FINANCIAL PLANNING FOR THE TEXAS PORT SYSTEM

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I. INTRODUCTION

Although the existence of abundant natural resources provides the basis for potential economic growth in Texas, it is the state's proximity to the Gulf of Mexico which has been largely responsible for the realization of this growth. The Gulf, through the means of low-cost water transportation, provides access to markets and other resources throughout the world which are necessary to the development of the state's economy. The keystone in this relationship has been the development of an efficient system of ports along the Texas coast. This "port system" provides the necessary harbors and terminal facilities to bridge the land-water transport interface. Continued economic growth will be dependent to an extent upon the future development of this system. It is desirable then that this development be assured.

A. Purpose of the Study

In a study prepared by Mr. George B. Dresser of the Texas Transportation Institute, the capital improvement needs of nine Texas ports were estimated for the 1970 to 1990 period. The fund requirements are over $160 million for the 1970 to 1980 period and exceed $105 million for the 1980 to 1990 period. The actual costs may well be even greater as a result of the current inflation.[1]

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[1] Texas Gulf Ports Capital Improvements Program, Texas Transportation Institute, Texas A&M University, College Station, Texas, October 1, 1971, p. 5.

The purpose of this study is to evaluate the ability of seven Texas ports to secure sufficient funds to finance their needed capital improvements and to consider alternatives if they cannot. Available sources include funds from port operations, tax revenue and borrowing. Should these sources prove inadequate new funding alternatives must be made available to the ports. Because the port system is important to the state of Texas, it is possible that the state could directly or indirectly aid the Texas ports in the future. Thus, the study will evaluate the potential of the port's present source of revenue as well as the possible role for the state.

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B. Plan of the Study

To establish the precise legal nature of the Texas ports, their development as local governmental entities is related in Chapter II. This chapter also describes briefly the principal legal powers possessed by the navigation districts which operate the ports.

Financial projections for the Texas ports through 1990 are presented in Chapter III. Also included are a statement of the projection methodology, the principal findings of the projections and the use of debt by the ports.

In Chapter IV the possibility of state support for the Texas ports is considered. This chapter includes a section on the rationale of state support and the identification of some areas of concern for Texas in this matter.

C. Sources of Data

This study draws on primary and secondary data. The financial projections in Chapter III are based on the individual port's financial statements for five consecutive years (where possible) plus a personal interview with port officials concerning their plans for the future. Some data for this chapter were obtained from published sources. For the balance of the study, library research and written communications with knowledgeable persons were the principal sources.

D. Limits of the Study

This study may be divided into two basic sections; the first deals with financial projections and the second with state assistance to the ports. While the second section is an inquiry that is generally applicable to all Texas ports, the first is limited to the activity across the public docks of the following Texas ports: Beaumont, Brownsville, Corpus Christi, Galveston, Houston, Orange, and Port Arthur. Although the Ports of Freeport and Port Lavaca-Point Comfort have public docks, the levels of activity across these docks are limited. Of course, forecasts could be made for these ports but they would not be particularly useful.

II. GOVERNMENTAL POWERS OF THE TEXAS PORTS

Past development of the Texas port system has largely been accomplished through the efforts of local communities. Early in the twentieth century, the various community leaders realized that existing local governmental entities had neither adequate jurisdiction nor taxing power to provide for many types of public projects. Therefore, in 1904, an amendment to the Texas Constitution authorized the legislature to create "districts" which established a new form of political entity. The new districts could engage in conservation and reclamation projects including those facilitating navigation in the state's waterways. The port communities used the provisions set out in the constitution (Article III, Section 52 and later Article XVI, Section 59) to establish "navigation districts" specifically for the purpose of developing their ports and supporting waterways.[2]

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[2]Under the original authorization in Article III, Section 52 of the Texas Constitution, the creation of a new district and the issuance of tax bonds had to be approved by two-thirds of the resident property taxpayers voting, and the tax bonds could not exceed one-fourth of the assessed valuation of the real property of the district. To eliminate these restrictions on the functional capability of future districts, Article XVI, Section 59 (the "conservation amendment") was added to the Constitution in 1917. Finally, to correct the original restrictions under Article III, Section 52, the Canales Act was passed in 1918 which provided for an option for these districts to come under Article XVI, Section 59.

All Texas deepwater ports with the exception of Galveston Wharves and the Texas City Terminal are now owned and administered by navigation districts. Under the authority and powers granted in the enabling legislation, the districts have been able to achieve a high degree of facility development. Also, largely through the requests of the districts, the federal government has provided needed improvements to waterways so that the Texas port system is competitive with the other ports in the Gulf and the rest of the nation.

A. Navigation Districts

There are twenty-six navigation districts in existence along the Texas Gulf Coast. Of these, ten control deepwater ports and are primarily concerned with port development and operation. The remaining sixteen districts are concerned only with the development and maintenance of channels that connect with the Gulf Intracoastal Waterway or with the development of facilities for water recreation.[3]

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[3] G. Sidney Buchanan, "Texas Navigation Districts and Regional Planning in the Texas Gulf Coast Area," Houston Law Review (March 1973), pp. 547-549

Most navigation districts are formed under Article III, Section 52, or Article XVI, Section 59 of the Texas Constitution. However, a district may also be created through a special legislative act in which the legislature establishes the boundaries and governing structure, and confers upon the district powers necessary for its operation. Under the general enabling acts of 1909, 1921, 1925, and 1932 as codified in chapters 61, 62, and 63 of the Texas Water Code, the procedures prescribed for credit of a district need only be followed by the local community in order to establish a navigation district.[4] No other legislative action is required, but in most cases a new district will also be recognized in a legislative act in order to further establish its constitutionality.

Since the districts can be created under several different sets of procedures, it is understandable that their administrative structures and powers differ. One procedure established in the 1925 act and codified in chapters 60 and 63 of the Water Code allows districts created prior to that time under Article III, Section 52 to convert to the provisions of Article XVI, Section 59.[5] The option

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[4] Vernon's Texas Codes Annotated: Water Code (St. Paul, Minnesota: West Publishing Company, 1973), subsections 60.245, 63.040(b).

[5] See description in note 46.

to convert has been exercised by virtually all districts eligible so that no existing district is limited solely to the provisions of Article III.[6] Probably the most frequently followed provisions are those outlined in the 1925 act. These procedures are codified in chapter 62 of the Water Code and may be considered typical of all districts.[7]

The commissions of the various navigation districts vary from three to six members. Depending upon the enabling legislation, the members of the "navigation and channel commission" are either appointed by the commissioners court of the county of jurisdiction and the officials of the city (if included within the district) or elected by the voters of the district. The commissioners then organize by electing one of their membership as chairman and one as secretary. Chapters 61 and 62 of the Water Code provide for the county treasurer of the county of jurisdiction to also act as the treasurer of the district. Chapter 63, however, allows the commission of the district organized under it to appoint a district treasurer.[8] This latter provision gives the commission greater governmental autonomy in its operation.

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[6]Buchanan, "Texas Navigation Districts," p. 540.

[7]Ibid., p. 544.

[8]Texas Water Code, subsections 60.078, 63.100.

Extent of the territory included in a navigation district is limited under Chapter 61 and 63 to all or part of two counties, while Chapter 62 provides for not more than all or part of three counties to be included.[9] Those districts which are primarily concerned with port operations, however, include only part of one county or the entire county in their jurisdiction, and the metropolitan community associated with the port.

B. Navigation Districts and Port System Development

Local communities have placed the responsibility for development of their ports and waterways, and the power to accomplish this development with the commissions of the various navigation districts. Typically, the districts have the power to acquire land and develop facilities useful in the operation of ports and waterways. Such facilities as wharves and docks, warehouses, grain elevators, belt railroads, and floating plants may be acquired in an effort to provide for the improvement of navigation and commerce. Additionally, the districts have the responsibility for the improvement, conservation, and preservation of inland and coastal waters for navigational purposes. This responsibility is extended to include the control and distribution of storm water and floodwater of rivers and streams in aid of navigation.

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[9] Ibid., subsections 61.022, 62.022, 63.023.

The extent of development in a port system in highly dependent on the ability of the administering body to provide the necessary capital financing. Navigation districts have essentially two sources of funds: district revenues and long-term debt. The magnitude of capital required for a port or waterway development project is usually so great that district revenues are not nearly adequate to fund it. This means that the district must issue either tax or revenue bonds in order to obtain development capital.

III. FINANCIAL PROJECTIONS FOR THE TEXAS PORTS

Financial projections for the Texas ports require careful examination of their operating results for recent years plus consideration of their plans for the future. If the projections are based on reasonable data and reasonable assumptions about the future, they can have a useful role in the planning process.

The purpose of making projections is to estimate the likelihood that the Texas ports can provide adequate funds for needed capital improvements from port operations and tax revenue. The forecasts are not intended to be precise estimates of the amount of funds available in any future year. Instead, their principal benefit is that of providing a comparison of the funds expected to be needed during a specific period by the ports for capital improvement [10] and the amount estimated to be available. If needs exceed the amount of funds likely to be available from operations and taxes, alternate sources of funding will have to be considered. General knowledge of the need for funds in advance is one goal of these financial forecasts.

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[10] As reported in Texas Gulf Ports Capital Improvements Program, Transportation Institute, Texas A&M University, College Station, Texas, October 1, 1971.

A factor that must be borne in mind is the timing of the funds flow. Spending for capital improvements takes place in "lumps" while these forecasts are covering periods of several years. Although fund requirements may be adequate for the period, the capital improvement may be needed in a particular part of the period.

Another goal of the forecasts is to provide the methodology for ongoing forecasting by the ports. As conditions change the underlying assumptions about the future can be changed so that the forecast will conform to the new expectations. By precisely stating the premises with which our forecasts are made, others can prepare new forecasts in the future.

A. Methodology

Each port's forecast was prepared after discussion with port officials. While this input was a significant factor in the forecast, the starting point for the discussion was the port's recent operating and financial data. Using ratio analysis these data were analyzed to determine basic relationships and trends. The port's officials were invited to comment on these findings and to suggest how the future might differ from the past.

Tonnage

Each port's recent tonnage data were examined to determine the average annual growth rate. This data only included cargo that was

moved across the public dock, since these projections are concerned with the revenue earned by the navigation district or port authority. After determination of the growth rate, port officials were asked to comment on the probability of changes in the rate of growth. With an estimate of the rate of future growth, tonnage projections were obtained by extrapolation.

Gross Operating Revenue

Each port's gross operating revenue is a function of the volume of cargo, the kinds of services provided, and the charges levied. The services provided vary among the ports because of major differences in their principal cargos and because the ports may elect to provide the services directly or permit the services to be provided by private enterprise. In the latter cases the services are available to shippers but the port authority derives no revenue from the services.

For these reasons interport comparisons of gross operating revenue per ton of cargo are difficult. For an individual port, however, the statistic is useful particularly if it is determined by averaging the results of several years of operating experience. With it and the ports forecasted tonnage, estimates of gross operating revenue are obtained. Two critical assumptions are implicit if the statistic is used without adjustment: (1) the port's "mix" of cargo will not change (liquid cargos, for instance, generate much lower revenue per ton than do dry cargos) and (2) the port's schedule of charges will not change. In some cases port officials believed that

a more accurate forecast of gross operating revenue could be obtained with an adjusted value for gross operating revenue per ton.

Funds from Port Operations

After estimating the annual amount of gross operating revenue the ratio between funds from port operations and gross operating revenue is used to estimate the volume of funds available from port operations. Applying this ratio (a percentage) to each year's forecasted gross operating revenue provides annual estimates of funds from operations. Funds from operations are defined as follows:

Gross Operating Revenue
  Less
    Operating Expense (not including depreciation)
  Plus
    Other Income (net)
    Interest Income
  Equals
Funds from Operations

Depreciation expense is excluded because reduction of calculated income by the amount of depreciation does not reduce the amount of funds available. Furthermore, since the Texas ports, unlike private enterprises, do not pay Federal income tax, the allocation of depreciation against revenue is helpful for management's purposes only.

Tax Revenue

To determine total funds available, revenue from taxation as well as operations must be projected. Since property tax revenue is a function of the assessed valuation tax and the tax rate, both these variables must be projected. The assessed value is based on the

estimated actual value of the real property subject to taxation within the taxing jurisdiction. The growth rate of the assessed valuation can be determined and used to project the tax base into the future. This assumes that there will be no change in the ratio of actual valuation to assessed valuation during the forecast period.

All ports except Galveston may levy a limited tax for maintenance and operations and, in some cases, an unlimited tax for general obligation debt service. Taxes levied for general obligation debt service are not used for any other purpose. Because no portion of these funds can be used directly for capital improvement this revenue sources is excluded from the forecasts.

Except for the Houston Port Authority those ports levying a limited tax for maintenance and operations levy the maximum rate permitted and intend to continue this practice. Applying the tax rate to the projected assessed valuation provides the estimated tax revenue for each port.

Total Funds Available

The sum of funds from port operations and tax revenue is an estimate of funds available for capital improvements and repayment of debt.

Debt Service Requirements

All of the Texas ports included in this study have outstanding debt. General obligation bond debt service is sometimes paid from a special tax levy sufficient to provide for the year's requirements; each year's levy is adjusted accordingly. When this procedure is followed by the port, general obligation bond debt service does not absorb any portion of total funds available and is excluded from the forecast. If general obligation bond debt service is paid from the maintenance and operations tax or operating revenue the annual debt service requirement for these bonds is included in the forecast. All revenue bond debt service is included in the forecast.

Total Funds Available for Capital Improvement

When debt service requirements are subtracted from total funds available the balance is an estimate of total funds available for capital improvement.

B. Financial Forecasts for Seven Texas Ports

Using the methodology outlined in the preceding paragraphs and input from port officials, estimates of total funds available for capital improvements were prepared for seven Texas ports: Beaumont, Brownsville, Corpus Christi, Galveston, Houston, Orange, and Port Arthur. Although the amount of funds available was forecast for each year through 1990, these annual data are not presented. As previously stated the determination of these amounts for a specific

year is not the goal of the forecasts. Instead, the reader should focus on the assumptions employed in the preparation of the forecasts and the comparison of available funds and needs for the 1970 to 1980 and the 1980 to 1990 periods. If the assumptions are valid these forecasts will reveal the extent to which these ports will be able to finance their capital improvement needs from operations and tax revenue during the forecast period.

C. Port of Beaumont[11]

Forecast of Annual Tonnage

As efforts are being made to secure new kinds of cargo, a realistic estimate of future changes in tonnage is difficult. However, during the period 1967 to 1972, the Port of Beaumont experienced an average annual increase in tonnage of 2.1 percent and Port of Beaumont officials expect the port's cargo to continue increasing at that rate or higher. This growth rate was used to develop the forecasts through 1990. Estimated annual tonnage forecasts for selected years follow:

Years	Estimated Revenue Tons
1971/1972*	2,433,676
1975	2,590,240
1980	2,875,122
1985	3,189,958
1990	3,539,270

* Average

Forecast of Annual Funds Flow from Port Operations

The forecast of annual funds flow from port operations is derived from financial and operating relationships of the 1967 to 1972 period. The relationship between gross operating revenue and tonnage for this period was as follows:

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[11] Data sources include financial statements of the Port of Beaumont Navigation District of Jefferson County, Texas and material published by the Municipal Advisory Council of Texas, Austin, Texas, November 27, 1972.

Year	Gross Operating Revenue/Tonnage
1967	$0.73
1968	0.69
1969	1.01
1970	0.50
1971	0.65
1972	0.40
Average (1967-1972)	0.66
Average (1967-1971)	0.72

The low gross operating revenue per ton for 1972 reflects an abnormal amount of grain shipments and is excluded for this reason. For the purpose of projecting gross operating revenue, the average for 1967 to 1971 was used. Estimated annual gross operating revenue for selected years follows:

Year	Estimated Gross Operating Revenues
1970*	$1,343,290
1975	1,762,068
1980	1,955,865
1985	2,170,039
1990	2,407,667

*Actual

The forecast of funds flow from operations is based on the following ratio for the 1967 to 1971 period:

Year	Funds Flow from Port Operations/ Gross Operating Revenue
1967	.775
1968	.735
1969	.658
1970	.743
1971	.831
Average	.748 (or .750)

The average ratio for the period was used to forecast funds flow from port operations by multiplying the annual forecasts of gross operating revenue by the ratio.

Forecast of Annual Tax Revenues

The Port of Beaumont currently levies a tax for operations and maintenance of 10 cents per $100 of assessed valuation. This is the maximum rate the port may levy for these purposes.

During the period 1966 to 1972, the taxable valuation within the jurisdiction of the port increased at an average annual rate of 2.6 percent. Assuming this rate of growth will continue and that the tax rate will continue to be 10 cents, the port's operation and maintenance tax revenue will increase at an average rate of 2.6 percent per year through 1990.

Forecast of Total Funds Available

The sum of funds flow from port operations and operations and maintenance tax revenue is an estimate of total funds available for servicing revenue debt and for capital improvements.

Revenue Bond Debt Service Requirements

The Port of Beaumont has outstanding revenue bonds with final maturity scheduled for the year 2000. Annual debt service requirements for these bonds is declining as the port has retired bonds ahead of schedule. In 1972 debt service was $606,535. For the purposes of this forecast, debt service will be projected at $600,000 annually; however, continued early retirement will reduce annual debt service to a lower amount while the issuance of additional revenue bonds will increase debt service requirements.

Amount Available for Capital Investment

After the payment of revenue debt service requirements from total funds available, the remainder is available for new capital investment by the port. For the 1970 to 1980 period, total available funds are about $9,889,000, an average of $900,000 annually. Estimated funds required for capital improvement for this period are $15,200,000.

During the 1981 to 1990 period, estimated capital improvements will require $4,500,000. Projected funds available for this purpose are estimated to total slightly more than $13 million.

D. Port of Brownsville[12]

Forecast of Annual Tonnage

Estimated annual tonnage for 1980 is 7.8 million tons with a further increase to 14.5 million tons by 1990 according to port officials. Actual tonnage in 1970 was 4.9 million tons. Thus, the expected annual rate of growth in tonnage is about 4.5 percent for the 1970 to 1980 period with a rise in the growth rate to about 6.5 percent for the 1980 to 1990 period. Using these growth rates projections of annual tonnage for the 1974-1990 period were made. Estimated annual tonnage forecasts for selected years follows:

Year	Estimated Revenue Tons
1970*	4,911,267
1975	6,247,967
1980	7,786,104
1985	10,667,637
1990	14,615,587

*Actual

Forecast of Annual Funds Flow from Port Operations

The forecasts of annual funds flow from port operations were derived from financial and operating relationships of the 1967 to 1973 period. For this period the ratio of tonnage to gross operating revenue was as follows:

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[12]Data sources include financial statements of the Brownsville Navigation District of Cameron County, Texas and material published by the Municipal Advisory Council of Texas, Austin, Texas, January 2, 1973.

Year	Ratio of Gross Operating Revenue/Ton of Cargo
1967	$0.31
1968	0.32
1969	0.30
1970	0.27
1971	0.33
1972	0.31
1973	0.56

The ratio for 1973 reflects a 20 percent increase in port tariffs. Because of this increase the Port Director believes that in the future gross revenues will be about $0.50 per ton of cargo handled by the port. Accordingly $0.50 is used to forecast gross operating revenue through 1990. Estimated annual gross operating revenue for selected years follows:

Year	Estimated Gross Operating Revenues
1970*	$1,336,019
1975	3,123,983
1980	3,893,052
1985	5,333,819
1990	7,307,794

*Actual

The forecast of funds flow from operations is based on the following ratio:

Fiscal Year Ending	Funds Flow From Operations/ Gross Operating Revenue
1967	0.53
1968	0.55
1969	0.54
1970	0.49
1971	0.53
1972	0.56
1973	0.66

For the 1967 to 1973 period the ratio had an average value of 0.55. The Port Director stated that an effort to improve this ratio is under way; for purposes of this forecast he suggested that

0.60 would be reasonable. Projected funds flow from operation were determined by multiplying the estimates of gross operating revenue by 0.60.

Forecast of Annual Tax Revenues

The District levied a tax for operation and maintenance purposes during the 1967 to 1971 period of 10 cents per $100 of assessed valuation. This is the maximum rate the District may levy for these purposes.

During the 1967 to 1973 period, the port's net tax revenue increased at an annual rate of about 8.5 percent. Assuming this rate of growth will continue into the future, and that the tax rate will continue to be 10 cents, the port's tax revenue would annually increase at the same rate during the period through 1990. These assumptions were used to generate the estimates of tax revenue.

Total Funds Available

The sum of funds flow from port operations and tax revenue is an estimate of total funds available for the repayment of debt and for capital improvements. The Port of Brownsville has outstanding revenue bonds with final maturity scheduled for the year 2005. The annual bond service requirements were subtracted from total funds available to obtain an estimate of funds available for capital improvement.

Amount Available for Capital Improvement

When debt service requirements are subtracted from total funds available, the balance is available for new capital investment by the port. For the period 1970 to 1980 the estimate of total funds available is $12,700,000. During this time District officials estimate the cost of needed capital improvements at $10.8 million; available funds will be approximately adequate according to these projections. For the period 1981 to 1990 the annual amount averages $2.9 million and totals $29,700,000. Desired capital improvements will require $94,412,000. Funds available will be substantially less than desired according to these projections.

E. Port of Corpus Christi[13]

Forecast of Annual Tonnage

The average annual growth rate for the Port of Corpus Christi was approximately 2.1 percent during the years 1960 to 1971, inclusive. However, port officials believe that the average annual growth rate will be approximately 3.5 percent in the future. This growth rate was used in the preparation of the tonnage projections. Estimated annual tonnage forecasts for selected years follow:

Year	Estimated Revenue Tons
1970*	25,093,748
1975	26,169,305
1980	31,080,925
1985	36,914,388
1990	43,842,715

*Actual

Forecast of Annual Funds Flow from Port Operations

The forecasts of annual funds flow from operations are derived from financial and operating relationships of the port. For the years 1967 to 1971, the ratio of gross operating revenue to tonnage was as follows;

Year	Gross Operating Revenue/Tonnage
1967	$0.059
1968	0.064
1969	0.064
1970	0.063
1971	0.064
Average	0.063

[13]Data sources include financial statements of the Nueces County Navigation District No. 2 and material published by the Municipal Advisory Council of Texas, Austin, Texas, August 8, 1972.

The low ratio of gross operating revenue/tonnage stems from the high volume of liquid cargo handled by the port; the port even collects some revenue from liquid cargos handled across private docks. Therefore, using the average ($0.063 per ton) to project future gross operating revenue appears reasonable. Estimated annual gross operating revenue for selected years follows:

Year	Estimated Gross Operating Revenues
1970*	$1,582,076
1975	1,648,666
1980	1,958,098
1985	2,325,606
1990	2,762,091

*Actual

The forecast of funds flow from operations is based on the following ratio for the 1967 to 1972 period.

Year	Funds from Operations/ Gross Operating Revenue
1967	.486
1968	.404
1969	.409
1970	.215
1971	.202
1972	.325
Average	.340

Using the average of 34 percent and the forecasts of gross operating revenue, estimates of funds flow from operations can be obtained.

According to port officials there will be an additional source of funds for the port in 1973 as the revenue and expense of the grain elevator will be consolidated for the first time with the regular operating statements of the port. Previously, this revenue

and expense has been accounted for by a separate entity. Net funds provided by this operation has been as follows:

Year	Funds from Grain Elevator
1968	$191,399
1969	504,113
1970	438,969
1971	220,399
Average	338,720

For the purposes of this projection, it will be assumed that the grain elevator will provide an average of $340,000 in additional funds each year.

Forecast of Tax Revenue

The port does not levy a maintenance and operations tax. Since the only tax levied by the port is for the payment of principal and interest of outstanding general obligation bonds and since this tax revenue is not used for any other purpose by the port, both the tax revenue and the general obligation service will be excluded from these protections.

Total Funds Available

The sum of funds flow from port operations and the funds from the operation of the grain elevator is an estimate of the total funds available for the service of revenue debt and for capital improvements.

Revenue Bond Debt Service Requirements

The Port of Corpus Christi has outstanding revenue bonds and

general obligation bonds. For the reasons given above, only the revenue debt is considered in this financial planning forecast.

Amount Available for Capital Improvement

When revenue bond debt service requirements are subtracted from total funds available, the balance may be used for new capital investment by the port. For the period 1970 to 1980, the annual amounts available total about $3,000,000. During this time, District officials estimate the cost of needed capital improvements at $18,107,000. Funds available will be substantially less than desired according to these projections. Total funds available are $8.9 million for the ten-year period 1981 to 1990 while desired capital improvements are expected to cost $7,500,000.

F. The Galveston Wharves[14]

Forecast of Annual Tonnage

The port's activity was subject to cyclical fluctuations during the 60's and early 70's. Activity is expected to increase in the future although the tonnage handled by the port has declined from the 1960 level. The Port's recent experience does not provide a projectable trend; however, a growth rate of three percent has been chosen after consultation with officals of the Galveston Wharves. Projections of annual tonnage are estimated with this rate for the 1973 to 1990 period. Estimated annual tonnage forecasts for selected years follow:

Year	Estimated Revenue Tons
1970/1972*	2,516,998
1975	2,606,948
1980	3,022,168
1985	3,503,520
1990	4,061,540

*Average

Forecast of Annual Funds Flow From Port Operations

The forecasts of annual funds flow from port operations are derived from forecasts provided by officials of The Galveston Wharves. They believe that gross operating revenues will reach $10,000,000 annually by 1975 and continue at least at that level throughout the forecast period. To achieve this level of gross operating revenue will require either an increase in tonnage above the projected levels

[14]Data sources include financial statements of The Galveston Wharves.

or an increase in gross operating revenue per ton of cargo or both. For the 1967 to 1972 period, the ratio of tonnage to gross operating revenue was as follows:

Year	Ratio of Gross Operating Revenue/Ton of Cargo
1967	$1.37
1968	1.79
1969	1.94
1970	2.08
1971	2.14
1972	2.23
Average	1.93

If the average revenue/ton of cargo for the 1967 to 1972 is applied to the 1975 tonnage forecast, gross operating revenue would be about $5 million, not $10 million. Assuming gross operating revenue increases to $10 million by 1975 a forecast of the funds flow from operations may be based on the ratio of funds to operating revenue for the 1967 to 1972 period.

Year	Funds from Operations/ Gross Operating Revenue
1967	.165
1968	.191
1969	.271
1970	.262
1971	.169
1972	.167
Average	.204

Using the average ratio and the estimates of gross operating revenue provided by The Galveston Wharves, an estimate of funds flow from operations of about $2 million annual is obtained.

Total Funds Available

Since the Port does not receive tax revenue, total funds available for the repayment of debt and for capital improvements is the same as funds flow from operations.

The Galveston Wharves has outstanding revenue bonds with final maturity scheduled for 1992. When debt service requirements are subtracted from total funds available, the balance is available for new capital investment by the Port.

Amount Available for Capital Improvements

In an earlier forecast[15] The Galveston Wharves projected spending between $17.7 and $25 million for needed capital improvements for the period 1970 to 1980; however, in a recent discussion, the Port Director stated that the 1970 to 1980 needs have been revised upwards to about $35 to $50 million. Estimated funds available for capital improvements during the period total $24.3 million--$16.6 million from port operations with an additional $7.7 million to be provided from authorized tax obligation bonds.

For the period 1980 to 1990 projected funds available for capital improvement are $20 million. Although all of the port's plans for the future are not being disclosed at this point, port officials recently proposed dredging a 57 mile channel with a depth of 100 feet and a width of 1200 feet. The channel has an estimated cost of $428.2 million. Such a facility would create an "onshore superport" at Galveston. Port officials believe the facility could be financed with bonds; obviously such an enormous project would depend on the availablity of external sources of funds.

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[15] Texas Gulf Ports Capital Improvements Program, Texas Transportation Institute, Texas A&M University, College Station, Texas, October 1, 1971, p. 36.

[15a] The Galveston Daily News, October 31, 1973.

G. Port of Houston[16]

Forecast of Annual Tonnage

For the twelve-year period ending in 1972, the tonnage handled across the docks of the Port of Houston increased at an average annual rate of approximately 3.9 percent. This average rate of increase is used to project tonnage for the forecast period. The use of a linear trend without adjustment appears to be the approximate basis for tonnage projections included in "A Review of Proposed Capital Improvements". This document was prepared by the Port of Houston Authority prior to the 1973 bond election. Because the Port of Houston Authority used a linear projection for its estimates a similar practice was adopted for these projections. Estimated annual tonnage forecasts for selected years follow:

Year	Estimated Revenue Tons
1970*	7,286,372
1975	11,634,782
1980	14,087,567
1985	17,057,436
1990	20,653,396

* Actual

Forecast of Annual Funds Flow from Operators

The forecasts of annual flow from operations are derived from financial and operating relationships of the port. For the years

[16] Data sources include financial statements of the Port of Houston Authority and material published by the Municipal Advisory Council of Texas, Austin, Texas, June 18, 1973.

1967 to 1971, the ratio of gross operating revenue to tonnage was as follows:

Year	Gross Operating Revenue/Tonnage
1967	$1.63
1968	1.98
1969	2.25
1970	1.99
1971	2.05
Average	1.96

Application of the average gross operating revenue per ton of cargo of the tonnage forecasts provides an estimate of gross operating revenue. Estimated annual gross operating revenue for selected years follows:

Year	Estimated Gross Operating Revenue
1970*	$14,523,189
1975	22,804,172
1980	27,611,631
1985	33,472,575
1990	40,480,656

*Actual

The forecast of funds flow from operations is derived from the following ratio for the 1967 to 1971 period:

Year	Funds from Operations Gross Operating Revenue
1967	.141
1968	.239
1969	.171
1970	.189
1971	.166
Average	.181

Using the average value for this ratio during the 1967 to 1971 period and the estimates of gross operating revenue, funds from operations were projected.

The Port of Houston Authority discontinued its freight handling services during 1973. Because these services are now provided by a private firm the port will not receive revenue from the service or bear the expense of its provision. At present the financial impact of this policy decision is not known; however, the Port of Houston Authority expects improved financial results or the change would not have taken place.

Forecast of Annual Tax Revenue

The port does not levy a maintenance and operations tax. Since the only tax levied by the port is for the payment of principal and interest on outstanding general obligation bonds and since this tax revenue is not used for any other purpose by the port, both the tax revenue and the general obligation debt service will be excluded from these projections.

Total Funds Available

Because the port's tax revenue is disregarded in this forecast, the forecasted annual funds flow from port operations is an estimate of the total funds available for the service of revenue debt and for capital improvements. The Port of Houston Authority has outstanding revenue bonds and general obligation bonds. As indicated above, only the revenue bond debt service is considered in this financial forecast.

Amount Available for Capital Investment

When revenue bond debt service requirements are subtracted from total funds available, the balance may be used for new capital

investment by the port. The issuance of additional debt will increase debt service requirements above the amounts presently owed.

For the period 1970 to 1980, port officials have estimated that needed capital improvements will require $60.3 million. Funds available from port operations for that purpose are estimated to be about $25 million, an amount substantially smaller. The Port of Houston Authority recently received voter approval for a $40 million general obligation bond issue; the proceeds of these bonds will substantially fill the financing gap. Estimated needs for the 1980 to 1990 period are $32.5 million; projected available funds from port operations for the period are almost $44 million. If the inflation factor is disregarded available funds appear to be adequate for planned needs.

H. Port of Orange[17]

Forecast of Annual Tonnage

Based on the twelve-year period 1960 to 1972 the Port of Orange has experienced an average annual increase in tonnage of approximately 5 percent. The Port Director expects the rate of increase to be 7 to 8 percent during the period 1974 to 1978, after which he believes the growth rate will return to about 5 percent. His estimates were used in the preparation of the tonnage projections. Estimated annual tonnage forecasts for selected years follow:

Year	Estimated Revenue Tons
1970*	116,202
1975	197,720
1980	271,988
1985	347,132
1990	443,038

*Actual

Forecast of Annual Funds Flow from Port Operations

The forecast of annual funds flow from port operations is derived from financial and operating relationships of the 1968 to 1972 period. During this time gross operating revenue per ton averaged $1.49.

Year	Gross Operating Revenue/Ton
1968	$1.085
1969	1.582
1970	1.630
1971	1.897
1972	1.268
Average	1.492

[17]Data sources include financial statements of the Orange County Navigation and Port District and material published by the Municipal Advisory Council of Texas, Austin, Texas, April 10, 1972.

The Port Director believes there will be a 10 percent increase in the rates charged by the port. Accordingly, the forecasts of gross operating revenue assume future gross operating revenue per ton will be $1.65. Estimated annual gross operating revenue for selected years follows:

Year	Estimated Gross Operating Revenues
1970*	$189,397
1975	326,239
1980	448,780
1985	572,768
1990	731,013

*Actual

The forecast of funds flow from operations is based on the following ratio:

Year	Funds From Operations/ Gross Operating Revenue
1968	.369
1969	.360
1970	-.578
1971	.404
1972	.028

The calculated values of this ratio were similar in 1968, 1969, and 1971. In 1970, the port spent an unusually large amount for maintenance; the 1972 ratio was not computed from 12 months of data and does include another large maintenance expenditure. This suggests that maintenance is either required to be undertaken or is undertaken in "lumps" and that the calculated values for 1968, 1969, and 1971 are too high. However, the assumed increase in port changes will produce some increase in funds flow from operations. For this reason an average value of 0.40 is used in the forecasts of funds flow from operations.

Forecast of Annual Tax Revenue

The port may levy a maximum tax of 15 cents per $100 of assessed valuation for maintenance and operations and an unlimited tax for the payment of general obligation (G.O.) bonded indebtness. The port does not levy a specific tax for the repayment of debt; instead the G.O. debt service is paid from the maintenance and operating tax. After the payment of G.O. debt service, the remainder is available for maintenance and operating purposes.

The Port of Orange expects to levy the maximum tax of 15 cents in the future. Based on the 1964 to 1971 period, the tax base has increased at an average annual rate of about 6 percent. The tax revenue forecasts were obtained using this growth rate.

Total Funds Available

The sum of funds flow from port operations and tax revenue is an estimate of total funds available for the repayment of debt and for capital improvements.

Debt Service Requirements

The Port of Orange has outstanding general obligation and revenue debt with final maturity scheduled for 1992 and 2012, respectively. Because the general obligation bond debt service is paid from the maintenance and operating tax rather than a special levy, the debt service for both types of bond issues is included in this forecast.

Amount Available for Capital Investment

When debt service requirements are subtracted from total funds available, the balance may be used for new capital investment by the port. For the period 1973-1980, the annual amounts available total about $1,860,000. The average annual amount available is approximately $233,000. During the 1970 to 1980 period, port officials have estimated that needed capital improvements will cost $16,500,000. Available funds will be substantially less than the amount desired. For the 1981 to 1990 period available funds will total $5,136,000--an average annual amount available of $513,600. Officials feel that no capital improvements will be required for the 1981 to 1990 period.

I. Port of Port Arthur[18]

Forecast of Annual Tonnage

The operation of the public facility at the Port of Port Arthur began in April, 1969. During the time since then the port has been engaged in developing general cargo shipping activity for the port. Accordingly, the port's past tonnage data are not a satisfactory basis for forecasting the future.

Fiscal Year Ending	Revenue Tons
8/31/1970	269,018
8/31/1971	162,805
8/31/1972	167,386

The port's General Manager estimates that the tonnage across the public docks will reach 225,000 to 250,000 tons in 1974. For public dock activity to increase beyond this level, an increase in public port facilities will be required. As expansion is dependent on debt financing and increased taxation, the forecast will be made using a level projection of 250,000 tons annually.

Forecast of Annual Funds Flow from Port Operations

The forecasts of annual funds flow from port operations are derived from financial and operating relationships of the 1970 to 1972 period. Gross operating revenues per ton for this period are shown below. The rather high revenue per ton is due to Port Arthur public dock's reliance on general cargo-nonbulk and nonliquid cargo.

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[18]Data sources include financial statements of the Port of Port Arthur Navigation District of Jefferson County, Texas and material published by the Municipal Advisory Council of Texas, Austin, Texas, April 14, 1972.

Year	Gross Operating Revenue/Ton
1970	$1.79
1971	2.71
1972	3.25
Average	2.58

The $2.58 average for the period is used to forecast annual gross operating revenue. With the level 250,000 ton projection, estimated annual gross operating revenue is $645,000.

As the port's tonnage increases, fixed operating costs will be spread over the increased volume. Assuming that all costs are fixed except loading and unloanding expenses (a very conservative assumption!), fixed costs were $375,000, $417,000, and $414,000 in 1970, 1971, and 1972 respectively. For the purposes of projection, fixed costs are estimated to average $415,000. Based on the three-year relationship between gross operating revenue and loading and unloading expense, projected, gross operating revenue of $645,000 would be associated with loading and unloading expense of $396,000. Accordingly, with gross operating revenues of $645,000, total operating expenses are estimated to be $811,000 ($396,000 + 415,000), resulting in an estimated net operating deficit of $166,000 annually. If variable cost actually exceed the above estimate, the deficit will be larger. On the other hand if fixed cost could be spread over a greater volume than 250,000 tons, the port's operating deficit could possibly be eliminated.

Other income averaged about $100,000 per year for 1970, 1971, and 1972. Projecting this figure reduces the annual deficit before the Operations and Maintenance tax revenue and the payment of revenue bond debt service to an estimated $66,000. This projection is summarized as follows:

Gross Operating Revenue	$645,000
Operating Expense	
Fixed Expense	(415,000)
Variable Expense	(396,000)
Operating Deficit	($166,000)
Other Income	100,000
Net Before Operations and Maintenance Tax Revenue and Revenue Bond Debt Service	($ 66,000)

Forecast of Annual Operations and Maintenance Tax Revenue

The port levies a tax for operations and maintenance of 10 cents per $100 of assessed valuation. This is the maximum rate that may be levied for these purposes.

During the 1964 to 1973 period, the assessed valuation of the taxing jurisdiction increased at an annual rate of about 1.5 percent. Assuming this rate of growth will continue into the future and that the tax rate will continue to be 10 cents, the port's operations and maintenance tax revenue will increase at 1.5 percent per year through 1990.

Total Funds Available

The sum of funds flow from port operations and operations and maintenance tax revenue is an estimate of total funds available for servicing revenue debt and for capital improvements.

Amount Available for Capital Investment

The port has an outstanding issue of revenue bonds maturing in 1987. When revenue debt service requirements are subtracted from total funds available, the balance is available for new capital investment by the port. For the 1970 to 1980 period, total available funds are about $623,000. Estimated capital requirements for 1970 to 1980 are $16 million. Virtually all the funds needed will have to come from external sources.

For the 1981 to 1990 period, projections indicate total available funds of $950,700, an average of $95,000 per year. Estimated funds required for capital improvement are $7,400,000.

J. Principal Findings

Based on the financial projections, the Texas port system, taken as a whole, will be unable to finance improvements from port operations and tax revenues. As the projections indicate some of the ports may be able to meet their needs while others will probably fall far short of their fund requirements. The cost of the improvements may now be understated because of the inflation that has occurred since the estimates were published in 1971; furthermore there will probably be additional inflation in future years. Accordingly, the financing gap may be wider than indicated by these projections. Summaries of the fund requirements and availability are reported in Table I.

To finance their capital improvement needs officials of the Texas ports have generally indicated they prefer to use revenue bonds if funds from operations and tax revenues prove inadequate. Because of the competitive situation in the western Gulf the port officials do not believe it will be possible to generate increased funds from port operations by increasing the price of the services they provide. Also, they hope to avoid asking voter approval of general obligation bonds and/or higher taxes as they feel their local communities expect them to operate the port with only limited amounts of tax revenue. Seeking approval of a general obligation bond issue may become necessary to finance certain capital improvements which do not produce sufficient revenue to support revenue bonds.

The use of debt to finance capital improvements is considered in greater detail in the next section.

TABLE I

Estimated Funds Available For Capital Improvements From Port Operations and Tax Revenue compared with Estimated Funds Required For Capital Improvements at Selected Texas Ports, 1970 to 1990 (in millions of dollars)

PORT	1970-1980 Estimated Funds Available	1970-1980 Estimated Funds Required	1981-1990 Estimated Funds Available	1981-1990 Estimated Funds Required
Beaumont	$ 9.9	$15.2	$13.0	$4.5
Brownsville	12.4	10.8	29.7	94.4
Corpus Christi	3.0	18.1	8.9	7.5
Galveston	11.5	35.0-50.0	17.2	N.A.
Houston	25.036	60.3	43.738	32.5
Orange	2.145	16.5	5.1	-0-
Port Arthur	.623	16.0	0.9	7.4

Source: Personal interviews with port officials; Texas Gulf Ports Capital Improvements Program, Texas Transportation Institute, Texas A&M University, College Station, Texas, October 1, 1971, p.5.

K. Financing Capital Improvements with Bonded Indebtedness

The Texas Legislature recently authorized Texas navigation districts to issue bonds of three general classes:[19]

1) general obligation bonds
2) revenue bonds
3) combination revenue and tax bonds

This action of the legislature provided more flexible financing opportunities for the Texas navigation districts; previous to this action they were not permitted to issue combination revenue and tax bonds. Combination bonds, because they may be paid from tax revenue, must be authorized at an election held for that purpose. In this respect they are the same as general obligation bonds; only straight revenue bonds may be authorized without benefit of an election.[20]

The legislature provides that in the case of general obligation bonds "it is the duty of the governing body (...) to levy a tax sufficient to pay the principal of and interest on the bonds as the interest and principal become due (...)."[21] Revenue bonds may be secured by all or part of the district's revenue; it is the duty of the governing body to establish charges sufficient to meet principal and interest payments and other requirements of the trust indenture, and to pay designated expenses of the district.[22] In the case of

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[19] 63rd Legislature, H.B. No. 379, 1973.

[20] Ibid., Sec. 60.332

[21] Ibid., Sec. 60.339

[22] Ibid., Sec. 60.338 and 60.341.

combination bonds, "a tax shall be levied (...) sufficient to pay the principal and interest and create and maintain the reserve fund." However the actual tax levied can be less if there are on hand sufficient funds to meet principal and interest payments. As in the case of revenue bonds, it is the duty of the governing body to see that charges are adequate to meet the terms of the bond indenture.[23]

Each of the three types of bonds that navigation districts may employ has advantages and disadvantages. General obligation bonds may be used to finance specific capital improvements when they will not produce revenue adequate to service the debt or when revenue bonds cannot be used because of the indenture provisions of previous revenue bond issues of equal rank. Closed-end indentures prohibit the issuance of additional parity bonds. Open-end indentures usually require that prior to the issuance of bonds, net revenues shall be a specified multiple (say 1 1/2 times) "of the maximum annual debt service requirements on all bonds then outstanding and to be issued."[24] For instance, the Port of Houston will finance a major port expansion using general obligation bonds because, under the terms of previous revenue bond issues, the district could not issue more than $4,000,000 in new revenue bonds. Since the Port needed $40,000,000, the voters were asked to approve a general obligation bond issue.[25]

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[23] Ibid., Sec. 60.340

[24] Gordon L. Calvert (ed.), Fundamentals of Municipal Bonds (Washington, D.C.: Investment Bankers Association of America, 1968), p.56.

[25] "A Review of Proposed Capital Improvements," Port of Houston Authority (No Date), p. 19.

The principal disadvantage to general obligation bond issues is that the voters must approve the issue. The Port of Houston admitted that its only remaining alternative for securing the funds was a tax bond issue and set about the job of convincing the electorate of the need for capital improvements at the Port.[26] They were successful but if the voters had failed to give their approval--for reasons good or bad--the needed improvements would have been delayed.

Revenue bonds do not require voter approval--only the prospect for sufficient revenue to induce investors to purchase them. As previously indicated bond indentures of previous revenue issues may restrict the freedom of issuing future revenue bonds. One advantage of revenue bonds is that specific revenue may be pledged to the payment of principal and interest payment for specific revenue issues. Navigation districts have taken advantage of this provision by issuing bonds secured by revenues primarily derived from lease payments, ground rents and other charges paid by a single user of the facilities. Such bonds are viewed by investors as obligations of the company rather than the port; the port has ultimate responsibility, however. Despite the pledge by a private company the facility must be available for public use; if not, the bonds will not be exempt from federal income taxes. Because no voter approval is required, navigation districts generally prefer to use revenue bonds. To do so, however, the anticipated port improvement must produce net revenue sufficient to meet principal and interest payments plus other requirements of the bond indenture.

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[26] Ibid., p. 3.

Combination bonds, newly authorized for issue by navigation districts,must be approved by the voters the same as general obligation bonds. Thus the district officials face the problem of convincing the voters that the desired improvements are worthy of their support. Because of the dual sources of payment, the district officials may state their intention to pay the bonds primarily from net revenue. Should this prove indadquate taxes sufficient to prevent default must be levied. In this way the voters are encouraged to approve the bonds since there is an expectation that little in the way of taxes will be required to support the issue. At the same time investors can rely on the district's taxing power as well as net revenue for their security.

In summary, the navigation district can be expected to continue to prefer to use straight revenue bonds where possible. No election is required and, in some cases, the credit standing of a private corporation may be effectively employed by the district through lease arrangements. If the anticipated net revenue is adequate to service the bonds and comply with indenture provisions of previous issues, revenue bonds will be issued.

If straight revenue bonds cannot be used, the navigation districts should prefer combination bonds over general obligation bonds if the anticipated project will produce revenue. Voter approval for both types of bonds is required; however, it should be easier to persuade voters to give their approval if the likelihood of additional taxes is low. Combination bonds should also be attractive to investors. General obligations bonds will be the last alternative.

IV. THE STATE: AN ALTERNATIVE SOURCE OF FUNDS FOR THE TEXAS PORTS?

The projections made in this study suggest that the Texas ports will require funds in excess of the amounts they will generate from port operations and taxes. They hope to secure as much of this requirement as possible from bond issues, particularly revenue bond issues. Should they be unable to raise the requisite funds in the bond market, some type of state support may be needed to assure the required level of port development. This section of the study will 1.) consider the rationale of financial support for a port from the region as well as the local community, 2.) briefly relate the activities of other states in support of their ports and 3.) suggest some questions in the matter of Texas' interest in port development.

A. Economic Aspects of Port Development

The development of a port within a community has a significant impact on the community's economy. Both local and regional economic development are greatly influenced by a port's activities. Similarly, the development of the port depends upon the economic standing of the community and the nature of the port as seen by the community. The mutual interdependence of port and community development necessarily results in the interest in, and responsibility for, continuous port development by the community.

Port Community

The port plays a significant role in the community in which it is located. It is usually the focal point for trade and commerce in the area. The pattern of community development, business, and industry is greatly influenced by it and the local economy may be highly dependent upon the port's activities for generating income.

Industry locating in the port community will usually be directly or indirectly dependent on water transportation. Those industries locating on the waterfront will generally use waterborne transport for both inputs and outputs. Satellite industries located away from the waterfront will most often supply waterfront industries or use their products.[27]

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[27]Minard I. Foster, "Broad Scope of Navigation's Economic Impact," Journal of the Waterways and Harbors Division, Proceedings of the American Society of Civil Engineers (February, 1969), pp. 27-31.

The pattern of community development will usually have the port as its center. Land transportation routes will converge on the port area and the adjacent industries. Satellite businesses and industries will then be located to take advantage of these routes.

A port's economic impact on the community will be dependent to a large extent on the level of shipping traffic moving through the port. This traffic is highly sensitive to the cost advantages to be had through one port as compared to another. This is the result of the fact that for a typical foreign shipment, port costs account for approximately one-half of the total transportation cost.[28] Reduction of this cost through efficient operation offers the shipper the potential for lower transportation cost and the incentive to route his shipments through the port. In turn, vessels are attracted to the port that can assure a profitable level of traffic and the facilities necessary to meet the needs of both the vessel and the shipping traffic.[29] Thus increasing efficiency through port development provides the potential for a higher level of port traffic.

The port community benefits both directly and indirectly from port operations. Labor and material needs for port operations serve to bring income into the local economy. Secondary spending multiplies

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[28]J.F. Peel Brahtz, ed., Coastal Zone Management: Multiple Use with Conservation (New York: John Willey and Sons, Inc., 1972), p. 318.

[29]Fair, Port Administration in the United States, p. 9.

the effect of the port-derived income extending its impact throughout the economy. Port development then will be reflected in a greater than proportional increase in benefits to the local economy.

Port Hinterland

The port acts as a gateway to the inland area which it serves. The tributary area thus served is called the port's hinterland. It is characterized by the geographic extent of trade points which are provided with an economic outlet through the port. The extent of a port's hinterland is different for each commodity handled through the port. Factors which determine the extent of the hinterland include the demand for the commodity, the freight rates to the port, facilities located at the port, time availability and supply of vessel space at the port, the balance of general and specialized trade cargo handled at the port, and port costs.[30] These factors also function to divide the hinterland into a competitive region and a noncompetitive region.

The noncompetitive hinterland can be considered that tributary area including the immediate port community for which the port forms a "natural" gateway. A distinct cost advantage over other ports allows the local port to attract all shipments from this area.

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[30]John Miloy and Anthony E. Copp, Economic Impact Analysis of Texas Marine Resources and Industries (College Station, Texas: Texas A&M University Sea Grant Program, June, 1970), pp. 58-60.

Equal or slightly differentiated freight rates in the competitive hinterland allows the port to compete with other ports for shipping trade on the basis of factors other than rates. In this area port cost, facilities, and frequency of vessel dockings become key factors in attracting trade. However, even if the port can attain such a competitive advantage through port development, there is a tendency for trade to continue to flow along existing routes.[31] Port promotion then becomes the critical factor in attracting trade and extending the competitive hinterland.

Nature of the Port

The nature of a port is largely dependent upon what the community thinks a port should be. A port is generally recognized as being a public utility "affected with public interest" and providing a necessary ulility service in the general welfare of the community under monopolistic conditions.[32] At extremes, a port can be visualized as a utility service or a utility business enterprise.

As a utility service, the port serves merely as a link between common modes of land transportation on the one side and a common harbor on the other. Because the community recognizes the need for some degree of control and regulation, one or more governmental agencies exist to reflect the public interest in port operations. Some of the responsibilities

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[31]Fair, Port Administration in the United States, pp. 169-170.

[32]Harold Koontz and Richard W. Gable, Public Control of Economic Enterprise (New York: McGraw-Hill Book Company, Inc., 1956), pp. 207-213.

entrusted in these agencies may include regulating the port as a public highway," maintaining custody of public facilities, and representing the community in acquiring federal aid for waterway development.[33] Actual involvement in the operating aspects of the port is left primarily to private enterprise.

The port as a utility business enterprise is concerned with the operations of the entire port. This concept departs from the idea that a port is just a collection of physical facilities or independent enterprises under various degree of control and regulation. A very large public investment is tied up in port facilities which serve to produce a substantial revenue through their operation. It is truly a large financial enterprise with a singular authority in charge of the port's overall operation and development.

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[33] Fair, Port Administration in the United States, pp. 5-8.

The degree of financial dependency on the community for port development is dependent upon the standing of the port in the community. If the port is seen entirely as a public service, then capital investment is held as a social cost of the community. The indirect benefits accruing to the community in the form of increased employment and higher wages, higher land values, and enhanced governmental income serve to justify financial responsibility for port development. Port operations are required only to provide sufficient revenue to cover marginal costs. Included in these costs are operating and maintenance expenses.[34]

An opposing view is that of a port as a public corporation engaged in a revenue recovery operation. Responsibility for capital investment funds for port development then lies with the port. These funds would have come directly from port revenues or long-term debt repayable from port revenues. In this case, the indirect community benefits are seen as accruing as a result of port operations and not as the justification for funding port development.

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[34]Roy S. MacElwee, Port Development (2nd. ed.; New York: McGraw-Hill Book Company, Inc., 1926), pp. 52-53.

Indirect financial assistance is afforded the port regardless of what standing it has in the community. Probably the largest amount of indirect financial assistance is provided by the Federal Government through Federal navigation projects. Without these projects, port development would be much more difficult. Additional financial assistance is afforded through Federal, State and local tax exemptions on port revenues, real estate holdings, and interest income to port bond holders. Financial dependency for port development is then a matter of degree rather than an absolute fact of dependence or independence on the part of the port. The community determines the extent to which the port is financially dependent by how it visualizes what the function of the port should be.

Regional Aspects of Port Development

The direct and indirect benefits accruing to the local community from port operations causes them to have a keen interest in continued development of the port. Since the level of trade through the port largely determines the economic impact, the potential of the port's future is tied closely with the extent and quality of its hinterland. This relationship is especially significant if the local community contributes only a minor portion of the port's trade. In turn, the future development of the hinterland is influenced by the extent to which the port is developed. It follows then that the hinterland and particularly the noncompetitive region also have an immediate interest in the development of the port.

Since economic benefits from port operations accrue to the regional as well as the local community, responsibility for insuring future port development lies with the regional community as well. Under the connotation of a public service utility, this responsibility is most evident in the provision of capital investment funds.

B. State Support in Port Development

State support of public port development is most common in the Atlantic and Gulf coastal states. As indicated previously, all public ports receive indirect financial aid via Federally financed navigation projects and tax exemptions. Direct support in the form of state promotional efforts and the financing of capital improvements occurs most often in those states which have authority vested in a state level administrative agency for port operation. In the following sections those agencies receiving state support, and which are responsible for port operation and development will be described. Those ports administered by local municipal or county authorities and those which receive no state aid will be excluded.[35]

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[35]The Port Authority of New York and New Jersey is a bi-state municipal agency which is completely self supporting. For this reason, it is felt that a description of its operations is not applicable even though it administers the Nation's leading port.

Alabama State Docks Department[36]

Alabama State Docks Department is a governmental department agency of the State of Alabama. Administration of the Department is through an executive board and a Department Director. The State Docks Department is responsible for the operation and development of deepwater port facilities at Mobile and various inland docks throughout the state. Regulation and control of the state's ports is carried out by the Department in its capacity to function as a port authority.

Port system development is funded principally through long-term debt in the form of full faith and credit bonds issued by the state. Bonds totaling $47 million have been issued for improvement of inland waterways ($22 million), harbors ($10 million), and seaport facilities ($15 million). Repayment of interest and principal comes first from port revenues and then from general State tax receipts if port revenues are not sufficient. The Seaport Facilities Bonds issued for construction of a bulk coal handling facility at Mobile are repaid through a $0.25 per ton charge on coal handled through the facility plus a $0.135 per ton servicing excise and privilege tax levied on all persons severing coal within the state.

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[36]Roy H. Krause, ed., Moody's Municipal and Governmental Manual (New York: Moody's Investors Service, Inc., 1973), p. 158; and a letter to Mr. Wayne E. Etter from Mr. Gerry P. Robinson, Public Relations, Alabama State Docks Department, October 16, 1972.

Delaware River Port Authority[37]

Delaware River Port Authority is a bi-state public corporation of the Commonwealth of Pennsylvania and the State of New Jersey. The Authority is administered by sixteen commissioners, appointed equally by the Governors of their respective states. Operation of the Benjamin Franklin (Delaware River) Bridge, Walt Whitman Bridge, and the Southern New Jersey Rapid Transit System is the primary area of responsibility of the Authority. Although it does not own or operate any marine terminals, the Authority's Division of Port Development is engaged in the general development and promotion of commerce in the port area. This area includes the ports of Philadelphia, Chester, Marcus Hook, Fairless, Bristol, Camden, Gloucester, Paulsboro, Trenton, Deepwater Point, and Burlington. Promotional efforts are supported by funds derived from the revenues of the Authority's facilities.

Georgia Ports Authority[38]

The Georgia Ports Authority is a state public corporation established by Act 422 of the 1954 Georgia Legislature. A commission

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[37]Krause, Moody's, p. 2909; and J. Spencer Smith, Paul A. Amundsen, and Helen Delich Bentley, ed., Ports of the Americas: History and Development (Washington, D.C.: The American Association of Port Authorities, 1961), pp. 86-87.

[38]Krause, Moody's , pp. 713-714; and Smith, Amundsen, and Bentley, Ports of the Americas, pp. 154-155.

of seven members is appointed by the Governor for four-year terms to administer the affairs of the Authority. An Executive Director is appointed by the Commission to carry out the powers and responsibilities regarding the operation and development of the Georgia port system. Powers and responsibilities of the Commission include the development and improvement of harbors and seaports; the fixing of fees, rates, rentals, and other charges for port services and facilities; and the borrowing of money and issuing of bonds for the purposes of paying for port development projects. The Authority operates ocean terminal facilities at the Savannah State Docks and Warehouses and barge terminals at Augusta, Bainbridge, Brunswick, and Columbus.

The State of Georgia provides financial aid to its Ports Authority (subject to other State authorities) through a system of lease rental agreements authorized under Article VII, Section VI of the State Constitution. The agreements are between the Ports Authority, the State's Department of Commerce, and the Department of Industry and Trade. Under the provisions of the agreements, the Authority leases port properties and facilities to the state for a period not to exceed 50 years. In return, the state legislature appropriates funds sufficient to meet the lease rentals. The Authority then uses these funds to secure and service its port development bonds.

Port development bonds issued total $33.3 million. Total investment in port and terminal facility developments to 1973 amount to

approximately $46 million including $808,100 paid to the U.S. Government in 1948 for acquisition of the existing Quartermaster terminal facility at Savannah.

Hawaii Department of Transportation Harbors Division[39]

The Harbors Division of the Hawaii Department of Transportation is a governmental department agency within the state government. The Director of Transportation is appointed by the Governor and serves as a member of his cabinet. Chief Director of the Harbors Division and the District Managers administering the state's ports are civil service employees.

The Department of Transportation in general is invested with the control and management of the shores and surrounding waters, navigable streams, harbors, and waterfronts (port facilities, docks, and landings) belonging to the state. Section 266-2, Hawaii Revised Statutes, gives the Director of Transportation the authority to fix, regulate and collect port service charges. The principal business of the Department is the operation and development of the state's port system in order to accommodate overseas and inter-island shipping traffic. Facilities operated by the Harbors Division are located at the Port of Honolulu on Oahu, Ports of Hilo and Kawaihae on Hawaii, Ports of Kahului and Hana on Maui, Ports of Port Allen and Nawiliiwili on Kauai, and the Port of Kaumakakai on Molokai.

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[39]Letter from Mr. Melvin E. Lepine, Chief Harbors Division, State of Hawaii Department of Transportation, June 20, 1973.

Port development is funded primarily through long-term debt in the form of port revenue bonds. Some capital improvement projects are specifically provided for directly through port revenue, but not out of surplus. State bonds totaling $34 million have been issued to date. The state legislature has authorized an additional $150,000 in long-term debt for the establishment of an Island Ferry system but these bonds have not been issued.

Louisiana Ports[40]

Louisana State port facilities are administered by three separate state agencies. The Port Commission of New Orleans established in 1896 by Act 70 of the Louisana Legislature (Article VI, Section 17 of the State Constitution) operates the Port of New Orleans and has jurisdiction over the Parishes of Orleans, Jefferson, and St. Bernard. Greater Baton Rouge Port Commission was created as a department of the state in 1952 under Article VI, Section 29 of the State Constitution with the power to regulate port commerce in the Parishes of East Baton Rouge, West Baton Rouge, Iberville, and Ascension. It operates the public port facilities at the Port of Baton Rouge. The South Louisana Port Commission was established in 1960 under Article VI, Section 33.1 of the State Constitution and has jurisdiction over the Parishes of St. Charles, St. John the Baptist, and St. James.

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[40]Krause, Moody's pp. 1400-1404; and a letter from Mr. Henry R. Rauber, Deputy Port Director for Administration, Port of New Orleans, June 25, 1973.

The Port of New Orleans Commission is comprised of five members serving overlapping terms. Commission members are appointed by the Governor from nominees submitted from the memberships of private civic bodies. The Commission is charged with the responsibility of fixing and collecting charges for use of the port facilities, and to regulate the traffic and commerce within its territorial jurisdiction. Under the enabling legislature, the Commission has the authority to issue general obligation bonds bearing full faith and credit of the state of Louisiana. An executive director (also general manager) is appointed to manage the operations of the Port.

State Port Development Bonds in the amount of $67,225 million have been issued for the development of the Port of New Orleans. Repayment of these bonds is primarily through port revenues; however, the state legislature appropriates funds generated by a $0.01 per gallon tax on gasoline for the payment of principal and interest on certain bonds issued prior to 1953. These appropriations amounted to $823,000 in 1973-74 and will decrease over the next four years to a base of $500,000 until the bonds are retired.

Greater Baton Rouge Port Commission is comprised of ten members appointed by the Governor. The Commission has power to: administer public port facilities; construct and acquire wharves, landings, and other structures; maintain proper water depths; and otherwise control port trade and commerce within its territorial jurisdiction. Under the enabling legislation, the Commission may issue up to $50 million in general obligation bonds. These bonds are full faith and credit obligations of the state and the four parishes within its

boundaries. Additionally, the bonds are further secured by mortgages on port facilities. Repayment is primarily out of port revenues. Outstanding bonds amount to $29.426 million.

The South Louisana Port Commission is comprised of nine members which are also appointed by the Governor. Powers and responsibilities are the same as for the Greater Baton Rouge Port Commission except the bonded debt limit is $25 million. Bonds outstanding amount to $12.065 million.

Maryland Port Administration[41]

The Maryland Port Administration is a division of the Department of Transportation of Maryland. The Department in turn is a cabinet-level agency of the state. Appointment of the Secretary of Transportation is by the Governor with the advice and consent of the state senate.

A comprehensive reorganization of the Maryland state government in 1971 abolished the existing Maryland Port Authority and established the new Administration. Assumption of the duties of the Authority consisted primarily of the responsibility for supervising and regulating port activities at the Port of Baltimore. Previously the Authority had an $83 million limit on the issuance of port development bonds. These bonds were serviced by funds from three-quarters of one percent of the state corportate income tax.

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[41]Krause, Moody's, p. 1533; and a letter to Mr. Wayne Etter from Mr. J.L. Stanton, Maryland Port Administrator in Maryland Department of Transportation, November 15, 1972.

Under the Department of Transportation, net revenues received by the Administration, along with those from the former Department of Motor Vehicles, the State Road Commission, the Aviation Commission, and the Mass Transit Commission are pooled in a general revenue fund. Additionally the Department receives revenue from a $0.02 per gallon tax on all gasoline sold in the state. The Department may issue up to $750 million in state general obligation bonds using the above fund for debt service. Outstanding bonds issued for the purpose of port development amount to $54.3 million. Additionally, Maryland Port Authority Revenue Bonds still outstanding amount to $816,000 which are to be repaid from funds derived through a lease rental agreement with the Baltimore and Ohio Railroad Company for use of the Hawkins Point Terminal at Baltimore.

Mississippi Ports[42]

Under the laws of the State of Mississippi, the state may aid its ports financially through the issuance of state general obligation port expansion bonds or through direct ownership of ports. Since the enactment of the enabling legislation in 1958, $157.7 million in state port development bonds have been issued. The proceeds of the bonds have gone toward the development of facilities at the Greater Port of Pascagoula and the Port of Gulfport.

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[42]Krause, Moody's pp. 1938-1941; and a letter from Mr. Hudson B. Hamilton, Traffic Manager, Mississippi State Port Authority at Gulfport, June 12, 1973.

The Greater Port of Pascagoula is owned by Jackson County and administered by the Jackson Port Authority. The Authority is an agency of the county and responsible to the county and the Mississippi Agriculture and Industrial Board regarding matters of port development and operation. Bonds totaling $16.7 million for the development of port facilities and the harbor have been issued by the state. These are full faith and credit bonds of the state but are to be repaid through the net revenue of the port facilities, a 5 mill county tax and a 2 mill state tax on all property in Jackson County, surplus funds not otherwise pledged accruing to the county from a "Sea Wall Tax" on gasoline, and any funds in the state treasury not otherwise appropriated.

An amount totaling $130 million in port development bonds was issued for the development of a ship construction and repair facility at the Port of Pascagoula. The facility was constructed and leased to the Ingalls Shipbuilding Company in an agreement whereby the Company would pay rent sufficient to cover the debt service of the bonds. The bonds issued are full faith and credit bonds of the state and any deficiency in funds for principal and interest repayment must be paid out of the state treasury.

Port of Gulfport is owned by the state and administered by the Mississippi State Port Authority at Gulfport. The Authority formed under Chapter II, Section 7546 of the Laws of Mississippi in 1956, is governed by a five-member Commission of which three members are appointed by the Governor, one by the County of Harrison, and one by the Mayor of the City of Gulfport. A port director is appointed by the Authority and

is responsible for the regulation and development of the port. He also regulates the rates for port usage and selects all port employees. The port director is directly responsible to the Authority which in turn is responsible to the Mississippi Agriculture and Industrial Board.

Port Development Bonds totaling $9.5 million have been issued by the state. Proceeds from these bonds have gone for port improvement and construction of a specialized produce and banana handling facility. As in the case of the state's other port development bonds, repayment is primarily from port revenues and in addition from a 2 mill ad valorem tax levy in Harrison County. Any deficiency must come out of the state treasury.

North Carolina State Ports Authority[43]

North Carolina State Ports Authority was created under the Session Laws of North Carolina, Chapter 1097, in 1945. A Board of Commissioners consisting of nine members appointed by the Governor administers and operates the two state ports at Wilmington and Morehead City. An Executive Director appointed by the Board is charged with the operation and maintenance of each of the ports. The Authority has power to issue port revenue bonds and enter into contracts with all government and private agencies for the development of the state's ports.

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[43]Krause, Moody's, p. 2606; and Charles E. Landon, The North Carolina State Ports Authority (Durham: Duke University Press, 1963), pp. 9-26.

Port development has been accomplished largely through legislative appropriations by the State of North Carolina. Appropriations totaling $2.2 million were made through 1961 for operations of the Authority exclusive of actual port operating requirements. Port development appropriations amounting to approximately $15 million have also made over the years to 1966 for port facilities at Wilmington and Morehead City. Additionally, $7.5 million in State Port General Obligation Bonds were issed in 1950 which have been repaid primarily from state funds. Port bonds issued by the Authority in 1968 for construction of bulk shiploading facility at Morehead City were sold to the Economic Development Administration for $11.4 million and are secured by port revenues and the full faith and credit of the state.

Puerto Rico Ports Authority[44]

The Puerto Rico Ports Authority is a corporate body established by Act 125 of the Commonwealth of Puerto Rico to function within the Economic Development Administration. Membership in the Authority is comprised of the Governor, the Secretary of Public Works, and the Secretary of Agriculture and Commerce. All powers of the Authority are exercised by the Economic Development Administrator. An Executive Director of the Authority is appointed by the Economic Development Administrator with the approval of the Governor and holds office at the pleasure of the Administrator. The Executive Director has general

[44]Letter from José Ysern de La Cruz, Chief, Maritime Department, Commonwealth of Puerto Rico Ports Authority, June 25, 1973.

supervision of the Authority's affairs and administration of the powers of the Authority.

The Authority is responsible for the development and promotion of port traffic, the regulation and development of port services, and operation of all port facilities. Ports administered by the Authority include the Port of San Juan, Port Mayaguez, and Port Ponce. Additionally, the Authority's Airport Division operates thirteen commercial airports throughout the Island. Included in the Authority's powers are the power to: contract and exercise all interments necessary for efficient port management; determine and fix rates, fees, rentals, and other charges for the use of the services or facilities of the port; and the appointment of all officers, agents, and employees of the Authority. The Authority also has the power to borrow money and issue bonds for the development of port and harbor facilities.

Port development capital improvement costs until 1976 are expected to be in excess of $112 million. The Authority has received approximately $45 million in legislative appropriations from the Commonwealth from the time of the Authority's establishment in 1942 to 1971 for the development of facilities (airport and seaport). Issued long-term debt in the form of Port Authority Revenue Bonds amount to $40 million in 1973. Authority Bonds are secured by and payable from all port and airport revenues, and a $0.02 per gallon aviation fuel flowage fee.

South Carolina State Ports Authority[43]

The South Carolina State Ports Authority is the oldest "state" port authority in the United States and was established by Act 626 of the South Carolina General Assembly in 1942 as a department of the State. It is responsible for operating and administering the port facilities at Port Royal (Beaufort), Charleston, and Georgetown. Additionally, the Authority is charged with the designing, constructing, and maintaining of terminal facilities; operating of the terminal railroads serving the ports and other industries in the port areas; promoting the developing industry in the port areas; and developing channels and harbors. Under the provisions of the enabling legislation, the Authority has power to issue bonds to raise funds needed to accomplish the above tasks and use the revenue from facility operations to repay principal and interest.

Bonds totaling $31.5 million have been issued in support of port development projects. Of this total, $24.5 million worth of general obligation State Port Bonds have been issued and are payable out of revenues derived from the state's income tax. An additional $7 million in State Port Revenue Bonds have been issued by the Authority for

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[45] Krause, Moody's p. 3139; and a letter to Mr. Wayne E. Etter from Mr. Richard E. Curran, Public Relations Coordinator, South Carolina State Ports Authority, November 10, 1972.

extension of docks and storage facilities at Charleston. Repayment of these bonds is from revenues generated by port operations exclusive of grain elevator operations. Under a lease rental agreement with the South Carolina Farm Bureau Marketing Association, rents are paid directly to the state and used for bonded debt service.

South Jersey Port Corporation[46]

The South Jersey Port Corporation is a state public corporation operating within the New Jersey Department of Environmental Protection. A commission of seven members appointed by the Governor with the advice and consent of the state senate serve to administer the affairs of the Corporation. Powers of the Corporation include regulation, control, ownership, and development of marine terminals in the Southern Jersey Port District. The District is comprised of the counties of Mercer, Burlington, Camden, Gloucester, Salem, Cumberland and Cape May, and the lands and contiguous waters of the Delaware River and Bay. Promotion of commerce in the District is provided primarily by the operations of the Delaware River Port Authority.

Development of the District's ports and terminals is provided for through the issuance of revenue bonds. These bonds are secured by and payable solely from the net revenues of the Corporation. In addition, the state legislature may appropriate funds for interest and principal repayment, but the bonded indebtedness does not constitute a debt of the state. Bonds issued by the Corporation amount to $16 million.

[46]Krause, Moody's p. 2223.

Virginia Port Authority[47]

The Virginia Port Authority is a public corporation within the Commonwealth of Virginia. It is administered by an eleven-member Board of Commissioners appointed by the Governor for six year overlapping terms. In 1970, the Virginia Legislature, in an attempt to unify the state's competing ports, reorganized the existing Virginia State Ports Authority incorporating it and the Peninsula Ports Authority. The new Authority is authorized and empowered to make contracts and in general, provide for the development of the state's ports and harbors and has jurisdiction over facilities at Lambert's and Sewell's Points at Norfolk, Portsmouth, and on the north side of Hampton Roads.

Under a lease rental agreement with the Norfolk and Western Railway Company, port development bonds totaling $44.9 million have been issued for purchase of land and construction of terminal facilities at Lambert's and Sewell's Points and are payable from the rents received from the Railway Company. The Virginia Legislature makes biennial appropriations for approximately $1.5 million for acquisition, constriction, development and operation of port facilities at Norfolk. An amount from appropriated funds equal to one-half of the basic rent payable by the Railway Company under the leasing agreement is deposited in the port development bond interest and sinking fund for service of these bonds.

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[47]Krause, Moody's, pp. 3507-3508; and "Virginia Ports Move Nearer to Unification," The Journal of Commerce (April 21, 1970).

Additional funds are available to the Authority under a legislative act passed in 1970 whereby up to $15 million may be borrowed from the state's retirement program for the development of new facilities. In 1970, the Legislature appropriated $24.5 million for capital improvement projects in various state ports and $2.7 million for use by the Authority in fiscal obligations incurred by the local port authorities within the state.

C. Texas' Interest in Port Development

New advances in shipping technology have caused the need to update port facilities. New facilities and their related waterway improvements will require substantial capital expenditures. However, in order for the ports to benefit from the economies of these new advances, the facilities to accommodate them must be developed.

The State of Texas already relies on waterborne transportation for approximately three-quarters of the intercity commodity tonnage moved. As the nation's requirements for refined petroleum products increases and reserves decrease, a larger volume of bulk petroleum will necessarily have to be imported to supply the Texas refineries. Furthermore, as the world's need for agricultural products grows, more bulk shipments of grain and other agricultural products will be shipped from Texas ports. Imports and exports of finished goods will also be increased as the demand from the state and tributary area served by the ports increases. In light of these growing needs, the State of Texas surely has a significant interest in the development of its ports.

In considering the future development of Texas ports, two basic questions arise. First, are the voters of the various navigation districts financially capable and willing to provide the capital necessary for development? Secondly, will the development by the various districts provide for optimal efficiency in port service to the state?

The navigation district was created so that the port community could have sufficient fiscal powers to provide for port and waterway development. Now, the need for improved facilities and waterways improvements comes at a time when the districts have already obligated a large portion of their financial resources for existing improvements. A case in point is the recent issue of general obligation tax bonds by the Port of Houston Authority for $40 million for additional LASH (Lighter Aboard Ship Handling) facilities.[48]

The Port of Houston is the largest of the Texas ports and has the greatest financial resources to draw from. At the time the new project was proposed, the Port of Houston Authority had outstanding $15.5 million in general obligation tax bonds and $26.6 million in revenue bonds. An evaluation of the revenue-generating capability of the district's facilities indicated that the Authority had surplus revenue generating capacity only sufficient to support the issue of $4 million in revenue bonds.[49] Under the existing navigation district system, the only alternative open to the Authority if it was to accomplish the proposed development project was to call on the voters of the district to authorize the issue of an additional $40 million in general obligation tax bonds. The voters did authorize the issue, but what if they had decided that their tax money would have been better spent on some other public project? The result would have been the loss of potential benefits derived from the proposed facility to the community and the state.

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[48] Port of Houston Authority, A Review of Proposed Capital Improvements (Houston, Texas: Port of Houston Authority, 1972), p. 3.

[49] Ibid., p. 19.

In considering the second question of the efficiency of port development by independent navigation districts, the local nature of the district causes port development to be approached in a manner to maximize the local benefits rather than state (regional) benefits. Because each district is independent and in competition with the other districts of the state, its goal is to develop facilities which will attract a higher level of trade for its port. The result of such action is duplication of costly specialized facilities. One such situation is developing in the case of super draft facilities. Corpus Christi has plans for developing facilities and its approach channel to accommodate super draft vessels (proposed channel depth is 72 feet). However, the development of an offshores terminal to accomodate such vessels is already being considered near Freeport.

In a similar situation, the proposed LASH terminal at the Port of Houston is designed to accommodate fourteen specific vessels which are expected to use the facility as early as 1975.[50] However, Galveston Wharves has just completed a container and LASH terminal facility which can also accommodate these vessels. Since cargos carried on LASH type vessels are contained in barges, the existence of two such facilities within fifty miles of each other and connected by a waterway on which the barges could be moved surely does not constitute the most efficient use of port development capital.

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[50] Ibid, p. 15.

The public port as mentioned earlier constitutes a public utility. An outstanding characteristic of a public utility is that it operates at its greatest efficiency as a monopoly. This efficiency is due to a decreasing unit cost with increasing output within facility capacity. Because ports have large fixed costs, the more service in the form of shipping traffic moving through the port the lower the unit or per ton cost will be. Duplication of specialized facilities in ports that serve essentially the same hinterland reduces the advantage gained in developing the special facilities.[51]

There is little doubt that the extent of present port development in Texas is attributable primarily to the existence of navigation districts. However, when the problems associated with the limited sources of development capital and duplication of facilities are considered, the capability of the navigation districts to provide the major source of funds for future port system development is questionable. It appears that in order for the state to enjoy optimal development of its port system, some degree of state participation is necessary.

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[51]Paul J. Garfield and Wallace F. Lovejoy, Public Utility Economics (Englewood Cliffs, New Jersey; Prentice-Hall, Inc., 1964), pp. 15-17.

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