatest benefits from the project.

What might a “best case” scenario look like? In this section, I have focused on U.S. imports, because that is where most of the benefits appear to have been generated. Although the Corps does not provide the precise breakdown of benefits to exports and imports, it is possible to infer the relative shares, at least by order of magnitude. I begin by presenting the relevant data on the distribution of project benefits by benefit category, reproduced from the Economics Appendix:

<table>
<thead>
<tr>
<th>Benefit Category</th>
<th>Average Annual Benefits for 48’ Project Depth (Thousands of dollars)</th>
<th>% Share of Total Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation Cost Saving</td>
<td>$139,151</td>
<td>92.54</td>
</tr>
<tr>
<td>Tide Delay Reduction</td>
<td>$10,400</td>
<td>6.92</td>
</tr>
<tr>
<td>Meeting Area (Long Island Oglethorpe)</td>
<td>$810</td>
<td>0.54</td>
</tr>
<tr>
<td>Total Average Annual Economic Benefits</td>
<td>$150,361</td>
<td>100.00</td>
</tr>
</tbody>
</table>

38 Also in the worst case scenario, different supply and demand elasticities in the export market may cause the savings from exports to be passed on to foreign consumers.
39 Economics Appendix, Table 165 at 185.
The Corps’ Multiport Analysis shows how much could be saved per 20 foot equivalent container (TEU) at various channel depths over various trade routes. This information is summarized here:

<table>
<thead>
<tr>
<th>Vessel Cost Savings by Project Depth for Benefiting Services ($/TEU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth and Direction of Traffic</td>
</tr>
<tr>
<td>48 in (imports)</td>
</tr>
<tr>
<td>48 out (exports)</td>
</tr>
<tr>
<td>48 out as % of 48 in</td>
</tr>
</tbody>
</table>

FE ECUS MED- Far East to East Coast U.S. to Mediterranean via Panama Canal
FE ECUS EU- Far East to East Coast U.S. to Europe via Panama Canal
FE SUEZ ECUS- Far East to East Coast U.S. via Suez Canal

Finally, U.S. Census data shows the breakdown between imports and exports. For 2009, imports, metric tons of containerized cargo = 6.0 million; export, metric tons of containerized cargo = 9.7 million. The import share of total trade = 38 percent.

All of the data presented in this section show first that transportation costs saving is the major benefit category and while exports through Savannah outnumber imports, the project will have a much greater impact on imports for shipments coming through the Panama Canal. According to the Corps, in 2007, 69 percent of total calls were by services that transit the Panama Canal. If, for purposes of illustration, two-thirds of the transportation cost-savings benefits are for imports and, in the best case scenario, all of the savings are passed on to the consumer, the citizens of Georgia (pop. = 9.8 million) and South Carolina (pop. = 4.6 million) may, in a best case scenario, enjoy a per capita reduction in their purchases of imported goods of roughly $6.50 per year.

The Corps may argue that once NED benefits are calculated, any subsequent breakdowns of the data, such as those presented here, are “out of scope.” But there is a critical difference between measuring “benefits to the nation” (as described in the Principles and Guidelines), and “measuring NED benefits” (as described in the Corps’ own Planning Guidance Notebook). Projects of the SHEP’s magnitude must be analyzed using both perspectives, something the Corps has not done.

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40 Multiport Analysis, Table 39, at 100.
41 See Multiport Analysis at 7 for a description of trade routes.
42 U.S. Census Foreign Trade Data is available at http://data.usatradeonline.gov/View/dispview.aspx
43 Economics Appendix at 25.
44 Population estimates are from U.S. Census Bureau (estimates are for 2009), 2/3 of transportation cost savings = $92.7 million per year. If instead of 2/3, total benefits were distributed to U.S. consumers of imports, the per capita figure would be $6.96. For the estimated savings given in my example, assume that the final destinations of imports through Savannah Harbor are either in Georgia or South Carolina.
IX. **A Deeper Channel Would not Make the U.S. More Competitive in International Markets.**

Should the United States government help U.S. manufacturers improve their competitive position in international markets? While policy makers’ answers might range from a resounding yes to one that is scrupulously neutral (i.e., “let the markets decide”), it is doubtful that few if any would support policies or actions that would actually hurt the U.S. manufacturing base. How does the Savannah Harbor Expansion Project fare in an analysis of this important question?

Tables 15 and 18 in the Corps’ Economics Analysis Appendix\(^{45}\) give a descriptive picture of which containerized goods are being exported and imported through Savannah, where they are going to and coming from. Since the data in these tables mirrors the aggregate U.S. Census data, I will use the information provided by the Corps.

Table 15 lists the top five import commodity groups coming from each of the top five sending countries. Table 18 does the same thing for exports. One useful way of arraying this data is to rank, in order, the amounts from Tables 15 and 18 (separately). In each of my tables presented below, I present the top 15 commodity type/country combinations.\(^{46}\)

### Top 15 Commodity/Type Country Combinations for Containerized Imports through Savannah 2007

<table>
<thead>
<tr>
<th>Rank</th>
<th>Commodity Description</th>
<th>Country</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Furniture and Fixtures</td>
<td>China</td>
<td>541,146</td>
</tr>
<tr>
<td>2</td>
<td>Other Manufacturing nec</td>
<td>China</td>
<td>393,846</td>
</tr>
<tr>
<td>3</td>
<td>Metal Products</td>
<td>China</td>
<td>315,461</td>
</tr>
<tr>
<td>4</td>
<td>Non-Metallic Products nec</td>
<td>China</td>
<td>186,399</td>
</tr>
<tr>
<td>5</td>
<td>Plastic Products nec</td>
<td>China</td>
<td>184,569</td>
</tr>
<tr>
<td>6</td>
<td>Non-Metallic Products nec</td>
<td>Brazil</td>
<td>179,507</td>
</tr>
<tr>
<td>7</td>
<td>Synthetic Resins</td>
<td>South Korea</td>
<td>107,348</td>
</tr>
<tr>
<td>8</td>
<td>Iron &amp; Steel</td>
<td>Japan</td>
<td>72,887</td>
</tr>
<tr>
<td>9</td>
<td>Natural Rubber</td>
<td>Thailand</td>
<td>63,111</td>
</tr>
<tr>
<td>10</td>
<td>Textiles</td>
<td>Brazil</td>
<td>56,575</td>
</tr>
<tr>
<td>11</td>
<td>Natural Rubber</td>
<td>Indonesia</td>
<td>49,570</td>
</tr>
<tr>
<td>12</td>
<td>Iron &amp; Steel</td>
<td>Brazil</td>
<td>46,702</td>
</tr>
<tr>
<td>13</td>
<td>Metal Products</td>
<td>Taiwan</td>
<td>41,703</td>
</tr>
<tr>
<td>14</td>
<td>Textiles</td>
<td>India</td>
<td>39,023</td>
</tr>
<tr>
<td>15</td>
<td>Machinery &amp; Equipment nec</td>
<td>Japan</td>
<td>38,689</td>
</tr>
</tbody>
</table>

\(^{45}\) Economics Appendix at 35 & 37.

\(^{46}\) The listings include containerized traffic only.
<table>
<thead>
<tr>
<th>Rank</th>
<th>Commodity Description</th>
<th>Country</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stone, Clay and Other Crude Materials</td>
<td>Japan</td>
<td>1,164,794</td>
</tr>
<tr>
<td>2</td>
<td>Meat/Dairy/Fish requiring Refrigeration</td>
<td>China</td>
<td>387,524</td>
</tr>
<tr>
<td>3</td>
<td>Stone, Clay and Other Crude Materials</td>
<td>China</td>
<td>316,983</td>
</tr>
<tr>
<td>4</td>
<td>Pulp</td>
<td>China</td>
<td>283,064</td>
</tr>
<tr>
<td>5</td>
<td>Stone, Clay and Other Crude Materials</td>
<td>Taiwan</td>
<td>249,205</td>
</tr>
<tr>
<td>6</td>
<td>Scrap</td>
<td>China</td>
<td>239,761</td>
</tr>
<tr>
<td>7</td>
<td>Cotton</td>
<td>Turkey</td>
<td>233,642</td>
</tr>
<tr>
<td>8</td>
<td>Synthetic Resins</td>
<td>China</td>
<td>207,418</td>
</tr>
<tr>
<td>9</td>
<td>Paper &amp; Paperboard &amp; Products</td>
<td>Turkey</td>
<td>176,460</td>
</tr>
<tr>
<td>10</td>
<td>Pulp</td>
<td>Japan</td>
<td>171,522</td>
</tr>
<tr>
<td>11</td>
<td>Stone, Clay and Other Crude Materials</td>
<td>South Korea</td>
<td>146,084</td>
</tr>
<tr>
<td>12</td>
<td>Pulp</td>
<td>Italy</td>
<td>114,276</td>
</tr>
<tr>
<td>13</td>
<td>Pulp</td>
<td>Turkey</td>
<td>102,753</td>
</tr>
<tr>
<td>14</td>
<td>Pulp</td>
<td>Brazil</td>
<td>86,740</td>
</tr>
<tr>
<td>15</td>
<td>Machinery &amp; Equipment nec</td>
<td>South Korea</td>
<td>78,820</td>
</tr>
</tbody>
</table>

These tables tell many stories (such as the degree to which U.S. imports come from China). My purpose here is to point out perhaps the most important difference between the tables. The imports through Savannah are generally manufactured products and not “raw materials,” while the exports are generally the opposite. So while deepening the harbor may make it less expensive to export stone, clay, and glass to Japan, it also makes it less expensive to import furniture and fixtures from China. From the perspective of the U.S. manufacturing base, this seems like a poor trade-off.

X. Under the Corps’ Economic Assumptions, this Project would not Create a Significant Number of Sustainable New Jobs.

As I stated earlier in Section IV, the Corps assumes the Savannah Harbor Expansion Project will not induce any additional port traffic. This assumption severely limits the project’s ability to create new jobs for Georgia and South Carolina beyond the work associated with the actual deepening itself. Clearly, there will be no induced jobs created by changing market share if the Corps is correct that this project is unrelated to increasing the port’s business. Increased business (i.e., more imports and exports using the port) is no doubt the main source of job creation that might be anticipated by the local sponsor.

Possibly, by reducing the prices of imported goods, U.S. consumers will have more disposable income to spend on other goods and services which has the potential to create some new jobs. But as I have already shown (Section VIII), the disposable income effect under the best case scenario is likely to be miniscule and even this will not create U.S. jobs if consumers use their extra disposable income, whatever the amount, to buy additional foreign manufactured goods.
Despite its own analytical assumptions, in its General Reevaluation Report, the Corps claims that the job impact of deepening the channel will be 5,671 new jobs.\textsuperscript{47} However, I am unable to connect this estimate to any other part of the analysis.

United States’ ports often cite economic studies that measure the number of jobs that are either created by the port or sustained because of port activities. One such example is “The Economic Impact of Georgia’s Deepwater Ports on South Carolina’s Economy in FY 2009,” April 2010, authored by Jeffrey M. Humphreys.\textsuperscript{48} While it is true that ports are important economic engines for their communities and states, the “jobs issue” here is not how many jobs are supported by the port, but the extent to which the number of jobs may change if the harbor is deepened. Given the assumption that underlies the Corps’ NED analysis, the answer is that this proposed deepening will not result in additional jobs since the port’s underlying business will remain unchanged. In fact, as Table 42 shows in the Corps Economics Appendix,\textsuperscript{49} if the channel is deepened there will be fewer, albeit larger, ships calling at Savannah. If jobs at the port are linked more closely to the number of ships calling than to the number of containers handled, a deeper channel might actually mean fewer jobs in the local economy.

XI. Conclusions

According to the Corps’ recently released draft General Reevaluation Report,\textsuperscript{50} the Corps is asking the American tax payer and the project’s local sponsor to pay over $600 million to deepen the Savannah Harbor to 48 feet. If the Corps is correct that the project is unrelated to the port’s underlying business, then there is no need to deepen the channel to keep Savannah Harbor functional and competitive. Even if the deepening would produce efficiencies that would in turn reduce shipping costs, the Corps has failed to determine that these efficiency savings will accrue to U.S. citizens. On the other hand, if the Georgia Port Authority is correct that the deepening is needed to maintain or increase its business, then the Corps’ economics analysis is fundamentally flawed. Moreover, the Corps has failed to perform a true multiport analysis to determine, in light of the limited availability of federal funds, if the federal government could deepen a different port in the southeast more cost effectively and with fewer impacts on the environment. In evaluating port expansion projects, it is especially important that the Corps’ analytical basis for its recommendation to proceed be objective, rigorous and comprehensive. For the Savannah Harbor Expansion Project, the Corps has not met these standards.

\textsuperscript{47} GRR at 195.
\textsuperscript{48} Mr. Humphreys acknowledges that the study was supported by a grant from the Georgia Port Authority.
\textsuperscript{49} Economics Appendix at 73.
\textsuperscript{50} GRR at 180.
Dated: January 25, 2011

Respectfully submitted,

Robert N. Stearns, Ph. D.