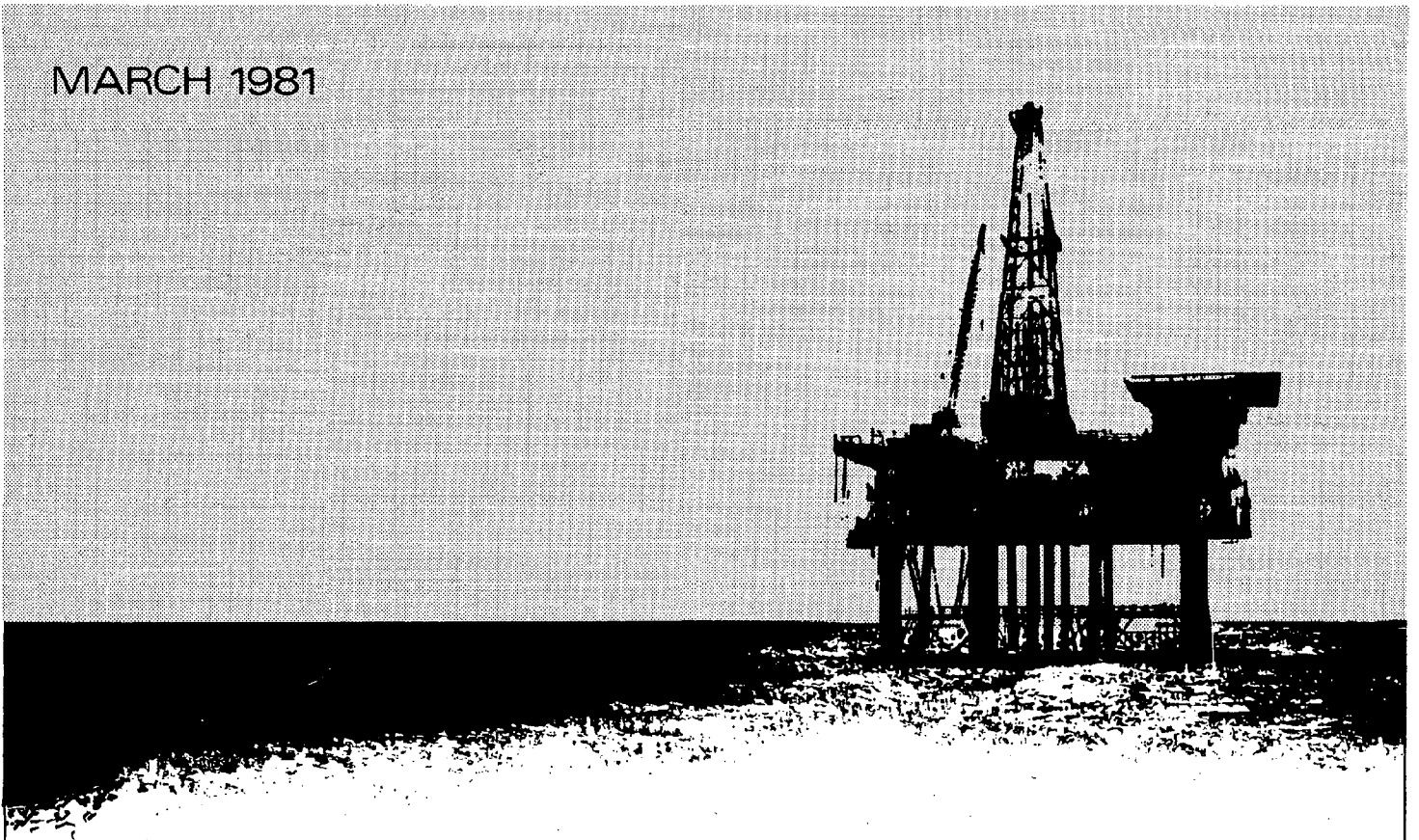


MARCH 1981



PORT MANAGEMENT ALTERNATIVES AT DAVISVILLE

FOR RHODE ISLAND PORT AUTHORITY
AND ECONOMIC DEVELOPMENT CORPORATION

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BOOZ·ALLEN & HAMILTON INC.

PORT MANAGEMENT ALTERNATIVES AT DAVISVILLE

FOR
RHODE ISLAND PORT AUTHORITY
AND
ECONOMIC DEVELOPMENT CORPORATION

FINAL REPORT
MARCH 1981

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AREA CODE 301

March 23, 1981

Mr. Thomas V. Moses
Rhode Island Port Authority
and Economic Development Corporation
7 Jackson Walkway
Providence, RI 02903

Subject: Delivery of Final Report Entitled "A Study of Port
Management Alternatives at Davisville"

Dear Mr. Moses:

Booz, Allen & Hamilton is pleased to present our final report on the Davisville Port Management study. Our report consists of two volumes:

- . Volume I includes the final report and OCS bibliography
- . Volume II includes case studies of 5 OCS bases and will be delivered within the next two weeks.

Volume I consists of the following chapters:

- . Chapter I is an executive summary
- . Chapter II identifies the implications of OCS development on management alternatives
- . Chapter III identifies the implications of commercial cargo development on management alternatives
- . Chapter IV presents case studies of OCS and commercial cargo ports
- . Chapter V forwards conclusions and recommendations.

Mr. Thomas V. Moses
March 23, 1981
Page Two

We have appreciated the opportunity to be of service to the Rhode Island Port Authority and Economic Development Corporation on this important port management assignment and look forward to opportunities to be of service in the future.

Very truly yours,

A handwritten signature in black ink, appearing to read "Leo J. Donovan", with a long horizontal line extending to the right.

BOOZ-ALLEN & HAMILTON Inc.

Leo J. Donovan
Vice President

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I. INTRODUCTION AND SUMMARY

I. INTRODUCTION AND SUMMARY

In February, 1980 the Rhode Island Port Authority and Economic Development Corporation (RIPAEDC) retained Booz, Allen & Hamilton to study the alternatives available to RIPAEDC concerning management of the Davisville piers. A management structure was to be recommended for each or both of the following scenarios:

- . That Davisville was to be a facility dedicated to the oil drilling activity in the Outer Continental Shelf (OCS). This has long been considered to be the major priority of the facility.
- . That Davisville was to be a commercial cargo handling facility. This alternative has been considered as a secondary priority for the facility.

It was not the purpose of the study to develop forecasts and projections of each alternative use but rather to recommend the appropriate management scheme based on currently available information concerning the alternative uses.

In the balance of this chapter the principal findings, conclusions and recommendations are forwarded.

1. OCS SUPPORT BASE SITING REQUIREMENTS ARE NOT STRINGENT AND DAVISVILLE OFFERS FACILITIES CONSIDERABLY IN EXCESS OF NORMAL INDUSTRY REQUIREMENTS

The portion of the Davisville facility available for OCS activities includes:

- . 5,000 linear feet of berthing space
- . 28 feet of water depth at the piers
- . 110 acres of open storage
- . 150,000 square feet of covered storage.

A facility with these characteristics is far more extensive than has been generally used by OCS support firms in the United States. The industry has generally used make-shift piers, a few acres of land and a portable storage facility on a bayou in the Gulf of Mexico.

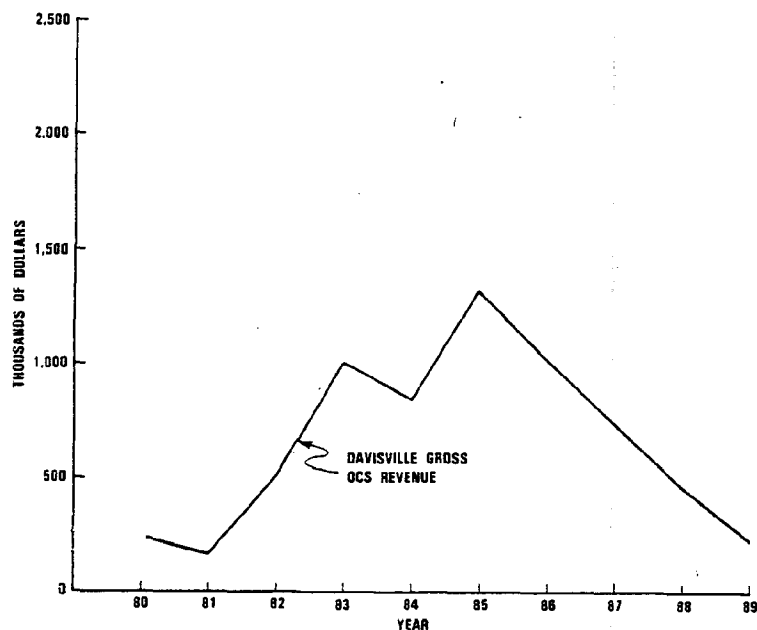
2. A NUMBER OF FACTORS, INCLUDING EASE OF ENTRY, A PRICE SENSITIVE INDUSTRY AND AN UNCERTAIN OUTLOOK FOR DEVELOPMENT OF THE ATLANTIC OUTER CONTINENTAL SHELF SUGGEST THAT DEDICATING THE FACILITY PRINCIPALLY FOR OCS USES CONSTITUTES HIGH RISK

A number of factors suggest that support of the OCS industry does not constitute the highest and best use of the facility.

- Exploration of the Baltimore Canyon has been slow and thus far inconclusive. At best the development potential of both the Baltimore Canyon and the Georges Bank region can be termed as highly uncertain.
- A number of facilities from New Bedford, Massachusetts to the New Jersey coast and Delaware River region can provide the facilities to support a high level of development.
- This ease of entry combined with the price sensitivity of users suggest that utilization and the income generation potential of Davisville is limited.

Figure I-1 provides an estimate of Davisville's revenue potential under an optimistic level of exploratory drilling based on the existing pricing practices of the RIPAEDC.

FIGURE I-1
Davisville Revenue Potential From
OCS Sources During Exploration Phase



The figure shows that even under an optimistic exploratory drilling scenario, revenue will peak at slightly over \$1 million for only one year. Revenue estimates during the development and production phases are not provided, but it is unlikely that levels would approach the peaks achieved during the exploratory phase.

3. OPPORTUNITIES EXIST IN THE COMMERCIAL CARGO AREA THAT COULD POTENTIALLY COMPLEMENT THE PORT OF PROVIDENCE, REDUCE THE RISK OF UNDERUTILIZATION AT DAVISVILLE AND INCREASE DIRECT ECONOMIC IMPACT IN NORTH KINGSTOWN

A number of commercial cargoes were identified that could be handled at a facility with the limited water depth characteristic of Davisville. These cargoes could be handled at Davisville in a manner complementary to the Port of Providence. The commodities include:

- . Imported automobiles
- . Imported iron and steel products.

If one of the piers were dedicated to cargo operations, it could be expected that 50,000 automobiles and 150,000 tons of steel products could be handled per year within one or two years. This activity could generate \$1/2 million in direct revenue and provide the following private contractors with nearly \$8 million in additional revenues:

- . Stevedores
- . Automobile processing firms
- . Ships agents and chandlers
- . Steel terminal operator and warehousemen.

Imported automobiles and steel are proprietary products that would be imported by a very small number of firms. Thus, arrangements between these firms and a port agency would provide these firms with near exclusive use of segments of the facility. Further, these commodities can either not be optimally handled at Providence (automobiles) or could impede development of Providence as a container and general commodity port (steel). Development of Davisville as a proprietary facility could complement the continued development of Providence as a public port facility.

4. A REVIEW OF OTHER PORTS SUGGESTS THAT DAVISVILLE SHOULD DEVELOP AS A DUAL-PURPOSE PORT FACILITY

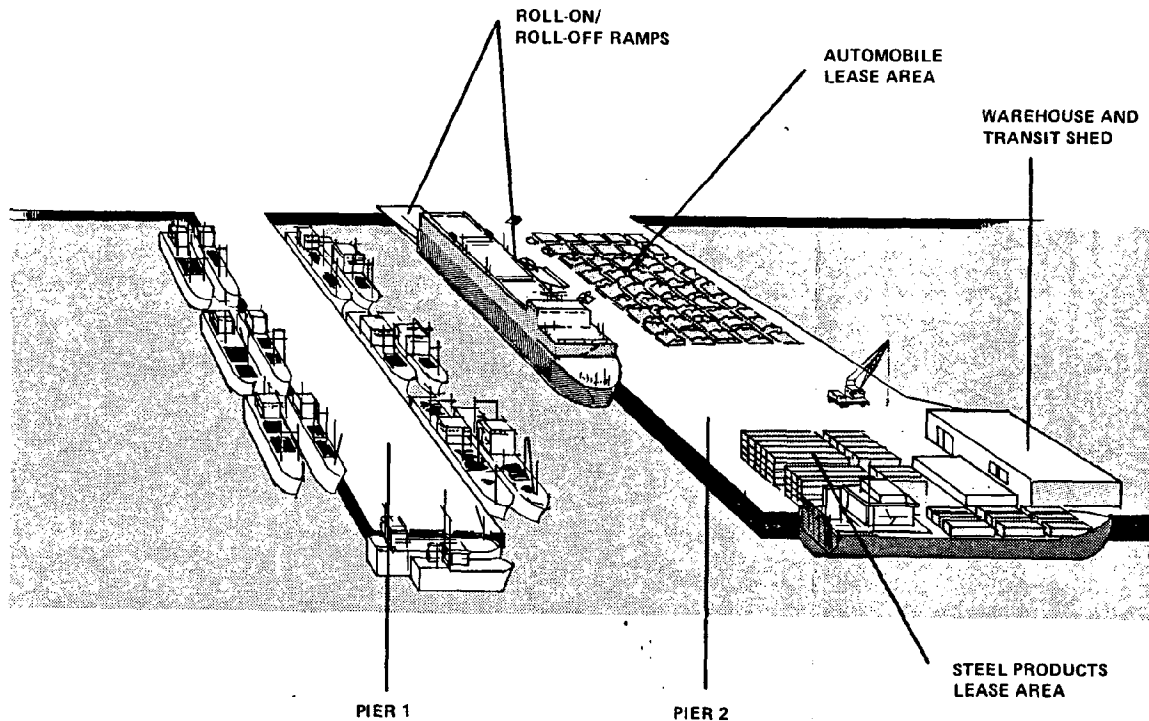
Other public ports that are involved in OCS support activities treat commercial cargo as their principal business and OCS activity as incremental business. The Ports of

Manatee, Florida and Hueneme, California are similar in size to Davisville. During 1980 they generated \$2.2 and \$2.5 million in revenue respectively. Between 85-90 percent of their revenue is from commercial cargo while the balance is from OCS sources. Further, their small staffs of between 15 and 18 were in place to support cargo and lease operations. The OCS activity required no increase in staff and only limited increase in operating costs.

5. THE RIPAEDC SHOULD DEVELOP A PLAN AND ORGANIZATION TO MANAGE DAVISVILLE AS A MULTIPLE PURPOSE PORT

The facilities at Davisville are adequate to handle a high level of both OCS and commercial cargo activity. Figure I-2 presents a conceptual layout that shows the Davisville piers handling OCS activities on Pier 1 and automobiles and steel on Pier 2.

FIGURE I-2
Recommended Facility Use Plan



(1) The RIPAEDC Should Publish a Marine Terminal Tariff
But Should Have the Facility Operated by Private
Firms Under Lease to the Port Authority

The Port Authority should attempt to lease the facilities to the most important users such as automobile and steel products importers and the key OCS users.

The characteristics of such leases should be as follows:

- . Users should be rented parcels of land and should be required to conduct the operations within the lease area.
- . Lease should be from one to five years depending on the extent of leasehold improvements involved.
- . Payment terms could be based on a published tariff with the following exceptions:
 - A fixed land rental would replace storage charges.¹
 - A minimum financial guarantee from the leasee should be specified in order to encourage activity at the site. Conversely incentive rates should be provided in cases where activity exceeds the specified minimum.

In addition because the Port Authority is a public agency, it should publish a terminal tariff that would apply to all public users. The tariff must be filed with the Federal Maritime Commission in Washington, D.C. Suggested tariff items are provided in Chapter V of this report. Most port authority revenue would be from the major leases, however, rather than public users that are charged tariff fees.

The Port Authority should expect an annual revenue of between \$750,000 and \$2 million per year under a multiple use scenario.

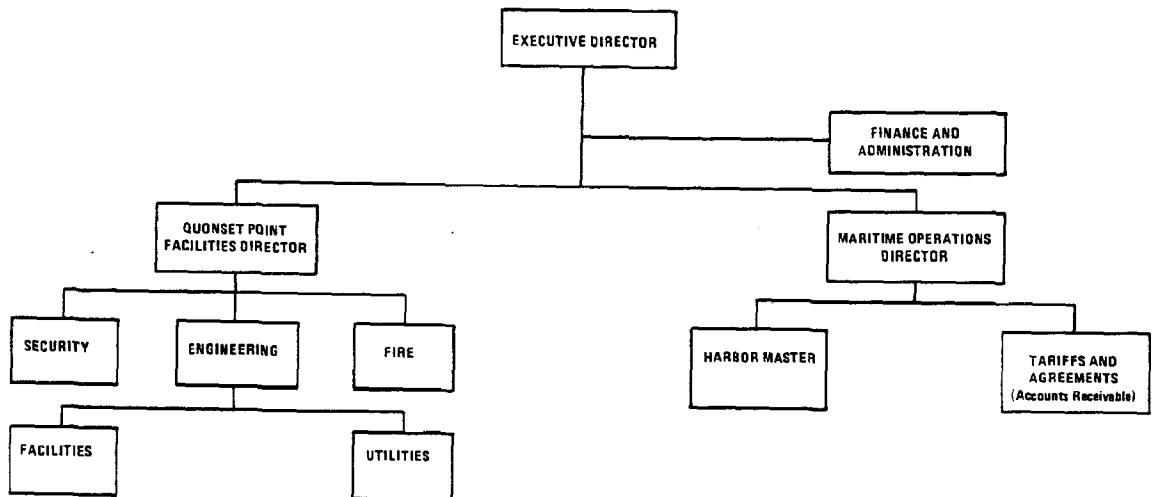
¹ A tariff generally has a charge for storage on public lands. Such a charge would not be required if the land used for storage were leased

(2) A Director of Maritime Operations, and a Limited Staff Should Be Added to the Port Authority Organization

Figure I-3 presents a proposed organization alignment for the Rhode Island Port Authority. The following new positions would be required:

- . Director of maritime operations.
- . A tariff and agreements group to publish and administer a tariff and insure proper billing for both tariff and lease charges. Such a group would require no more than three individuals.
- . A harbor master to control berth and security at the piers.

FIGURE I-3
Proposed Port Authority Organization



Such a change would require the creation of no more than five new positions. The director and the senior staff member in the tariff group would probably need to be recruited as the requisite skills are probably not available within the organization.

The establishment of a maritime operations group would require an operating budget of approximately \$400,000. This would include amounts for maintenance and marketing support which represent current expenditures of the RIPAEDC.

6. DEVELOPMENT OF COMMERCIAL CARGO OPERATIONS AT DAVISVILLE
HAS POTENTIAL POLICY IMPLICATIONS THAT THE PORT AUTHORITY
MAY NEED TO ADDRESS IN THE FUTURE

Development of commercial cargo activity at Davisville could have the following implications:

- . Organized labor would handle the commercial cargo and could present the potential for disruption of OCS activity.
- . Successful commercial cargo activity will result in pressure to dredge the Port to accommodate larger vessels.

These potential problems are not viewed as serious impediments to development of the Port for commercial cargo because:

- . The International Longshoremen Association (ILA) has no collective bargaining agreement with participants in the OCS industry. Consequently they should have no legal recourse in Rhode Island or disruptive influence in other ports where such activities occur. The facility and lease planning of the Port Authority should consider the potential impact of local job actions.²
- . The need to dredge the harbor will generally be an indication of the commercial success of the Port. The potential problems of such activity are environmental. The greater the potential environmental impact the more time consuming and costly the process will be. The Port Authority would have to share the cost of such an activity with the federal government.

Details concerning these findings, conclusions and recommendations may be found in the balance of this report which is organized as follows:

- . Chapter II presents implications of OCS development on future management alternatives at Davisville.
- . Chapter III presents the implications of the commercial cargo market on future management alternatives at Davisville.

² Leases to the OCS users could include the provision of a secured fenced area and perhaps the imposition of civil penalties for unauthorized entry into leased areas.

- . Chapter IV identifies potential management and operational roles for the Rhode Island Port Authority for both OCS and commercial cargo development.
- . Chapter V presents conclusions and recommendations.

In addition, three appendices are provided. Appendix A is a bibliography. Appendix B includes sample position descriptions for port personnel. Both Appendix A and B are contained within this document. Appendix C presents case studies of a number of OCS bases surveyed during this study and is separately bound.

II. THE IMPLICATIONS OF OCS DEVELOPMENT ON FUTURE MANAGEMENT ALTERNATIVES AT DAVISVILLE

II. THE IMPLICATIONS OF OCS DEVELOPMENT ON FUTURE MANAGEMENT ALTERNATIVES AT DAVISVILLE

Support of the Outer Continental Shelf (OCS) development has been the major planning priority for Davisville by the Rhode Island Port Authority and Economic Development Corporation (RIPAEDC). In this chapter the OCS industry is described in such a manner as to provide RIPAEDC with the information necessary to guide its overall planning for Davisville. The chapter does not present a general overview or detailed treatment of the OCS industry but rather focuses on questions and issues more related to RIPAEDC immediate planning requirements. Readers desirous of additional information on the industry may refer to the material referenced in Appendix A.

This chapter is organized in the following manner:

- . The OCS shore facility market is identified.
- . The facility at Davisville is evaluated in terms of industry siting requirements and comparable sites.
- . The revenue potential of the OCS industry is evaluated.

At the end of the chapter, conclusions concerning the implications of the industry's development at Davisville on the organizational and facilities planning of RIPAEDC are presented.

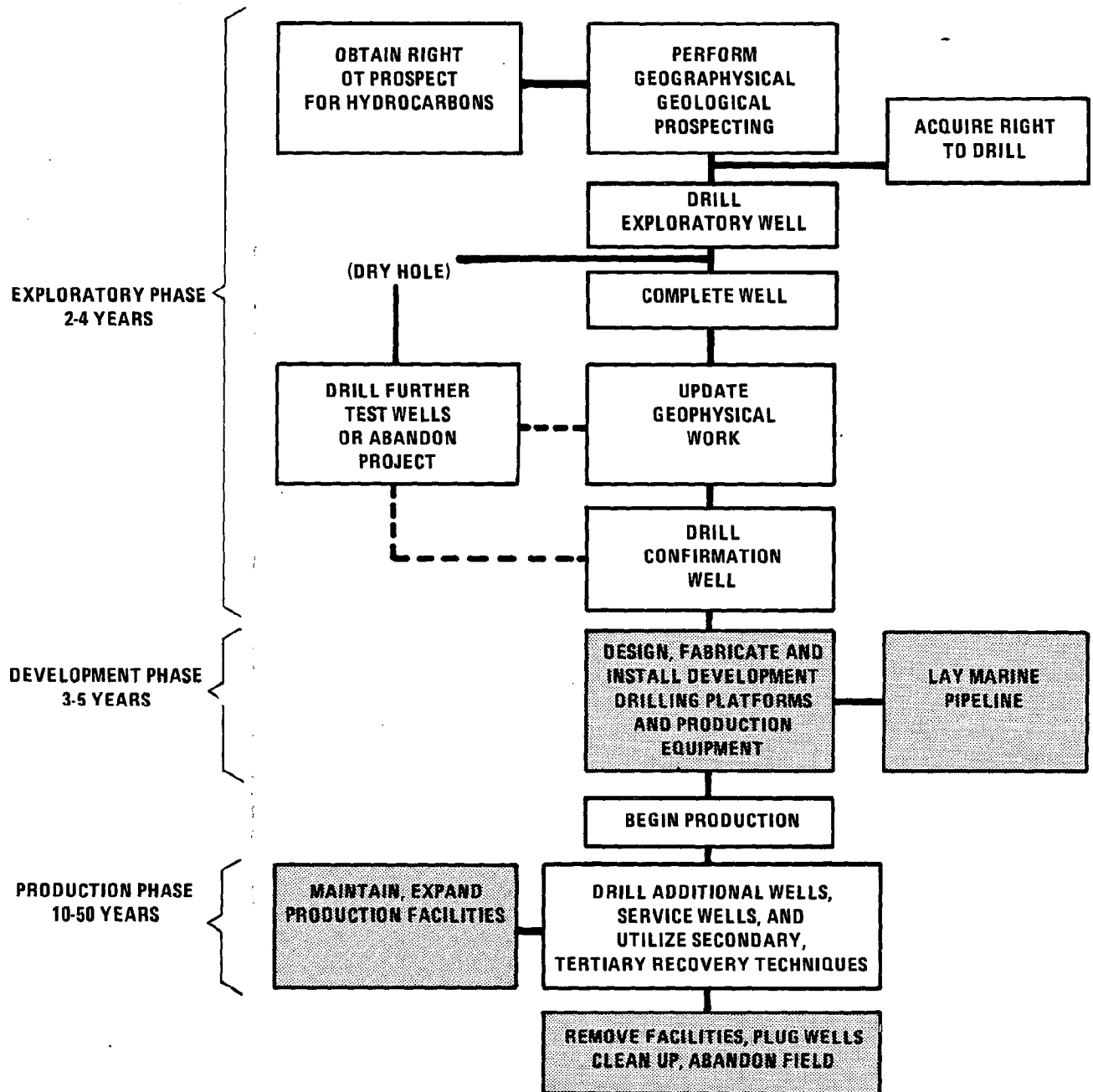
1. FROM A SHORE FACILITIES PERSPECTIVE, THE OCS MARKET EVOLVES FROM ONE THAT IS LARGE AND DIVERSE DURING EXPLORATION TO ONE THAT IS SMALLER AND MORE CONCENTRATED DURING PRODUCTION

The OCS cycle is depicted in Figure II-1. The figure shows that the full cycle includes three discrete phases:

- . Exploration
- . Development
- . Production.

The cycle is no different for offshore than it is for onshore oil and gas fields. The total life cycle of the offshore fields may be longer than that for the onshore field as the pay out period would have to generally be longer to provide a return on the larger investment associated with offshore

FIGURE II-1
Relative Time Frame for OCS Operations Phases



Source: J. Ray McKermott, Inc., "Factbook", 1979.



Denotes steps where substantial port activity is necessary.

development. As shown in Figure II-1, the overall cycle can be up to 60 years³.

(1) The OCS Industry Potentially Includes up to Ten Highly Specialized Sectors During the Early Phases of the Cycle

The participants in the OCS industry may be generally categorized into the following groups:

- . The oil company or owner of the drilling rights
- . The drilling contractor
- . The supplier of drilling fluids
- . Cement suppliers
- . Transportation service companies
- . Tool and equipment suppliers
- . Well logging and completion companies
- . Caterers
- . Firms providing labor and shop services
- . Platform and drilling rig construction firms
- . Port agency and/or terminal operator.

Table II-1 describes the roles of each of these major participants and provides comments concerning their need for shore facilities. Most of the participants require such facilities for storage or cargo handling operations or simply for access to the waterway. The platform and drilling construction firms generally perform their services at a shore base with the platform constructors operating on dedicated facilities while the drilling rig builders are generally shipyards that are often engaged in other forms of ship work. Table II-2 identifies a number of the leading firms in each of the major OCS sectors.

(2) The Major Oil Companies Have the Greatest Influence on the Shore Facility Siting Process

While each of the participants identified earlier has a requirement for some degree of shore facility support, the major oil companies or other principal owners of the oil producing rights exert the greatest influence on the facility siting decision. This is supported by the information presented in Table II-3. The key criteria employed by these firms in the facility siting decision are:

- . Geographic proximity to the lease area
- . Good relationship with local governments and institutions, e.g., labor

³ The first commercial offshore well was drilled in 1947 in the Gulf of Mexico by Kerr-McGee. The well is still producing in 1980.

TABLE II-1
Primary and Secondary Roles of OCS Participants

PARTICIPANT	PRIMARY ROLES	SECONDARY ROLES	COMMENTS
OIL COMPANY	1. Own drilling rights for lease. 2. Principal player in siting decisions for all support bases. 3. All costs for exploration; development and production are passed through to oil company.	1. At times assume proprietary control of support bases managing all logistics, material handling, shore labor, etc. (usually only during production phase).	Single most important sector of OCS industry for supply base siting decisions.
DRILLING CONTRACTOR	1. Lease rigs to oil companies for exploratory and some development drilling. 2. Provide offshore drilling labor (all phases). 3. Provide maintenance, and supplies for offshore rig and personnel.	1. In areas of high drilling activity (e.g., U.S. Gulf) also provide and manage their own waterfront supply bases.	Most capital intensive sector of OCS industry. Typical new semi-submersible drilling rigs cost from \$40 to \$60 million dollars.
DRILLING FLUIDS SUPPLIER	1. Sell drilling fluids (primarily mud) to oil company. 2. Often will maintain their own berthing facilities with adjacent mud tanks. 3. Provide technicians offshore.	1. Often try to gain competitive advantage by establishing support bases, providing shore labor, berthing, material handling, water, etc. This usually would happen during early stages of exploration.	Has substantial requirement for shore facilities. Due to highly competitive nature of this sector. Sector is only willing to pay limited port user fees.
CEMENTING AND STIMULATION SERVICES	1. Sell cement to oil company. 2. Often keep cement tanks and plant dockside on another company's supply base.	1. Provide technicians offshore.	Selection of cement company for contract to oil company is tied to rig installed equipment.
TRANSPORTATION COMPANIES	1. Lease boats and helicopters to oil companies. 2. Provide on-board personnel		Play very minor role in siting decisions.
TOOL COMPANIES AND EQUIPMENT SUPPLIERS	1. Sell tools and supplies to oil companies and drilling contractors.	1. Provide professional services offshore.	"Hardware Stores"; can be located some distance from actual port.
WELL LOGGING AND COMPLETION SERVICES	1. Sell specialized services to oil companies intermittently during offshore operations.		Highest technology sector of the OCS industry. Manufacture and maintain their own equipment.
CATERER	1. Sells consumable stores to offshore drilling contractor. 2. Provides catering services offshore.		Require refrigerated storage but can be located some distance from pier area.
LABOR AND SHOP SERVICES	1. Provide shoreside labor for material handling, boat loading, docking, etc. 2. Provide shop services such as welding, fabrication, testing, etc.	1. Also, provide roustabouts offshore.	Highest marine base employment generating sector.
CONSTRUCTION COMPANIES	1. Design, fabricates and installs offshore drilling and production platforms. 2. Designs and constructs offshore pipeline and onshore oil and gas production facilities.	1. Dredging, pile driving and general construction services. 2. Operate pipelaying, derrick and jet barges, as well as dredges used for oil field service.	1. Require extensive availability of water front acreage and significant transporting clearances ~ overhead, lateral and water depth 2. Highest employment concentration in OCS industry. Typical fabrication yard will employ between 1,000 and 2,000 people.
PORT AGENCY AND/OR TERMINAL OPERATOR	1. Own port facilities 2. Lease port facilities to or operate them for oil, mud, cement and transportation companies.	1. Aid industry participants in setting up their business and interfacing with governmental authorities and local community. 2. Provide shoreside labor for material handling, shop services, etc.	

Table II-2
Leading Firms in Major OCS Industry Sectors

OIL COMPANIES	DRILLING CONTRACTORS	DRILLING FLUIDS SUPPLIERS	CEMENTING AND STIMULATION SERVICES	TRANSPORTATION	TOOL AND EQUIPMENT SUPPLIERS	WELL LOGGING AND COMPLETION SERVICES	CATERERS	CONSTRUCTION COMPANIES
AMERADA HESS ASHLAND OIL AMOCO AMINOIL ARCO CHEVRON CITIES SERVICE CONOCO CROWN EXXON HOUSTON OIL MARATHON MOBIL PENNZOIL PHILLIPS SHELL SOHIO MURPHY SUNOCO SUPERIOR TENNECO TEXACO UNION	ATWOOD OCEANICS DIAMOND M. DIXIELYN GLOBAL MARINE ODECO OFFSHORE CO. PENROD POOL OFFSHORE READING & BATES ROWAN SANTA FE SEDCO TRANSWORLD DRILLING WESTERN OCEANICS ZAPATA OFFSHORE	DELTA MUO DRESSER MAGCOBAR IMCO MILCHEM NL BAROID OIL BASE INC.	BJ HUGHES DOWELL HALLIBURTON WESTERN CO.	MARINE ACADIAN MARINE BLACK GOLD MARINE OTTO CANDIES INC. CHERAMIE BROS. EURO PIRATES INC. GULF-MISSISSIPPI JACKSON MARINE OFFSHORE LOGISTICS SEANORSE, INC. SEAL FLEET STATE BOAT TIDEWATER ZAPATA MARINE AIR BRISTOW OFFSHORE LOGIS. PETROLEUM HELICOPTERS INC. (PHI)	A-Z INTERNATIONAL BIG THREE INDUSTRIES BROWN OIL TOOLS CAMERON OIL TOOLS DRESSER SECURITY HUGHES TOOL McJUNKIN TEXAS IRON WORKS	CRC WIRELINE DRESSER ATLAS SCHLUMBERGER WELEX	GENERAL MARINE OCEANIC BUTLER OFFSHORE FOOD SERVICE UNIVERSAL SERVICES	PLATFORMS AVONDALE CHICAGO BRIDGE ETPM-U.S.A. BROWN & ROOT J. RAY McDERMOTT WILLIAMS-McWILLIAMS RIGS AVONDALE BETHLEHEM STEEL BAKER MARINE INGALLS SHIPYARD LEVINSON SHIP MARATHON LE TOURNEAU

TABLE II-3
Role of Participants in Shore Facility Sitings

SECTOR	MOST IMPORTANT SITE REQUIREMENTS	INFLUENCE ON SITING DECISION
OIL COMPANIES	• GEOGRAPHICAL LOCATION TO MINIMIZE TRANSPORTATION COST TO RIG • GOOD RELATIONSHIP WITH LOCAL INSTITUTIONS TO INSURE "PROBLEM" FREE OPERATIONS • ADEQUATE FACILITIES FOR ALL SECTORS TO CONTROL COST OF SUPPORT OPERATIONS	VERY HIGH – MORE IMPORTANT THAN ALL OTHER SECTORS COMBINED (EXCEPT PLATFORM CONSTRUCTION)
DRILLING CONTRACTOR	• OFFICE FOR OPERATIONS CENTER • OPEN STORAGE FOR RIG EQUIPMENT	LOW
DRILLING FLUIDS	• PIER SPACE FOR BULK PLANT • OPEN STORAGE • COVERED STORAGE • FRESH WATER	MEDIUM
CEMENT SERVICES	• PIER SPACE FOR BULK PLANT • OPEN STORAGE • COVERED STORAGE	LOW
TRANSPORTATION COMPANIES	• GOOD BERTHING CONDITIONS • WATER DEPTH	VERY LOW
TOOL SUPPLIERS	• COVERED STORAGE NEAR PORT	NONE
WELL LOGGING AND TECHNICAL SERVICES	• COVERED STORAGE NEAR PORT	NONE
LABOR AND SHOP SERVICES	• COVERED STORAGE NEAR PORT	NONE
PLATFORM CONSTRUCTION	• EXTENSIVE FRONTAGE ON WATER • LARGE LAND AREA FOR ASSEMBLY • LABOR MARKET • RAIL AND TRUCK ACCESS • ADEQUATE TRANSPORT CLEARANCES FOR ASSEMBLIES	SOLE DECISIONMAKER FOR PLATFORM CONSTRUCTION

- . Adequacy of facilities⁴.

Thus the shore facility location decision is not based on rigorous criteria, and generally a number of alternatives are available to the decisionmaker.

(3) The OCS Market Contracts Somewhat and Has a Tendency Toward Greater Concentration as the Cycle Progresses From Exploration to Production

Figure II-2 presents an estimate of the annual operating budget associated with a typical OCS operation as it proceeds through the cycle. The figure shows that as the cycle progresses from exploration to production:

- . The annual budget declines
- . The oil company assumes more direct control of operating expenses, increasing from 22 percent during exploration to 84 percent during production.

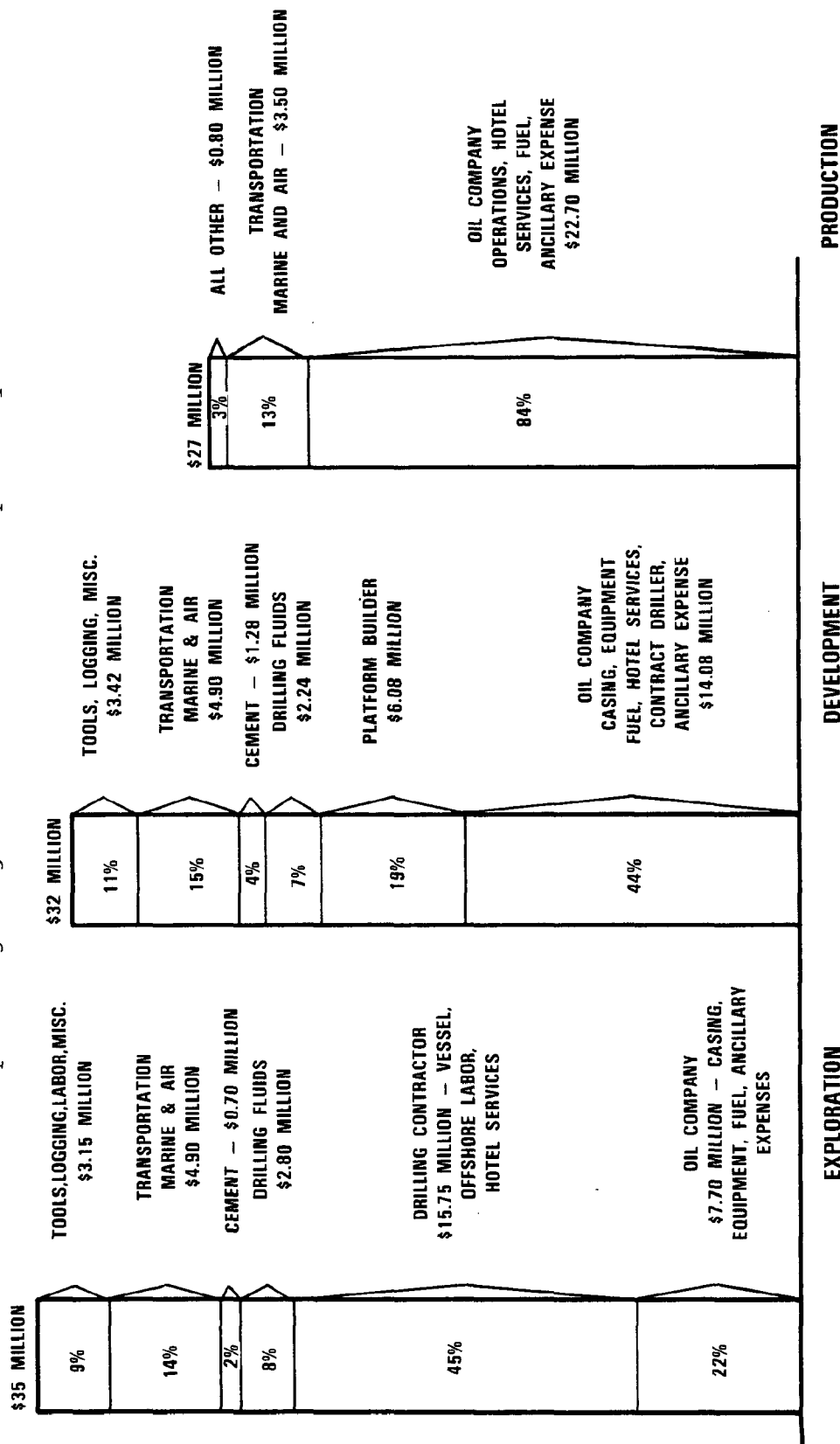
The figure indicates that the early activity of the many different segments of the OCS industry may be a misleading indicator of the size of and the driving forces behind the market.

2. THE OCS SUPPORT BASE SITING REQUIREMENTS ARE NOT STRINGENT, AND DAVISVILLE OFFERS FACILITIES CONSIDERABLY IN EXCESS OF NORMAL INDUSTRY REQUIREMENTS

In order to evaluate the suitability of Davisville in terms of the facility requirements of the OCS industry, it was necessary to compare Davisville with other active OCS support bases. During the course of this assignment profiles were developed for 8 other active OCS support bases. Summaries of five of these facilities are presented in Appendix C. A comparison of these facilities with Davisville is summarized below.

⁴ Platform construction site decisions are made independently of support base sitings. The builders make their decisions independent of the oil firms and have a more rigorous set of requirements for facility siting than those shown above.

FIGURE II-2
OCS Operating Budgets at Various Development Cycles



(1) There Is No Uniform Ownership, Operating or Funding Mechanisms For OCS Support Bases

During the course of the assignment, Davisville was compared with eight other facilities offering services to the OCS industry. These include:

- . Shell Oil's facility at Morgan City, LA
- . Cameron Offshore Services at Cameron, LA
- . Sabine Offshore Inc., at Sabine Pass, TX
- . Rig Tenders Docks at Kenai, Alaska
- . Newfoundland Offshore Services (Seabase) St. Johns, Newfoundland
- . Seaforth Maritime Ltd., Aberdeen, Scotland
- . Aberdeen Service Co. (ASCo.), Peterhead, Scotland
- . North Sea Exploration Services (Norsea), Stavanger, Norway.

Table II-4 compares the organization and ownership forms and funding sources used by these facilities with Davisville. The table indicates that there are no uniform methods of operating or financing facilities of this type. The table shows, however, that Davisville is similar in some respects to Port Manatee on the Gulf Coast of Florida and Port Hueneme in California.

(2) While No Uniform Standards Exist Concerning the Characteristics of OCS Support Facilities, Davisville Compares Favorably to Other Sites in Terms of Physical Characteristics

The portion of the Davisville facility that is potentially available as an OCS support base may be summarized as follows:

- . 5,000 linear feet of berthing space
- . 28 feet of water depth alongside
- . 110 acres of open space
- . 150,000 square feet of covered storage.

Table II-5 compares the facilities and services offered at Davisville with those at the eight OCS support bases identified earlier.

TABLE II-4
Comparison of Organizational and
Financing Forms for OCS Support Bases

FACILITY	TYPE	OWNERSHIP	SOURCE OF PRINCIPAL INVESTMENT FUNDS	ROLE OF PUBLIC AGENCY
SHELL, MORGAN CITY	PROPRIETARY/ EXCLUSIVE USE	LONG TERM LEASE FROM CITY	SHELL OIL	NONE
CAMERON OFFSHORE	TERMINAL OPERATOR	PRIVATE	PRIVATE FUNDS	NONE
SABINE PASS	TERMINAL OPERATOR	PRIVATE	PRIVATE FUNDS	NONE
PORT MANATEE	PORT AUTHORITY/ TENANTS	PORT AUTHORITY	PUBLIC BONDS	ALL OPERATIONS EXCEPT STEVEDORING
KENAI	TERMINAL OPERATOR	LONG TERM LEASE FROM STATE	OIL COMPANY CONSORTIUM	NONE
PORT HUENEME	PORT AUTHORITY/ TENANTS	PORT AUTHORITY	PUBLIC BONDS	ALL OPERATIONS EXCEPT STEVEDORING
SEABASE, ST. JOHN'S	PORT AUTHORITY/ TERMINAL OPERATOR	PORT AUTHORITY	PRIVATE FUNDS	MAINTENANCE & JURISDICTION OVER HARBOR
SEAFORTH, ABERDEEN	PORT AUTHORITY/ TERMINAL OPERATOR	PORT AUTHORITY	PRIVATE FUNDS	MAINTENANCE & JURISDICTION OVER HARBOR
ASCo, PETERHEAD	TERMINAL OPERATOR	PRIVATE	DEVELOPMENT GRANT FROM SCOTTISH GOV'T.	NONE
NOR SEA	TERMINAL OPERATOR	PRIVATE	DEVELOPMENT GRANT FROM NORWEGIAN GOV'T.	LICENSED TERMINAL OPERATOR BY NORWAY
DAVISVILLE	PORT AUTHORITY/ TENANTS	PORT AUTHORITY	PUBLIC BONDS	MAINTENANCE OF FACILITIES

The table shows that the facilities at Davisville would appear to be more extensive than others in the United States and are comparable with those in the North Sea. The table also illustrates that currently Davisville does not provide the services that are typically offered by the owner/operators of other facilities.

In order to determine the capability of Davisville to service the industry, a rating or ratio system was developed whereby Davisville can be compared with the other facilities serving the same function. Table II-6 provides a listing of minimum shoreside requirements to serve one offshore rig and against which the OCS bases can be compared. Comparing the physical characteristics of Davisville and the eight comparable facilities shown in Table II-5 with the minimum requirements for dock frontage,

TABLE II-5
Physical and Service Characteristics of Nine OCS Support Facilities

BASE	OFFSHORE UNITS	TOTAL ACRES	BERTHS			STORAGE		FACILITIES						SERVICES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
			Number	Frontage	Depth	Open	Covered	Mud	Cement	Water	Fuel	Power	Rail	Labor	Shop	Logistics	Schedule																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
SHELL	15	42	7	1300 ft.	20 ft.	35 acres	14K sq.ft.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						</

1 - REMOTE STORAGE
2 - ADD'L 100 ACRES REMOTE STORAGE
3 - ONLY 3 BERTHS AT ALL STAGES OF TIDE

open storage and covered storage shown above in Table II-6 results in certain capacity indices as shown in Table II-7⁵.

The overall capacity index in the table is derived by giving the dock frontage ratio a weighting of three and the open and covered storage ratios a weighting of one each.

It is apparent from the data presented in the three previous tables that at least in terms of docking space, open storage and covered storage, the Davisville facility is more extensive than other facilities serving the OCS industry.

TABLE II-6
Minimum Support Base Requirements to
Serve One Offshore Drilling Unit

REQUIREMENT	AMOUNT
DOCK FRONTAGE	200 FT.
OPEN STORAGE	3 ACRES
COVERED STORAGE	20,000 FT. ²
WATER DEPTH ALONGSIDE	16 FT.
OTHER	FRESH WATER FUEL ROAD ACCESS

Another way to examine the ability of the Davisville piers to support the OCS requirements is to develop a simple berthing plan. Figure II-3 shows a proposed berthing plan for Davisville under maximum congestion conditions. The figure shows that up to 47 offshore supply, crew and work boats can be berthed simultaneously at Davisville if necessary. This indicates that as many as 30 offshore drilling units can be supported from Davisville given the existing facilities.⁶

⁵ The capacity indices are developed by dividing the actual characteristics of a facility with the minimum required to support one rig.

⁶ As a general rule of thumb, two supply boats are used to support one offshore rig.

FIGURE II-3
Proposed OCS Berthing Plan

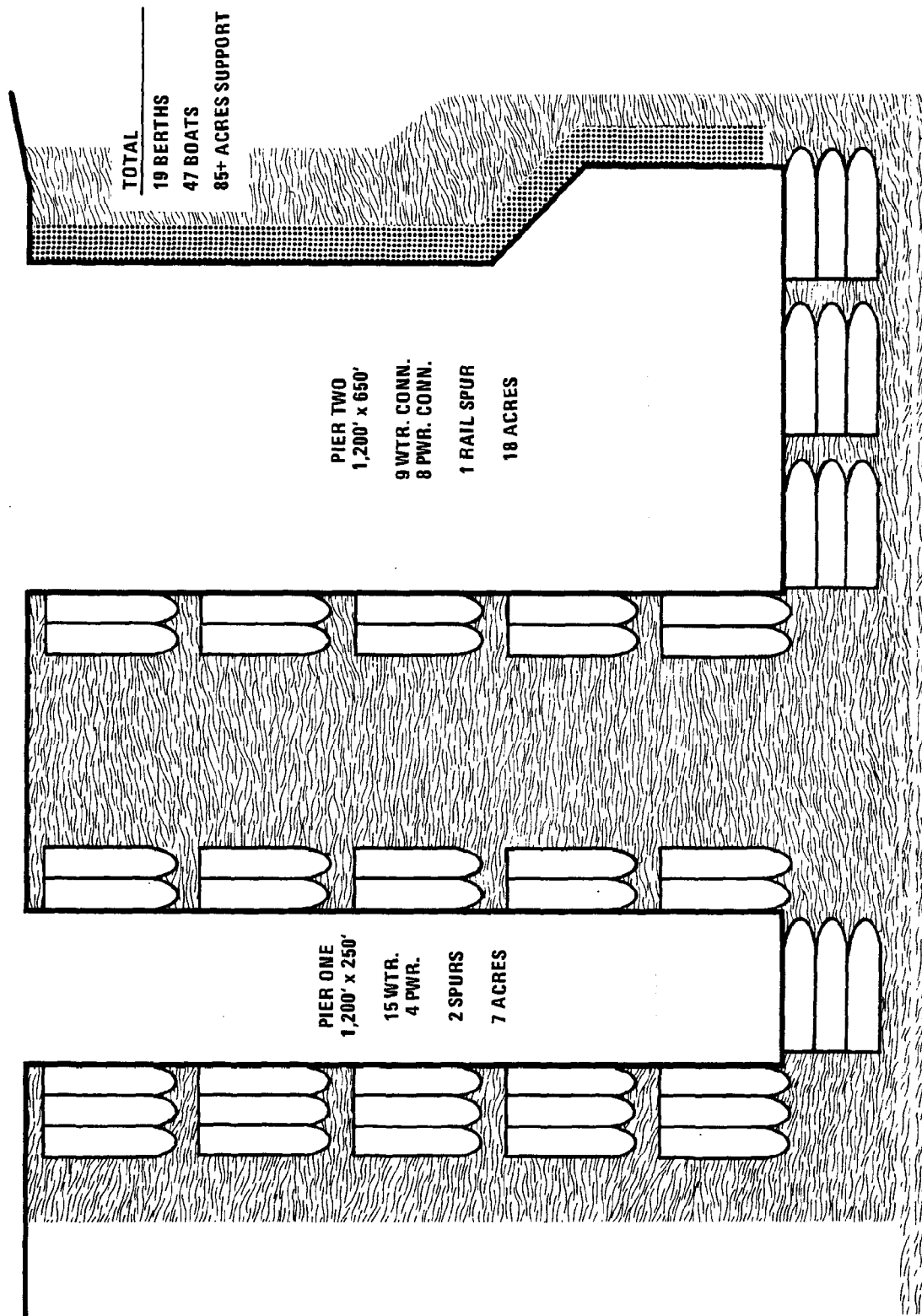


TABLE II-7
Capacity Indices for Nine OCS Support Facilities

FACILITY	DOCK FRONTAGE RATIO	OPEN STORAGE RATIO	COVERED STORAGE RATIO	CAPACITY INDEX
SHELL	6.5	11.7	0.7	31.9
CAMERON	12.0	13.3	1.0	50.3
SABINE	9.0	6.0	3.0	36.0
KENAI	5.0	2.3	1.5	18.8
SEABASE ST. JOHN'S	3.2	5.0	1.7	16.3
SEAFORTH ABERDEEN	3.3	13.3	-	23.2
ASCo PETERHEAD	5.0	5.0	7.5	27.5
NOR SEA STAVANGER	15.0	36.7	25.0	106.7
DAVISVILLE	25.0	30.0+	7.5+	112.5+

(3) While There Are Opportunities For Revenue Growth at Davisville, OCS Port Revenue Potential Is Limited

An examination was made of the revenue generation characteristics and potential of the eight OCS bases analyzed during the study. The results of the examination were compared with the existing situation at Davisville to determine revenue growth potential. Finally, findings are forwarded concerning the overall revenue potential of a port serving the OCS industry.

1. OCS Support Bases Generate Revenue From a Variety of Sources

Figure II-4 identifies the various sources of revenues for OCS support bases analyzed in the study. The figure shows that the bases generate revenue through the provision of a variety of facilities and services. The figure shows that Davisville generates revenue from a more limited number of sources when compared to similar facilities. Table II-8 presents a table of charges at the various facilities.

2. The Potential OCS Revenue at Davisville Is Considerably Less Than That at Other Facilities Given Existing Pricing Practices

In order to determine the total OCS revenue potential at Davisville and compare the results with similar facilities, Table II-9 presents the annual revenues that would result from supporting a single drilling operation. The table is developed based on the table of charges shown in Table II-8 plus an estimate of the activity that would be required to support the drilling of a single well. All of the revenue items were summarized into four categories.

The table may be summarized as follows:

- The revenue potential of an OCS support base is limited. The table indicates that the average port revenue is approximately \$73,000 per well per year.⁷

FIGURE II-4
Revenue Items at 11 OCS Support Facilities

	HARBOR DUES	DOCKAGE	WHARFAGE	DEMURAGE	WATER	FUEL	MUD	CEMENT	OPEN STORAGE	COVERED STORAGE	OFFICE	LABOR	SHOP SERVICES	MAT'L HANDLING EQUIPMENT
SHELL, MORGAN CITY														
CAMERON OFFSHORE						•	•		•	•	•	•		•
SABINE OFFSHORE			•		•	•			•	•	•	•		•
PORT MANATEE		•	•		•				•	•	•			
KENAI		•	•		•				•	•	•	•		•
PORT HUENEME		•	•	•	•				•	•	•			
SEABASE	•	•	•	•					•	•	•	•	•	•
SEAFORTH, ABERDEEN	•		•	•	•				•	•	•	•	•	•
ASCo, PETERHEAD		•	•		•	•			•	•	•	•	•	•
NorSea	•	•			•	•			•	•	•	•	•	•
DAVISVILLE					•				•	•	•			

⁷ If Kenai, Norway and Davisville were removed, the average port revenue would be \$48,000 per well.

TABLE II-8
Schedule of OCS User Charges

FACILITY	AGAINST BOAT		AGAINST CARGO				WATER	OTHER			COMMENTS
	HARBOR DUES	DOCKAGE	WHARFAGE		DEMMURAGE			OPEN	RENTALS		
			DCS	BULK	RATE	FREE TIME			COVERED	OFFICE	
CAMERON	-	-	-	-	-	-	FREE	NEGOTIATED			REVENUE COMES FROM LABOR, MATERIAL HANDLING AND SALE OF MUD AND FUEL
SABINE	-	-	\$5/TON	-	-	-	0.55/TON	0.06¢/MO.	NEGO.	0.50¢/MO.	ADDITIONAL REVENUE FROM LABOR AND MATERIAL HANDLING.
MANATEE	COMBINED \$400/BOAT/MONTH				0.11 PER TON 0.20 PER TON	10 DAYS	0.70/TON	0.0057/¢ PER MONTH	0.13¢/MO	N.A.	
KENAI	-	\$180/DAY	\$3/TON	\$3/TON	-	-	\$300/BOAT PER MONTH	0.10¢/MO.	0.40¢/MO	0.20¢/MO.	ADDITIONAL REVENUE FROM LABOR
HUENEME	-	\$1000/MO.	\$2.45/TON	\$25/TON	0.60/TON 1.20/TON	5 DAYS	0.20/TON	0.021¢/MO	0.15¢/MO	N.A.	
ST. JOHN'S	\$20/CALL	\$40/DAY	\$1.55/TON	\$92/TON	0.75/TON 1.50/TON	8 DAYS	-	0.10¢/MO.	0.22¢/MO		
SCOTLAND	\$460/CALL	-	\$2.20/TON	\$1.90/TON			\$0.18/TON				
NORWAY	\$110/CALL	\$100/DAY	-	-	-	-	0.60/TON	0.60¢/MO.	0.06¢/MO.	N.A.	ADDITIONAL REVENUE FROM MATERIAL HANDLING AND LABOR.
DAVISVILLE	-	-	-	-	-	-	\$0.17/TON † + \$1000 PER MONTH	0.0053¢/MO.	0.06¢/MO.	0.25¢/MO.	ADDITIONAL SERVICE FEE FOR WATER APPROX. \$1000/MO.

I This estimate is based on a relatively low level of usage and would be less per unit as volume increases.

Revenue at Davisville (which is based on existing charges) is only two-thirds of the revenue of the facility with the next lowest total revenue.

Consequently while there is an opportunity to increase revenues at Davisville, it appears that the total revenue potential of an OCS support facility is limited. This is illustrated further in the next section.

3. While Port Revenues Represent a Very Small Share of Total OCS Development Costs, the Potentially Large Number of Alternative Sources of Supply Places Considerable Pressure on Port Pricing

Figure II-5 is a cost tree that represents the cost to drill one exploratory well. The figure

TABLE II-9
Estimate of Annual Revenue Accrued
by OCS Facilities in Support of
Exploratory Drilling of One Offshore Well

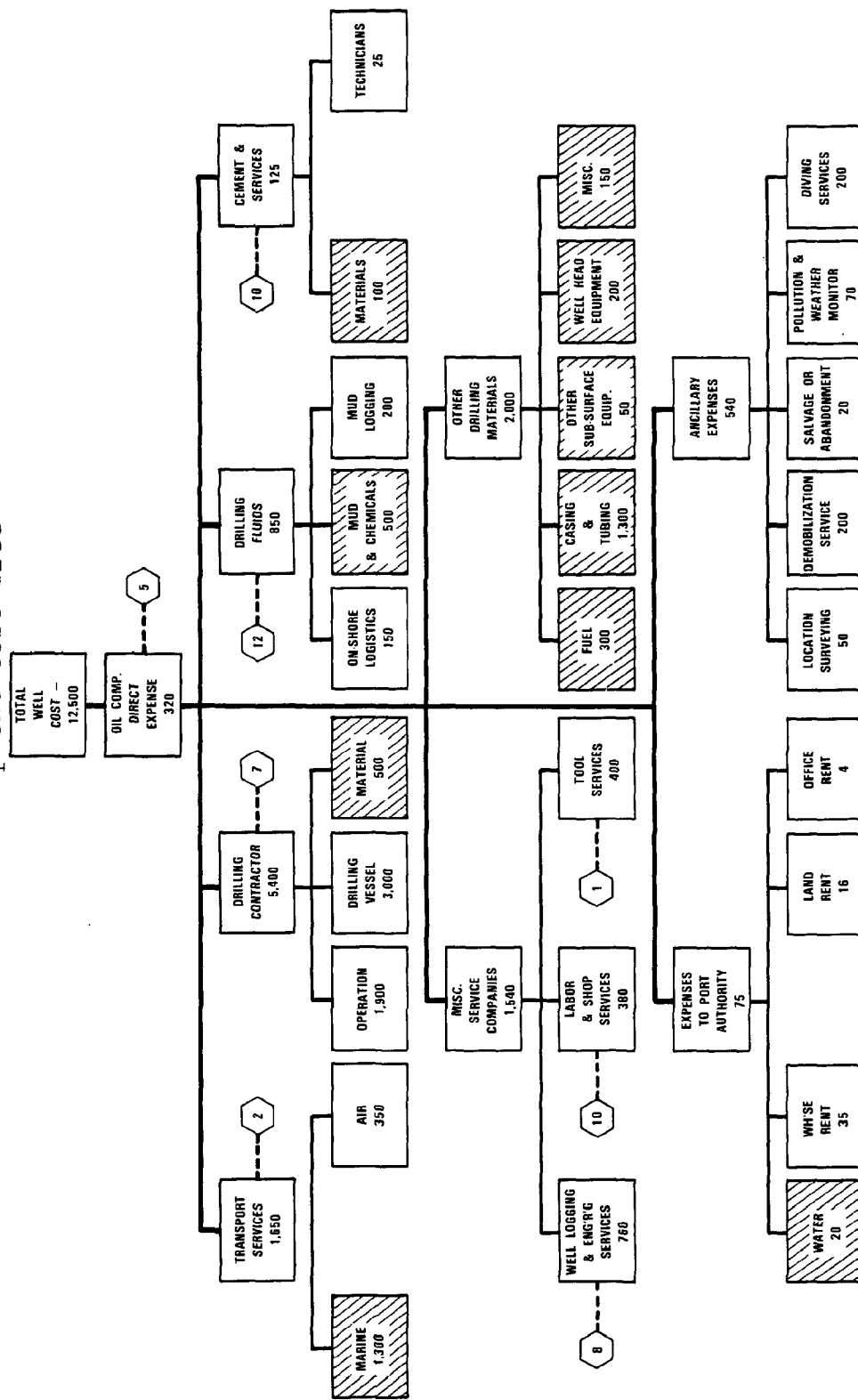
FACILITY	AGAINST BOAT	AGAINST CARGO	WATER	RENTALS	TOTAL
SABINE	-	\$4,500	\$2,750	\$41,320	\$48,500+
MANATEE	\$4,800	-	\$3,500	\$34,175	\$42,475
KENAI	\$32,490	\$10,800	\$3,600	\$148,200	\$195,000
HUENEME	\$12,000	\$2,880	\$1,000	\$46,962	\$66,134
ST. JOHN'S	\$9,120	\$3,879	-	\$26,250	\$39,249
SCOTLAND	\$44,160	\$7,110	\$1,000	N.A.	\$52,270+
NORWAY	\$28,560	-	\$3,000	\$93,720	\$125,280
DAVISVILLE	-	-	\$4,850	\$22,166	\$27,016

N.A. - NOT AVAILABLE

indicates that of the \$12.5 million it costs to drill the typical exploratory well:

A port authority or terminal owner/operator would receive revenue of up to \$130,000, or

FIGURE II-5
OCS Development Cost Tree



EXPENSES BY EACH SECTOR
PAID TO PORT AUTHORITY
MATERIAL POSSIBLY SUBJECT
TO DOCKAGE OR WHARFAGE

1 percent of the total cost of the well. This revenue would typically be generated from the following sources:

- \$55,000 in rents from the project manager
- \$20,000 for water
- \$55,000 in payments from subcontractors and suppliers.

- . Approximately \$4.4 million in materials and supplies would be subject to a wharfage fee or other user charges levied by the port authority or terminal operator.

Overall the total revenue potential of a public agency involved in OCS support operation would be small.

The ability of a port facility to increase total revenue through increases in unit charges is limited by the ease of entry into the field. Such ease of entry due to the limited capital investment required places a ceiling on the level of rates that can be charged by such operations.

4. The OCS Revenue Potential of Davisville During the Exploratory Phase Will Vary From Less Than \$500,000 Per Year During Periods of Low Activity to Over \$2 Million During Years of High Activity

Figure II-6 presents a schedule of OCS activity at both Georges Bank and Baltimore Canyon during the 1980s⁸.

The figure indicates that the existing facilities at Davisville should be adequate to handle the expected demand during the exploration period (refer to the earlier berthing plan--Figure II-3).

⁸ The figure is developed based on expected exploration of lease sales 40, 49, 59 and 76 at Baltimore Canyon and lease sales 42, 52 and 82 at Georges Bank. Further it assumes a rig will drill 3-4 holes per year and each will be supported by 2-3 boats.

Figure II-6 can be expressed in terms of total revenue by combining it with the revenue estimates developed for a typical well (Table II-9). The following Figure II-7 presents such an estimate for Davisville as well as the comparative ports at Manatee and Port Hueneme.

FIGURE II-6
Planned Levels of OCS Support
Activities at Davisville to 1990

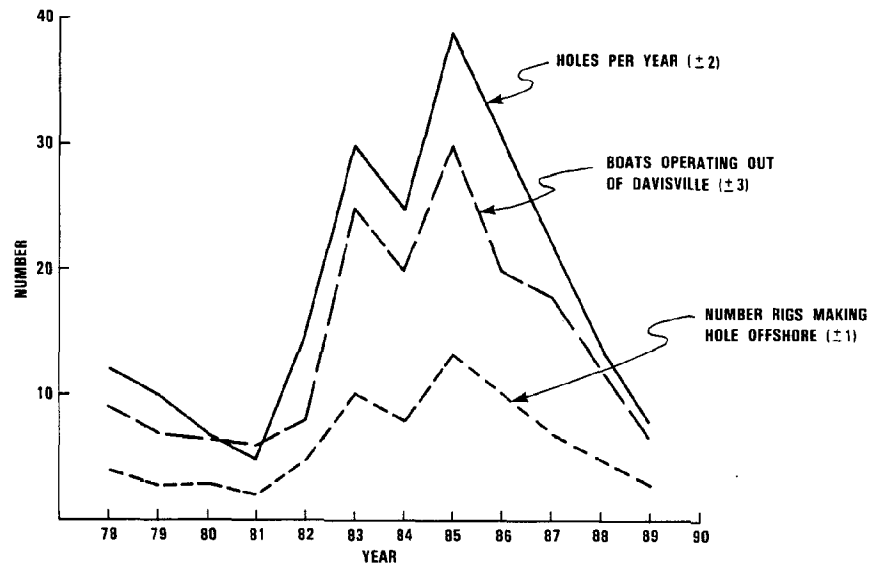
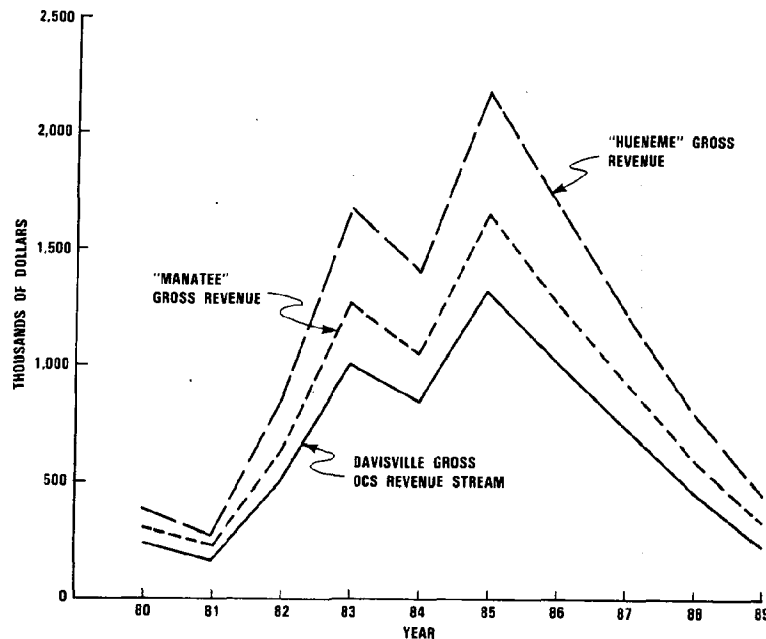


Figure II-7 indicates that depending on the pricing action that is taken by RIPAEDC at Davisville annual revenue could be less than \$500,000 per year during periods of low activity (regardless of the unit pricing action that is taken) and could be greater than \$2 million per year during periods of high activity (if prices are raised to Hueneme levels and assuming that a variable pricing policy is adapted). The figure also underscores the need for replacement revenue as exploration declines during the latter 1980s. Such replacement revenues would be expected to be generated from more fixed sources during the development and production phases.

* * * * *

FIGURE II-7
Davisville Revenue Potential From
OCS Sources During Exploration Phase



In this chapter the impact of OCS operations at the Baltimore Canyon and Georges Bank on the Port of Davisville and the Rhode Island Port Authority and Economic Development Corporation has been treated. The following major conclusions have been developed:

- The OCS industry is a diverse and highly specialized sector of the petroleum industry. While a large number of participants are evident during the exploratory phase, activities are concentrated around the major oil companies during the development and production phases.
- The requirements of an OCS base are not stringent. Consequently existing facilities range from large dedicated facilities in the North Sea to smaller ad hoc facilities on the U.S. Gulf of Mexico.
- In terms of industry requirements, Davisville has the potential to be a superior support facility.
- Based on industry practice, Davisville has the potential to increase its revenues realized through OCS operations. The total revenue potential of the industry is, however, limited due to the competitive nature of the industry caused by ease of entry.

The limited revenue potential coupled with the highly uncertain outlook for outer continental shelf development off the East Coast warrants an investigation into other potential business opportunities for Davisville. In the next chapter of this report, some commercial cargo business opportunities are identified and evaluated.

III. THE IMPLICATIONS OF THE COMMERCIAL CARGO MARKET ON FUTURE MANAGEMENT ALTERNATIVES AT DAVISVILLE

III. THE IMPLICATIONS OF THE COMMERCIAL CARGO MARKET ON FUTURE MANAGEMENT ALTERNATIVES AT DAVISVILLE

The second development alternative for RIPAEDC to consider for Davisville is to diversify into commercial cargo activity. This chapter will address the commercial cargo options for Davisville. The chapter is organized in the following sequence:

- . Identification of the participants in the commercial market and alternate roles for port agencies
- . Description of the commercial cargo market, its facility requirements and areas of opportunity for Davisville
- . Review of the Port of Providence's role in the market and potential conflicts with Davisville
- . Evaluation of the revenue potential and economic impact of potential commercial markets.

At the end of the chapter, the implications of the commercial market on development alternatives for Davisville will be presented.

1. THE ROLES OF PORT AGENCIES AND OTHER PARTICIPANTS VARY SIGNIFICANTLY IN COMMERCIAL CARGO ACTIVITY

The functions performed by port agencies vary from port to port and by type of cargo. The functions of other participants in commercial cargo activity also varies by cargo type and port. An understanding of these alternate roles is important in understanding the commercial market.

(1) The Involvement of Port Agencies in Commercial Cargo Operations Ranges From a "Hands Off" Landlord Approach to Total Operating Responsibility

Port agencies perform alternate functions in the commercial cargo market. The alternate roles generally fall into three categories as follows:

- . Landlord
- . Operating port authority
- . Semi-operating port authority.

The landlord port authority owns the port property and leases it to terminal operators or other users.

The operating port agency owns the port property and operates all or part of the facilities. A semi-operating port administration owns the port property but performs only partial operating functions such as operating major cargo handling equipment. The alternate roles of port agencies are described in Table III-1.

TABLE III-1
Alternative Roles for the Port Authority

ROLE	DESCRIPTION
LANDLORD	OWN PROPERTY AND NEGOTIATE LEASES TO TERMINAL OPERATOR OR PRIVATE USERS
OPERATING PORT AUTHORITY	OWN PROPERTY MANAGE TERMINAL OPERATE STORAGE FACILITIES CONTRACT IN STEVEDORING LABOR BERTHS ASSIGNED ON A FIRST COME, FIRST SERVED BASIS
SEMI-OPERATING	PROVIDE MATERIAL HANDLING EQUIPMENT CONTROL MATERIAL HANDLING EQUIPMENT ASSIGN BERTHS AND ARRANGE PREFERENTIAL BERTHING

All public port agencies involved in the commercial cargo market perform a marketing function and are involved with promotional activities as well.

(2) Port Organizations in New England Are Generally Agencies of State Government But Have Widely Varying Roles in the Overall Port Operations

Most port organizations in the New England area are legal entities of the state. The exceptions to this include Providence, which is a city department or agency, and two ports in Connecticut which are privately owned.

Both the landlord and operating type of port administration exist in New England. The Massachusetts Port Authority is the only operating port agency in New England.

The legal and operational nature of the New England ports is presented in Table III-2. The table also shows the legal and operational nature of the four major Atlantic Coast ports.

(3) Other Participants in the Commercial Cargo Market
Range From Shipper to Vessel Operator and Their
Functions Vary by Cargo Type

The participants in the commercial cargo distribution chain are shown in Table III-3. The shipper or consignee represents the cargo interest and generally owns the cargo. The shipper/consignee role ranges from no investment in port facilities and simply booking their cargo on a common carrier (general cargo) to owning and operating port facilities and vessels as in the case in some bulk cargoes. In the case of neobulk cargoes⁹, shippers often invest in sites or facilities at the port. Neobulk shippers often charter whole or parts of vessels.

The stevedore or terminal operator usually represents the manager and operator of terminal facilities and dock operations for commercial cargo. For general and neobulk cargoes, the terminal operator is often a tenant of the port authority. However, the port authority functions as the terminal operator in some ports. The shipper or consignee of bulk cargoes can function as terminal operator.

The longshoremen are laborers who load or discharge the cargo to/from the vessel. Union labor is usually used for general and neobulk cargoes while non-union labor is often used for bulk cargo activity.

The vessel operator as a participant in commercial cargo ranges from a regularly scheduled common carrier to charter operations and proprietary fleets. The regularly scheduled common carriers attract the general cargo. Semi-regular charter or contract operators attract the neobulk cargo while proprietary or charter fleets carry almost all bulk commercial cargoes.

In this section the participants and their functions in the commercial cargo market were reviewed. The role of port agencies in this market was shown to vary from little involvement to full operational responsibility. The next section of this chapter will address the market, its facility requirements and potential opportunities for Davisville.

⁹ Neobulk refers to general cargo that moves in large unit volumes and often uses chartered vessels rather than common carriers.

TABLE III-2
Port Administrations of Selected Ports

PORT	PORT AUTHORITY	LEGAL ENTITY	NATURE OF OPERATIONS
<u>New England Ports</u>			
Boston, Mass.	Massachusetts Port Authority	Quasi-State	Operating
Fall River, Mass.	Fall River Line Pier, Inc.	Quasi-Municipal	Landlord
New Bedford, Mass.	State Division of Waterways	State	Landlord
	Harbor Development Commission	City	Landlord
Portsmouth, N.H.	New Hampshire Port Authority	State	Landlord
Searsport, Maine	Bangor and Aroostook Railroad	Private	Operating
	Department of Transportation, Bureau of Waterways	State	Marketing Only
Portland, Maine	DOT, Bureau of Waterways	State	Landlord
Providence, R.I.	Department of Public Works	City	Landlord
New London, Conn.	DOT, Bureau of Waterways	State	Landlord
New Haven, Conn.	(New Haven Terminal Pier)	Private	—
Bridgeport, Conn.	(CILCO Terminal)	Private	—
<u>Other Major Atlantic Ports</u>			
New York, N.Y.	Port Authority of New York and New Jersey	State	Landlord
	New York City Dept. of Ports and Terminals	City	Landlord
Philadelphia	Philadelphia Port Corp.	Private	Landlord
	Delaware River Port Authority	Regional	Marketing Only
Baltimore	Maryland Port Administration	State	Semi-Operating
Hampton Roads	Virginia Port Authority	State	Landlord

TABLE III-3
Participants in Commercial Cargo Market by Type of Cargo

SECTOR	TYPE OF CARGO	BREAK BULK & CONTAINER	NEO-BULK	BULK
SHIPPER/CONSIGNEE		- ROUTING DECISIONS FOR ALL CARGO - LITTLE INVESTMENT IN PORT FACILITIES	- MAKE ROUTING DECISIONS FOR CARGO/INFLUENCE SITING DECISIONS FOR PORT FACILITIES - INVEST IN PORT FACILITIES - USUALLY CHARTER WHOLE OR PART OF VESSEL	- SITING DECISIONS FOR PORT FACILITIES - HEAVY INVESTMENT IN PORT FACILITIES - LEASE OR OWN PORT FACILITY - CHARTER OR OWN SHIPS
STEVEDORE/TERMINAL OPERATOR		- MANAGER OF MULTIPLE USER FACILITY - TENANT OF PORT AUTHORITY OR PORT AUTHORITY ASSUME DIRECT OPERATION	- MANAGER OF FOCUSED USE FACILITY - CAN BE PRIVATE OWNERSHIP OR LONG TERM LEASE WITH STATE OR PORT AUTHORITY	- MANAGER OF SINGLE PURPOSE FACILITY - OPERATING RESPONSIBILITY OFTEN ASSUMED BY SHIPPER/CONSIGNEE
LONGSHOREMEN		"HIRING HALL" LABOR SUPPLIED ON DEMAND - FIXED GANG SIZES, 20-25 MEN	- UNIONIZED OR NONUNION LABOR SUPPLIED ON CONTRACT BASIS - GANG SIZES TAILORED TO COMMODITIES	- USUALLY PRIVATE LABOR - MINIMUM GANG SIZES FOR SPECIAL COMMODITIES
VESSEL OPERATOR		- COMMON CARRIER - REGULAR SCHEDULES - INFLUENCE SHIPPER ROUTING DECISIONS	- SPACE CHARTERS OR CONTRACTS OF AFFREIGHTMENT - SEMI-REGULAR SCHEDULES	- CHARTER ARRANGEMENTS OR PROPRIETARY FLEETS - IRREGULAR SCHEDULES

2. CONTAINERS, AUTOMOBILES AND STEEL PRODUCTS REPRESENT THE MAJOR COMMERCIAL CARGO OPPORTUNITIES FOR THE PORT OF DAVISVILLE

Certain types of commercial cargoes are suitable to Davisville and represent areas of opportunity. This section describes the New England commercial cargo market. The physical characteristics and facility requirements of the different types of commercial cargo are described to identify opportunity areas for Davisville.

(1) The New England Commercial Cargo Market Is Estimated to Be in Excess of 84 Million Tons

The New England commercial market by cargo type is presented in Table III-4.

TABLE III-4
New England Commercial Cargo Market
(Thousands of Tons)

CARGO TYPE	ESTIMATED ANNUAL TONNAGE
BULK	82,000 - 85,000
NEOBULK	1,400 - 1,700
GENERAL	700 - 1,000
TOTAL	84,100 - 87,700

The market is estimated at more than 84 million tons. Table III-5 shows the commercial cargoes handled at New England ports in 1978. Table III-5 will be referred to throughout the following discussion of the market.

1. Bulk Cargoes Represent 97 Percent of the Commercial Market and Generally Move Through Proprietary Terminals

Bulk cargoes are by far the largest sector of the commercial market accounting for 97 percent of the tonnage. Bulk cargoes generally move through proprietary terminals rather than through public terminals. Bulk cargoes have a low value per ton and thus require a low freight cost. Bulk cargo is loaded/discharged as close as possible to its source or use point. The lot sizes of these cargoes are generally full vessel load.

TABLE III-5
Commercial Cargoes Handled at New England
Ports, 1978

PORT COMMODITY	SEASPORT	PORTLAND	PORTSMOUTH	BOSTON	FALL RIVER	NEW BEDFORD	PROVIDENCE	NEW LONDON	NEW HAVEN	BRIDGEPORT	TOTALS
Bulk Commodities											
Petroleum	1,076	22,120	2,864	23,545	4,771	113	7,190	2,618	10,320	3,047	77,864
Chemicals	31	—	—	89	35	—	20	75	508	—	758
Building Materials	20	—	158	480	—	20	242	—	103	100	1,132
Scrap	—	—	—	619	—	—	514	—	173	24	1,330
Salt	159	—	198	109	—	—	85	—	—	—	551
Sugar & Molasses	—	—	—	437	—	—	—	77	—	—	514
Nonmetallic Minerals	—	—	—	—	—	—	25	—	—	46	71
Neo Bulk Commodities											
Steel Products	—	—	85	32	—	2	195	—	175	370	859
Forest Products	12	14	—	134	—	—	114	42	82	38	436
Metals and Ores	14	—	—	64	—	—	—	—	45	106	229
Automobiles	—	—	—	63	—	—	68	—	—	—	131
General Cargo Commodities											
Food and Beverages	18	—	—	102	—	16	—	3	—	—	139
Fish Products	—	17	—	88	—	67	—	—	—	—	172
Machinery & Manuf. Goods	—	15	—	103	—	2	5	—	1	1	127
Rubber	—	—	—	14	14	—	—	—	—	—	28
Textiles	—	—	—	11	—	2	—	23	—	—	35
Other	—	—	—	183	—	4	2	1	1	4	194
Totals	1,339	22,165	3,305	26,073	4,820	226	8,459	2,839	11,408	3,736	84,370

* General cargo liftings at Providence do not reflect the container feeder service begun in October 1979.

Source: Waterborne Commerce Statistics, 1978

Petroleum and petroleum products represent 95 percent of New England's commercial bulk cargoes and 92 percent of all commercial cargoes. Petroleum and its products are handled at each of the ten New England ports. This cargo moves through proprietary facilities sited at the port to reduce cost and handling.

The other major bulk commodities in this market include iron and steel scrap, cement and various chemicals.

2. Neobulk Cargoes Represent 2 Percent of the Commercial Market and Move Through Both Private and Public Terminals

The neobulk cargoes moving into New England represent 2 percent of the commercial market. Neobulk commodities move through private and public terminals in lot sizes of 1,000 to 8,000 tons. The value per ton of cargo varies in this sector with some cargoes of high value.

Four commodities comprise the New England neobulk market. These commodities are steel products, forest products, metals and ore and automobiles. The tonnages of each commodity group were shown in Table III-5. In this market, metals and ores are exclusively proprietary movements through private terminals.

The state of ultimate origin and destination of the three main neobulk cargoes are presented in Table III-6. The origin/destination represents the inland location the cargo moves to or from as opposed to the ocean port the cargo moved through. The largest proportion (33 percent) of automobile imports are actually destined for the State of Rhode Island. Of the steel products moving into New England, only 1 percent of the tonnage is destined for Rhode Island.

TABLE III-6
State of Origin/Destination of New England
Neobulk Cargoes, by Percentage of Total Tonnage

COMMODITY	STATE OF ORIGIN/DESTINATION					
	MAINE	NEW HAMPSHIRE	VERMONT	MASSACHUSETTS	RHODE ISLAND	CONNECTICUT
FOREST PRODUCTS	32%	7%	8%	26%	13%	14%
STEEL PRODUCTS	—	10%	—	14%	1%	75%
AUTOMOBILES	3%	3%	3%	32%	33%	27%

Source: Domestic and International Transportation of U.S. Foreign Trade: 1976, Bureau of the Census.

Table III-7 shows these percentages converted to approximate tonnages originated or destined in Rhode Island. These tonnages indicate which neobulk cargoes are more susceptible to movement over a Rhode Island port.

TABLE III-7
Rhode Island Originated/Destined Neobulk Cargoes
(Tonnages are in Thousands)

COMMODITY	ESTIMATED TOTAL MARKET	% ORIGINED/ DESTINED TO RHODE ISLAND	ESTIMATED RHODE ISLAND TONNAGE
FOREST PRODUCTS	440	13%	57.2
STEEL PRODUCTS	860	1%	8.6
AUTOMOBILES	135	33%	44.6

3. General Cargo Represents 1 Percent of the Commercial Market and Moves Through Public Terminals Almost Exclusively

New England general cargo equals 700,000 to 1 million tons annually and represents 1 percent of the commercial cargo market. Almost all general cargo moves through public, common user terminals. The general cargo market is made up of a variety of commodities and is generally categorized as containerized and breakbulk cargo. General cargo movements have lot sizes ranging from less than one ton to several hundred tons.

General cargo has a relatively high value per ton and can be moved over long distances to/from its origin/destination point. General cargo tends to consolidate at one or few ports to allow efficiencies in common carrier services. As shown in Table III-5, almost all general cargo moving over New England ports moves through the Port of Boston. However, the 1978 data does not reflect Providence liftings of general cargo with its current container feeder service which began in October 1979.

The general cargo that moves via the New England ports is not all of the general cargo that moves into the New England region. A considerable amount of cargo, particularly in containers, move into New

England from Canadian ports, New York and West Coast ports via minilandbridge.¹⁰ These large ports offer a level and frequency of ocean service that are difficult to compete with.

The ultimate origin/destination of the New England general cargo is shown in Table III-8. Approximately 8 percent of the general cargo tonnage is destined or originated in Rhode Island. This equates to 56 to 80 thousand tons of general cargo per year moving to or from Rhode Island.

TABLE III-8
Origin/Destination State
of New England General Cargo

STATE	AS % OF NEW ENGLAND GENERAL CARGO
MASSACHUSETTS	72%
MAINE	1%
NEW HAMPSHIRE	3%
VERMONT	4%
RHODE ISLAND	8%
CONNECTICUT ¹	12%

¹ Southwest Connecticut excluded as that tonnage cannot be compared by New England ports.

Source: Journal of Commerce ISIS/EXIT Statistics.

This section has described the New England commercial cargo market. The operating requirements of commercial cargoes will be addressed next in order to identify opportunity areas for Davisville.

(2) The Facility Requirements of Many Commercial Cargoes May Prohibit Their Movement Via Davisville

The facility requirements of the various commercial cargo types are presented in Table III-9. These requirements fall into three categories and vary by cargo type:

- . Terminal requirements
- . Specialized equipment requirements
- . Waterside requirements.

¹⁰ Minilandbridge is a joint intermodal movement by rail and water carriers where the port range closest to the overseas trade area is selected as the port of exit or entry.

The terminal requirements relate to the type of terminal facilities and handling equipment needed to handle the cargo. These requirements include type of storage, access to domestic transportation and size of terminal apron. Terminal requirements are the responsibility of all operating and landlord port agencies.

Specialized equipment refers to equipment used to handle one, or a select group, of cargoes. The need for specialized equipment is greatest for bulk commodities. General and neobulk cargoes require special equipment to a lesser degree. Port authority involvement in providing special equipment varies. Often cargoes with these requirements move through proprietary terminals or leased terminals. Some port administrations do provide special handling equipment and special facilities such as grain elevators.

Waterside requirements reflect the water depth and berth size needs of the vessel. The responsibility for these characteristics rests with the port authority or terminal owner and the U.S. Army Corps of Engineers¹¹.

The operational requirements of the cargoes in the New England commercial market were presented in Table III-9. Those requirements will not be elaborated upon except as they represent potential constraints for the Port of Davisville. The next section discusses the Davisville constraints and identifies areas of potential opportunity.

(3) The Present 29-1/2 Foot Water Depth Alongside the Pier at Davisville Will Limit the Market to Three Commodities

The 29 1/2 foot water depth at the pier is Davisville's constraining factor in the commercial cargo market. All other operational requirements are presently met or could be met with capital investments in facilities and equipment. Table III-10 outlines the capital investments required to serve the major commercial cargoes. It is assumed that the specialized equipment needs of the bulk cargoes would be met by private investment if such cargo were to move via Davisville.

¹¹ The Corps is responsible for the depth of the channel, while the local authority is responsible for the depth alongside a dock or pier.

TABLE III-9
Facility Requirements of Commercial Cargo

FACILITY CRITERIA	GENERAL CARGO		NEOBULK				BULK CARGOS					
	CONTAINERS ¹	BREAKBULK	STEEL PRODUCTS	FOREST PRODUCTS	METALS & ORES	AUTOS	PETROLEUM	CHEMICALS	CEMENT	SCRAP	SALT	SUGAR
<u>Terminal Requirements</u>												
Outdoor Storage	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No
Covered Storage	No	Yes	Partial	Partial	Yes	No	No	No	No	No	Yes	Yes
Forklifts, Handling Equipment	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes	Yes
Crane	Yes	Yes	Partial	Partial	Partial	No	No	No	No	Yes	Partial	Partial
Major Highway Access	Yes	Yes	No	No	No	No	No	No	No	No	No	No
Rail Access	Partial	Partial	Yes	Yes	Yes	No	Yes	Yes	No	Partial	No	No
Minimum Apron Width	>100'	50'	50'	50'	>100'	50'	0'	0'	>100'	>100'	>100'	>100'
Paved Area	Yes	No	No	No	No	Yes	No	No	No	No	No	No
<u>Specialized Equipment</u>												
Bins/Silos	No	No	No	No	No	No	No	No	Yes	No	Partial	Partial
Tanks/Piping	No	No	No	No	No	No	Yes	Yes	Yes	No	No	No
<u>Waterside Requirements</u>												
Depth of Water	30'-36'	30'-33'	28'-33'	32'-38'	30'-33'	22'-26'	35'-80'	26'-35'	30'-38'	30'-35'	35'-38'	35'-38'
Vessel LOA ²	450'-750'	450'-600'	475'-550'	500'-625'	475'-550'	400'-600'	600'-1100'	400'-600'	450'-550'	500'-600'	500'-700'	500'-700'

¹ Does not include feeder barge service in waterside requirements. For a barge the water depth is 12'-16' and vessel LOA is 280'-340'.

² LOA indicates length overall (of the vessel).

TABLE III-10
Capital Investment Required at Davisville
To Service Commercial Cargo Market

CARGO TYPE	CAPITAL INVESTMENT ITEMS	ESTIMATED COSTS
<u>GENERAL CARGO</u> CONTAINER (FEEDER) BREAKBULK	SHORE CRANE, FORKLIFTS, STRADDLES, PAVED AREA WAREHOUSE, FORKLIFTS	\$2.2-4.5 MILLION ¹ 3.0-3.5 MILLION ¹
<u>NEOBULK</u> AUTOMOBILES LUMBER STEEL PRODUCTS	PAVED AREA PAVED AREA, FORKLIFTS OR STRADDLES WAREHOUSE, FORKLIFTS	\$300,000-400,000 ¹ 750,000-1,000,000 ¹ 1.0-1.5 MILLION ¹
<u>BULK</u> OIL SALT, PUMICE CEMENT STEEL SCRAP	TANKAGE, PIPING BULLDOZERS, MOBILE CRANE SILOS, PIPING CRANE	\$ 5.2 MILLION ² 21.0 MILLION ² 21.0 MILLION ² 4.0-5.0 MILLION ¹

¹ Cost estimated by Booz, Allen & Hamilton. Costs do not reflect the construction of a pier or improvements on existing piers. Estimated costs reflect only the capital investment items listed.

² From National Port Assessment 1980/1990, Maritime Administration, 1980. In 1977 dollars.

Three cargoes, containers by feeder, steel products and automobiles, are not constrained by the 29-1/2 foot water depth at Davisville. Typical vessels serving the New England and Atlantic Coast commercial market are presented in Table III-11. The three potential cargoes based on vessel draft requirements are highlighted.

This section of the chapter presented the commercial markets, the facility requirements of the market and areas of opportunity for the Port of Davisville. The potential commercial cargoes for Davisville include:

- . Containers by feeder
- . Steel products
- . Automobiles.

Several factors are important in considering development of Davisville for commercial cargoes. These factors include the Port of Providence's current liftings and capabilities and the commercial market revenue potential. The next section addresses current commercial cargo activity at the Port of Providence.

TABLE III-11
Typical Vessel Dimensions of Selected Commercial
Cargoes Indicate Davisville Market

CARGO TYPE	VESSEL NAME	LENGTH	BEAM	DRAFT	DEADWEIGHT CARGO CARRYING CAPACITY
General Cargo					
Containerized	McAllister Transporter ¹	300	72'	 14'	3840 approx.
	SS Boston (Sea-Land)	523	72'	31'	9317
Breakbulk	Mormacaltair	666	75'	31'7"	24,477
Neobulk					
Automobiles	Saronita (Hoegh-Ugland)	590'3"	80'4"	 22'4"	7730
Lumber	Troll Park	601'5"	87'11"	37'5"	33,363
Steel Products	Irene's Friendship	482'4"	72'2"	 28'3"	15,061
Bulk					
Oil Products	Esso Providence	628'6"	90'	36'10"	38,371
Salt, Pumice	Captain Demosthenes	590'6"	86'7"	37'1"	35,326
Cement	Havkatt	535'5"	85'1"	36'1"	26,842
Scrap Metal	Kostis Prois	583'2"	76'5"	32'7"	24,635

1 Feeder barge



Indicates commodities with water depth requirements less than that prevailing at Davisville.

3. ANY COMMERCIAL CARGO DEVELOPMENT AT DAVISVILLE MUST
CONSIDER CARGOES CURRENTLY MOVING THROUGH PROVIDENCE

Davisville is located just south of the Port of Providence on Narragansett Bay. Any cargo development at Davisville should complement, rather than compete with, activity at Providence. This means that commercial cargoes attracted to Davisville must be either new to Rhode Island or would have difficulty with continued or expanded operations at Providence.

(1) Providence Presently Handles All Types of Commercial
Cargoes Including Bulk

The Port of Providence's historical liftings by commodity are presented in Table III-12. The water depth at Providence is sufficient to handle bulk commodities. The channel up to Providence from the mouth of Narragansett Bay is dredged to a depth of 40 feet. The water depth at the Municipal Pier in Providence is maintained at between 35-40 feet alongside.

This depth permits tankers and dry bulk carriers to load or discharge at Providence.

After petroleum and its products, Providence's major liftings include metal scrap, cement, steel products and forest products. Cargo trends at Providence indicate increases in bulk cargoes, steel products and automobiles. More recent information shows an increase in general cargo containers handled at Providence. Table III-13 presents Providence's 1980 movements of containers, steel and automobiles.

(2) Automobiles Are the Major Commercial Cargo Potentially
Constrained at Providence

Table III-14 identifies potential constraints of the Providence facilities for the major commercial cargoes. The Port has a potential land constraint that could inhibit the handling of automobiles in the future. The existing facilities appear capable of handling all other commercial cargoes moving through Providence.

TABLE III-12
Principal Commodities Handled at the Port of Providence
(Thousands of Tons)

COMMODITY	1971	1973	1975	1977	1978	AVERAGE ANNUAL GROWTH
Petroleum & Product	7,988	9,233	7,546	7,561	7,190	- 1%
Cement	175	237	201	254	242	+ 5%
Salt	140	25	23	105	85	- 6%
Scrap Metal	223	409	293	390	514	+19%
Pig Iron	-	-	-	16	-	-
Nonmetallic Minerals	12	26	16	6	25	+15%
Steel Products	14	81	38	134	194	+184%
Chemicals & Minerals	30	40	26	18	16	- 7%
Sodium Hydroxide	48	35	31	12	4	-13%
Forest Products	124	139	75	76	114	- 1%
Automobiles	-	26	29	48	68	+32%
General Cargo	20	11	4	11	6	-10%
Totals	8,762	10,236	8,266	8,624	8,459	-.5%

Source: Waterborne Commerce Statistics.

TABLE III-13
Liftings of Key Commercial Cargoes
at Providence Public Facilities, 1980¹

COMMODITY	TONNAGE
CONTAINERS	12,550 ²
STEEL PRODUCTS	146,605
AUTOMOBILES	61,048

¹ Port of Providence's fiscal year (July 1, 1979 - June 1, 1980)

² Estimates based on 1,046 units handled at 12 tons each.

TABLE III-14
Commercial Cargo Constraints at the Port
of Providence Facilities

CARGO TYPE	CONSTRAINT
<u>GENERAL CARGO</u> CONTAINER (FEEDER) BREAKBULK	PARTIAL - IF VOLUME INCREASED NONE - MUNICIPAL WHARF
<u>NEOBULK</u> AUTOMOBILES LUMBER STEEL PRODUCTS	LAND CONSTRAINTS NONE - SEABOARD TERMINAL NONE - MUNICIPAL WHARF
<u>BULK</u> OIL SALT, PUMICE CEMENT STEEL SCRAP	NONE - NUMEROUS TERMINALS NONE - PROMET TERMINAL NONE - MARQUETTE, LEHIGH TERMINAL NONE - METAL PROCESSING

Interviews with automobile importers currently using Providence indicated several other potential problems. The main problems cited include the following:

- . High cost at Providence
- . Exposure to flood waters at high tide
- . Security problems
- . Lack of height for tri-level rail cars at Providence.

Several of these potential constraints on automobile traffic would not exist at Davisville. This will be addressed further at the end of the chapter in the discussion of commercial market implications for Davisville.

The next section will address the revenue potential and economic impact of the three potential commercial cargo types for Davisville.

4. IN TERMS OF POTENTIAL PORT REVENUE AND ECONOMIC IMPACT, CONTAINERS REPRESENT THE BEST COMMERCIAL CARGO OPPORTUNITY FOR DAVISVILLE

Containers represent the best commercial cargo opportunity for the Port of Davisville when considering potential port

revenue and economic impact per acre. Using this criterion, steel products rank second and automobiles third in attractiveness for Davisville.

Port revenues as here discussed represent the direct revenue flows to the port administration. Average revenues for a landlord port agency are used as it is assumed Davisville would not be in an operating role. The revenues discussed are gross revenues. Economic impact of a port is the flow of revenue into the port and maritime community. Direct economic impact includes the revenues of firms directly involved in port operations and direct port related employment. Examples of these firms and employment groups are stevedore firms, longshoremen, ship repair establishments, freight forwarders, steamship agents and others.

Revenue and economic impact per acre were calculated based on revenue and economic impact per ton for the three commercial cargo types. Table III-15 presents the revenue and economic impact per ton. Cargo density or storage requirements in tons per acre and average dwell time¹² of the cargoes were used to determine revenue and economic impact per acre instantaneously and per acre per year. Table III-16 presents the cargo density and dwell time information.

Table III-15
Port Revenue and Economic Impact Per Ton
for a Landlord Port Agency

CARGO	ESTIMATED PORT AUTHORITY REVENUE PER TON	ECONOMIC IMPACT PER TON (DIRECT ONLY)
CONTAINERS	\$4-\$6	\$45-\$75
STEEL PRODUCTS	\$1-\$2	\$14-\$21
AUTOMOBILES	\$8-\$9	\$110-\$120

Source: Based on actual findings at a range of other ports (Boston, Tampa, Chicago).

¹² Dwell time presents the average time that cargo remains in the port facility.

TABLE III-16
Cargo Density and Dwell Time

CARGO	CARGO DENSITY (TONS PER ACRE) ¹	AVERAGE DWELL TIME IN DAYS	CARGO TURNS PER YEAR
CONTAINERS	720 ²	5	72
STEEL PRODUCTS	10,000	25	14
AUTOMOBILES	260	15	24

¹ Based on actual experience at other ports.

² Based on a chassis operation.

Containers represent the best commercial cargo on a revenue per acre per year basis. The estimated revenue on containers is in excess of \$250,000 per acre per year. Steel products rank second with estimated revenue of \$210,000 per year per acre. On an instantaneous basis, steel represents the best revenue. However, the slow turn of steel and the high turn of containers changes that relationship on an annual basis. The port revenue per acre is shown in Table III-17.

TABLE III-17
Gross Port Revenue Per Acre for a
Landlord Port Agency

CARGO	REVENUE PER ACRE INSTANTANEOUSLY	REVENUE PER ACRE PER YEAR
CONTAINERS	\$ 3,600	\$259,200
STEEL PRODUCTS	15,000	210,000
AUTOMOBILES	2,210	53,040

Containers also represent the best cargo on an economic impact per acre per ton basis. Again, this is due to the fast turn around of containers in the port. Automobiles rank last in economic impact per acre per year. On a per ton basis, the economic impact of automobiles is very high. However, the density and turn time of automobiles is low. Table III-18 presents the economic impact per acre of the potential commercial cargoes.

TABLE III-18
Potential Economic Impact Per Acre

CARGO	ECONOMIC IMPACT PER ACRE INSTANTANEOUSLY	ECONOMIC IMPACT PER ACRE PER YEAR
CONTAINERS	\$ 43,200	\$3,110,000
STEEL PRODUCTS	180,000	2,520,000
AUTOMOBILES	29,900	717,600

The last section of this chapter will evaluate the implications of the commercial cargo market on RIPAEDC's development alternatives for Davisville.

5. AUTOMOBILES APPEAR TO BE THE BEST DEVELOPMENT OPPORTUNITY FOR DAVISVILLE WITH CONTAINERS A POSSIBILITY IF TRAFFIC VOLUMES THROUGH THE AREA INCREASE SUBSTANTIALLY

The best commercial cargo development opportunity for the Port of Davisville appears to be automobiles. Containers are a possibility if the volumes through the area increase to the degree that Providence is constrained and the investment is warranted at Davisville. These findings are supported in the following section.

(1) Revenue and Economic Impact Are of Secondary Importance When Evaluating Business Opportunities, Some of Which Are Already Handled at Rhode Island Ports

In most cases of port development and expansions, potential revenue and economic impact are very important selection criteria. The situation at Davisville is unusual and revenue and economic impact are less important.

Davisville is unusual in that its 29-1/2 foot water depth restricts the commercial cargo opportunities. Also, Davisville is in close proximity to another Rhode Island port, Providence, which currently handles those commercial cargoes with the potential to move via Davisville.

Revenue and economic impact are inappropriate criteria if Davisville is simply diverting cargo from Providence. Revenue and economic impact would simply be transferred from one Rhode Island port to another. Consequently other factors should weigh more heavily in the final analysis.

(2) The Port of Providence Is Not Ideally Suited for the Handling of Automobiles. Davisville Offers the Potential to Retain This Business in Rhode Island

Automobiles represent the greatest potential for Davisville, given that Davisville's development into commercial cargo should complement commercial activity at Providence. Automobiles are one potential area where Providence's capacity may be constrained. Providence has land constraints while Davisville has sufficient area to provide back-up land to automobile importers.

Several other shortcomings were identified in Providence's automobile service. At least one of these, lack of sufficient rail clearance height, could be overcome at Davisville. According to ConRail, rail service to the Providence docks provides a vertical clearance of 15'6", while clearance to Davisville is 16'4".

A second possible commercial market for Davisville is containers. Providence may have insufficient adjacent back-up land to accommodate appreciable increases in container tonnage at Rhode Island.

(3) Steel Products Are an Important and Growing Market for Providence. Davisville Could Handle Overflow Business if Handling It at Providence Impeded Future Development at the Port

Steel products are important to the Port of Providence. Over the last seven years, steel represented the fastest growing tonnage through that port. After petroleum and related products, steel products represent an estimated 12-15 percent of Providence's business. No constraint on continued steel liftings at Providence is anticipated but continued growth in this area could impede Providence's growth as a container port.

(4) Automobiles Would Require Minimal Capital Investment and RIPAEDC Involvement

Of the three potential commercial cargoes, automobiles would require the least capital investment and probably the least RIPAEDC involvement. The investment would consist primarily of providing a paved area at an estimated cost of less than \$500,000. The facility would, in all likelihood, be leased. This minimal involvement is attractive to a small port agency new to the commercial cargo business.

* * * * *

In this chapter the implications of commercial cargo opportunities on the Port of Davisville and the Rhode Island Port Authority and Economic Development Corporation have been addressed. The following conclusions can be drawn:

- . Port organizations in New England and throughout the country vary significantly in terms of organization, financial ability and operating responsibilities.
- . Containers, automobiles and steel products represent the major commercial cargo opportunities for the Port of Davisville.
 - Containers represent the most productive cargo on a revenue per acre basis; however, the Port of Providence handles nearly all the container business in Rhode Island.
 - Automobiles represent the greatest potential for Davisville because the Port of Providence is not ideally suited for the trade while Davisville meets all the requirements to handle a large volume of this business.

The Port Authority should evaluate the feasibility of handling automobiles at Davisville. Further, any significant increase in the amount of containerized cargo entering or exiting the state via Rhode Island ports could strain Providence's capacity. Container business, then, represents an alternative commercial cargo for Davisville. If Providence continues to develop its container business, then Davisville could consider handling overflow business in steel products. The Port Authority should compare the feasibility of handling this business either with or instead of the OCS support business.

In the next chapter of this report, the implication of both OCS and commercial cargo development on the Davisville facilities and Port Authority organization is explored.

**IV. IDENTIFICATION OF POTENTIAL MANAGEMENT
AND OPERATIONAL ROLES FOR THE
RHODE ISLAND PORT AUTHORITY FOR BOTH OCS AND
COMMERCIAL CARGO APPLICATIONS**

IV. IDENTIFICATION OF POTENTIAL MANAGEMENT AND OPERATIONAL ROLES FOR THE RHODE ISLAND PORT AUTHORITY FOR BOTH OCS AND COMMERCIAL CARGO APPLICATIONS

In this chapter the existing organization of the Rhode Island Port Authority and Economic Development Corporation is identified and compared with Ports involved in both OCS and commercial cargo that can serve as potential role models.

1. THE ORGANIZATION OF THE RHODE ISLAND PORT AUTHORITY HAS DEVELOPED IN RESPONSE TO THE ECONOMIC DEVELOPMENT NEEDS OF THE STATE

Figure IV-1 presents a visual representation of the organizations that are affiliated with the Rhode Island Port Authority and Economic Development Corporation. Two conclusions are immediately apparent from review of the figure:

- . The organization is heavily economic and industrial development oriented.
- . Certain individuals have multiple responsibilities throughout the organization.

The balance of this section will focus on the Department of Economic Development and the Port Authority as the satellite organizations were developed to accomplish narrowly focused development objectives of little interest to this study.

(1) The Department of Economic Development and the Port Authority Have Been Created in Response to a Need to Provide Marketing, Site Planning and Finance and Control Services

The economic development needs of the State of Rhode Island, and particularly after the cessation of military activity at Quonset Point/Davisville, have been the driving forces behind the organizational development of both the Department of Economic Development and the Port Authority Staff. The principal mission of the DED Staff has been to market the Quonset Point/Davisville Facilities while that of the Port Authority Staff has been the preservation and maintenance of the Facilities. Table IV-1 is a breakdown of the RIPAEDC revenue budget for the year ended June 1980.

FIGURE IV-1
 Organization Chart for Rhode Island Port Authority
 and Economic Development Corporation and Related Organizations

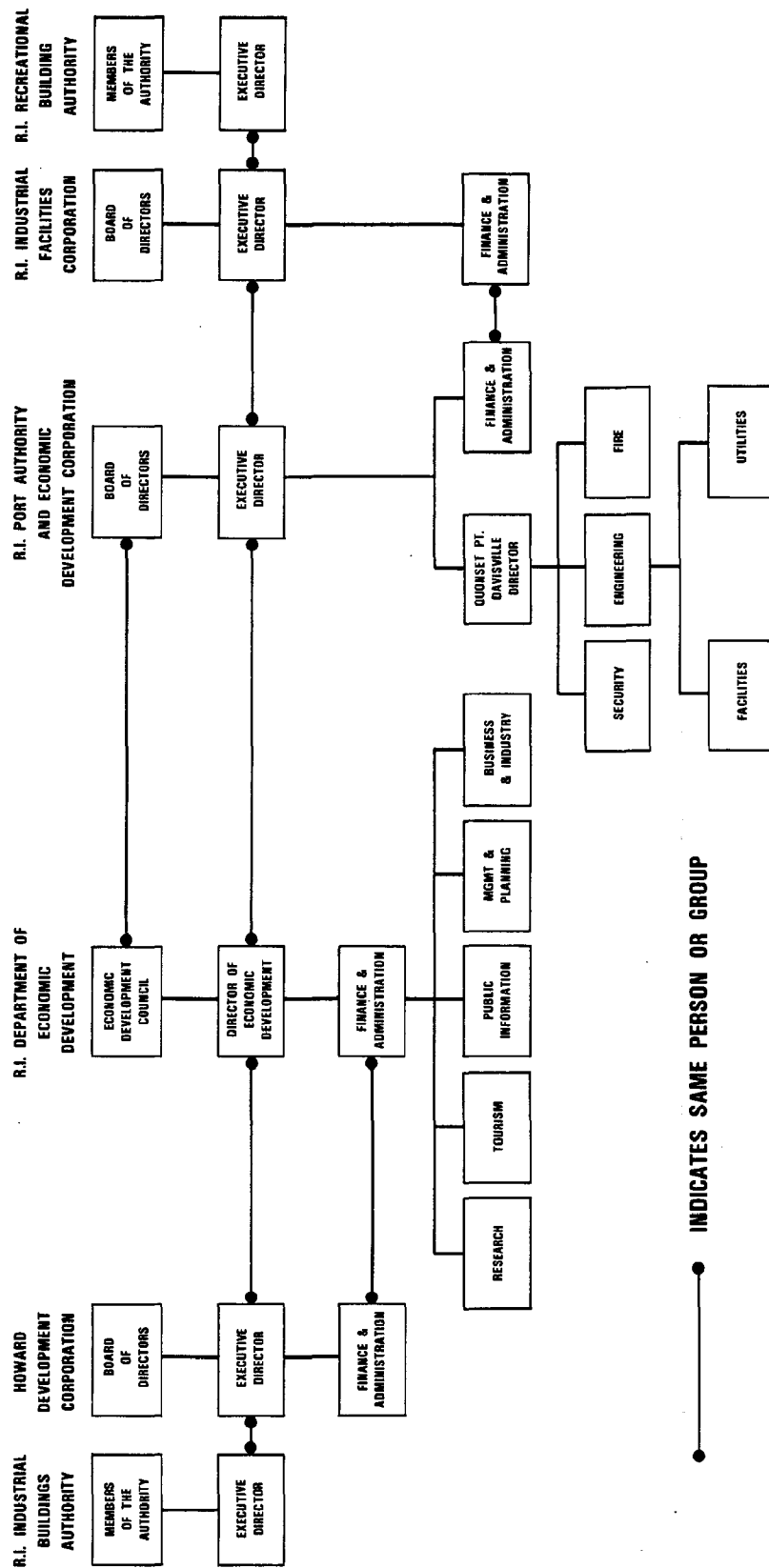


TABLE IV-1
Projected Revenue of the RIPAEDC
During FY 1980
(Dollars in Thousands)

REVENUE SOURCE	AMOUNT	PERCENT OF TOTAL
UTILITY SALES (NET OF COSTS)	\$ 376.5	6%
COMMERCIAL AND INDUSTRIAL PROPERTY RENTAL	2,712.7	42%
OTHER RENTALS	2,589.6	40%
GOVERNMENT GRANTS AND APPROPRIATIONS	372.8	5%
OTHER REVENUE AND RECREATIONAL INCOME	478.9	7%
TOTAL	\$6,530.5	100%

The table indicates that the revenue budget of the RIPAEDC is heavily dependent upon rentals and the sale of utilities, e.g., steam, water, electricity.

(2) The RIPAEDC Is Not Organized to Either Conduct or
Manage a Maritime Operation at Davisville

The activities of the Rhode Island Port Authority may be described as in the midpoint between a landlord port authority and a public utility. As shown in the following table, other Port Authorities generate a major share of their revenues from the collection of cargo usage fees or the Provision of Maritime Services.

TABLE IV-2
Comparison of Port Revenue by Source
at Four Large Port Organizations

	MASSPORT	BALTIMORE	GEORGIA	PORTLAND
ANNUAL MARITIME REVENUE (IN MILLIONS OF DOLLARS)	\$16.0	\$21.1	\$34.1	\$22.7
APPROXIMATE PERCENT FROM				
DOCKAGE, WHARFAGE, ETC.	25%	32%	31%	40%
RENTALS & LEASES	5%	62%	22%	2%
LABOR SOURCES	70%	6%	47%	58%

The RIPAEDC is not currently organized to effectively manage or oversee a significant level of either OCS or commercial cargo activity. In the next section of this chapter, information on OCS and commercial cargo ports is presented in case study form so that specific elements of interest to RIPAEDC may be identified and evaluated for potential applicability to Davisville.

2. OTHER PUBLIC PORTS INVOLVED WITH OCS OPERATIONS ARE PRINCIPALLY INVOLVED WITH COMMERCIAL CARGO AND INDUSTRIAL ACTIVITIES AND CONSIDER OCS AS INCREMENTAL BUSINESS

In the United States the facilities that are dedicated exclusively to OCS support activities are privately owned and operated. In those cases where public port agencies are involved, OCS activity represents an incremental activity. In order to better understand the management implications of OCS activity on a public port, case studies of two public ports are presented in this section. The two ports studied are Manatee on the Florida Gulf Coast and Port Hueneme in Southern California. These were the OCS ports selected in Chapter II as being most comparable to Davisville.

(1) Port Manatee Has a Small Staff Organized to Support Commercial Cargo Operations. OCS Activities Have Represented Incremental Business Requiring No Organizational Changes

Port Manatee is a small port roughly equal in physical size to Davisville. It is located in Tampa Bay several miles from the Port of Tampa. It is a new port that began operating in 1970. Its principal activity is the handling and storage of bulk cargos. As shown in Figure IV-2, the staff is very small and includes only 18 people.

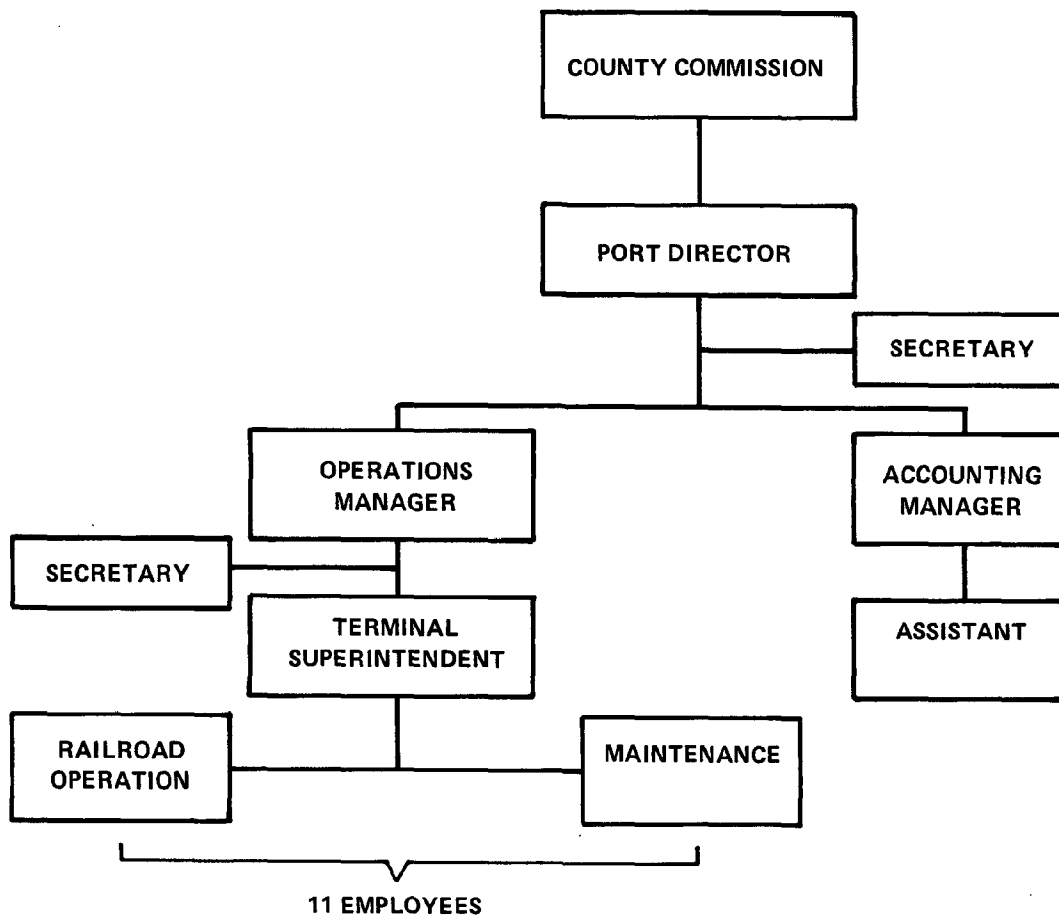
The operating responsibilities of the port are summarized below:

- . Berth assignment
- . Warehouse and land lease management
- . Operation of a switching railroad
- . Maintenance

1. In 1980 the Port Earned \$700,000 on Revenue of \$2.3 Million

Table IV-3 provides a summary of the financial performance of the Port of Manatee during 1980.

FIGURE IV-2
Organization of the Port of Manatee, Florida



Note: The Commission contracts in legal, engineering, and traffic consulting services.

During 1980 all of the port's revenue and expenses resulted from cargo operations. Sources of revenue are shown in Table IV-4.

The table shows that charges resulting from provision of facilities (wharfage, dockage, leases, storage) represented 75 percent of revenue, while the provision of services (rail operating, line handling) generated the remaining 25 percent.

TABLE IV-3
Port of Manatee Operating Statement
(Dollars in Thousands)

REVENUE		\$2,288
OPERATING EXPENSES	806	
DEPRECIATION	436	
TOTAL EXPENSE	1,242	
GROSS MARGIN		1,047
INTEREST EARNINGS ¹	1,048	
INTEREST EXPENSE ²	1,396	
NET INCOME		699

¹ Represents earnings on a Port Escrow Account of \$8.5 Million.

² Represents Debt Services on \$13 Million in outstanding debts.

TABLE IV-4
Sources of Revenue at Manatee
(Dollars in Thousands)

REVENUE ITEM	AMOUNT	PERCENT
WHARFAGE	\$ 837	36%
DOCKAGE	685	30%
RAIL OPERATION	362	16%
LEASES	177	8%
LINE HANDLING	127	51%
STORAGE FEES	24	1%
SALE OF FRESH WATER	16	1%
MISCELLANEOUS	60	3%
TOTAL	2,288	100%

2. It Is Projected That OCS Revenue May Represent \$250,000 in 1981 But Will Require No Additional Staff or Major Expense

During 1981 Manatee will support three offshore rigs. It is likely that this could be increased to five. Table IV-5 is a pro-forma revenue estimate based on a full year's support of five rigs.

TABLE IV-5
Pro-Forma Revenue Estimate for Port Manatee
Resulting From OCS Support Activities

ITEM	RATE	ESTIMATED ANNUAL REVENUE
RENT 8 ACRES	\$4,000/ACRE	\$ 32,000
WHARFAGE DOCKAGE HARBOR MASTER FEE	\$.88/TON \$1.20/LINEAR FOOT \$.10 PER ARRIVAL AND DEPARTURE	\$188,000
POTABLE WATER RAW WATER	\$.77/TON \$.25/TON	\$ 30,000
TOTAL		\$250,000

The table shows that an additional \$250,000 of revenue can be generated as a result of providing facilities to OCS support activities. This is 11 percent of current revenues and represents a substantial new business opportunity. The port has indicated that it anticipates that no additional staff would be required to handle the OCS business but that the work responsibilities of the terminal superintendent would increase as a result of a potential berth congestion and conflict between the OCS craft and cargo vessels.

(2) Port Hueneme Employs a Staff of 15 to Administer a Dual-Purpose Cargo and OCS Facility

Port Hueneme is a public port just north of Los Angeles and is engaged in both cargo and OCS operations. Figure IV-3 illustrates the organization of the Oxnard Harbor District (which operates Port Hueneme). The staff of the port district totals 15. While the district is empowered to operate, they serve as a landlord port with most operations conducted by a terminal operator, Marine Terminals Corporation.

1. The Port Had a Net Income of \$1.2 Million on Total Revenue of \$2.5 Million in 1980

Table IV-6 is a summary of the financial performance of the harbor district during fiscal year 1980.

FIGURE IV-3
Organization of the Port of Hueneme, California

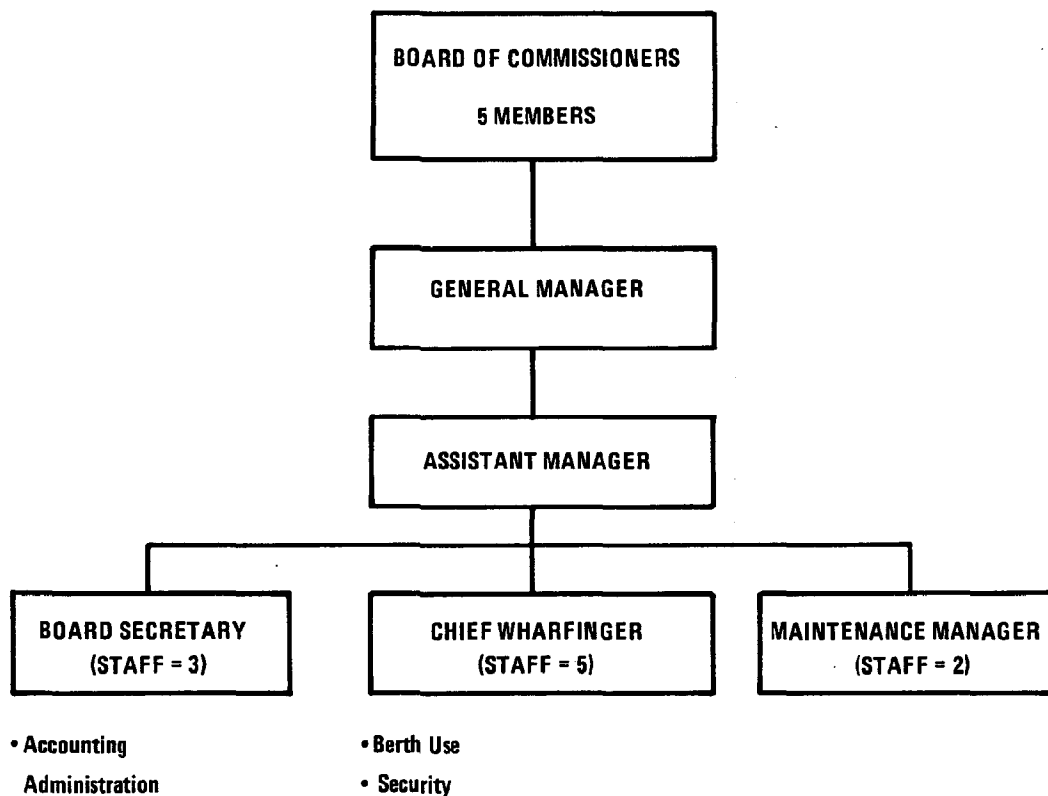


TABLE IV-6
Financial Performance of Oxnard Harbor District
During 1980
(Dollars in Thousands)

TOTAL REVENUE		\$2,500
OPERATING EXPENSES	\$1,110	
DEPRECIATION AND AMORTIZATION	230	
TOTAL OPERATING EXPENSES	1,340	
NET INCOME		\$1,160

The port handled approximately 2 million tons of cargo during 1980, 75 percent of which was petroleum and related products. The balance consisted of:

- . Automobiles
- . Bananas
- . Citrus products
- . Other general cargo.

Over 80 percent of the port's revenue is from usage charges resulting from the handling of these cargos, while the balance is from leases.

2. OCS Activity Contributed Over 25 Percent of Port Hueneme Revenue Without a Need for Additional Staff

During 1980 OCS activity represented \$650,000 in revenue to Port Hueneme, or 25 percent of total revenue. The port was required to make no capital improvements to handle the OCS business and only upgraded a part time clerical staff to full time to handle the business. The increment of maintenance expense required to handle the OSC business is not known, but it is estimated that it is very small when compared to revenue.

In the next section of this chapter, the financial impact of commercial cargo operations on both the public and private sector at Davisville is treated.

3. COMMERCIAL CARGO THAT HAS THE POTENTIAL TO MOVE VIA DAVISVILLE CAN GENERATE MORE REVENUE FOR A PORT AUTHORITY AND THE PRIVATE SECTOR THAN WOULD BE AVAILABLE FROM OCS OPERATIONS

A number of ports that handle steel and automobiles were studied to determine the revenue and organizational implications associated with these commodities.¹³ The experiences of these ports were used to develop a hypothetical cargo case study at Davisville and is treated below.

¹³ Steel and automobiles in addition to containers were indicated in Chapter III to have the greatest potential to move via Davisville.

- (1) The Use of Pier Two as a Commercial Cargo Facility Has the Near Term Potential to Generate \$1/2 Million in Annual Port Authority Revenue and Nearly \$8 Million in Private Sector Revenue

Pier Two has nearly 14 acres of storage on the pier alone. This is more than adequate to handle 50,000 automobiles and 150,000 tons of imported steel products per year. Those represent a relatively low level of utilization for such port capacity. Table IV-7 identifies unit charges that prevail at nearby ports for these types of cargo.

TABLE IV-7
Automobile and Steel Products
Port Charges

TARIFF ITEM	CHARGES
AUTOMOBILE WHARFAGE	\$1.00/UNIT
STEEL WHARFAGE	.70/TON
DOCKAGE	.12 PER NET REGISTERED TON (NRT) OF THE VESSEL PER DAY OF BERTH
AUTOMOBILE USAGE	2.00/UNIT

* Steel and automobiles in addition to containers were indicated in Chapter III to have the greatest potential to move via Davisville.

In addition, Table IV-8 provides the lease revenue objectives of several port authorities.

TABLE IV-8
Per Acre Lease Objectives of
Selected Port Organizations

PORT AUTHORITY	ANNUAL LEASE PAYMENT PER ACRE ON WATERFRONT PROJECT
TAMPA	\$ 6,500
PORTLAND, OREGON	6,500
GEORGIA PORTS AUTHORITY	10,800
MARYLAND PORT ADMINISTRATION	15,000
MASSPORT ¹	11,500

¹ Based on MASSPORT's report to the American Association of Port Authorities' most recent port survey.

As an alternative to lease, the port could levy a storage charge of approximately \$.25 per automobile and per ton of steel after a free time allowance of 5 days. For the purposes of this study a lease situation was used and \$10,000 per acre was considered to represent a reasonable lease payment.

If it is assumed that the automobiles are delivered via 35 voyages per year of a vessel of 12,000 Net Registered Tons (NRT) carrying 1,400 automobiles per voyage and the steel is delivered in 12,000 ton lots on a monthly frequency, the resulting Port Authority revenue would be as is indicated in Table IV-9.

TABLE IV-9
Expected Port Authority Revenue From Handling
50,000 Automobiles and 150,000 Tons of Steel

REVENUE ITEM	AUTOMOBILES	STEEL	TOTAL
DOCKAGE ¹	\$ 50,400	\$ 51,840	\$102,240
WHARFAGE	50,000	105,000	155,000
USAGE	100,000	0	100,000
RENTAL ²	60,000	80,000	140,000
TOTAL	\$260,400	\$236,840	\$497,240

1 Dockage assumes 35 automobile ships unloaded in one day each and similar sized steel vessel make 12 voyages per year each requiring 3 days to unload.

2 Automobile rental is based on 250 units per acre or a need for 6 acres while steel storage required 8 acres.

Under this scenario the Port Authority would not operate the Pier and a significant amount of contract labor would be required for stevedoring, final assembly of automobiles and storage and terminal handling of steel (all contracted by the exporter or importer). The annual revenue of these private contract operations are estimated in Table IV-10 below.

The table shows that the private sector would realize an additional \$7.7 million in revenue from operating on one of the Davisville piers and handling a modest volume of automobiles and steel products.

TABLE IV-10
Estimated Annual Private Sector Revenue
Resulting From Commercial Cargo Activities
(Dollars are in Thousands)

BENEFIT CATEGORY	AUTOMOBILES		STEEL		TOTAL
	PER UNIT	TOTAL	PER UNIT	TOTAL	
SHIP DISBURSEMENTS	\$11.50	\$ 575	\$10.00	\$1,500	\$2,075
STEVEDORING	10.00	500	6.00	900	1,400
TERMINAL LABOR	—	0	5.00	750	750
ASSEMBLY	50.00	2,500	—	0	2,500
INLAND TRANSPORT	5.00	250	5.00	750	1,000
TOTAL	\$76.50	\$3,825	\$26.00	\$3,900	\$7,725

(2) The Organizational and Budget Implication of a Non-Operating Port Authority Are Minor When Compared to Revenue Potential and Other Direct Economic Benefits

Given that a facility is in place and the Port Authority would not be involved with cargo operations, the impact on the existing RIPAEDC organization would be minor. The following additions would probably be required.

- . An overall manager would be required.
- . A tariff and agreements group that is knowledgeable with port use tariffs and terms would be required. Accounts receivable could be attached to this group. This group need not require more than a staff of three.
- . A harbor master may also be required to control berth assignments, provide harbor security and insure that facilities usage and services are being billed properly.

Marketing, security and maintenance support could be provided from the existing organization, within DED and Quonset Point. The operation could be established with a budget of approximately \$450,000, which will consist of the following elements:

- . Staff salary and benefits - \$160,000
- . Maintenance Expense - \$100,000

- . Marketing and Public Relations - \$ 50,000
- . Security - \$125,000
- . Miscellaneous - \$ 15,000

Much of these expenses would be in the form of allocations from other elements of RIPAEDC. This tentative budget assumes that major capital projects would be in the form of leasehold improvements by tenants.

In the next and final chapter of this report, conclusions and recommendations are forwarded.

V. CONCLUSIONS AND RECOMMENDATIONS

V. CONCLUSIONS AND RECOMMENDATIONS

In previous chapters information and findings were presented concerning the OCS and commercial cargo potential of Davisville, and comparisons were made between the organization of the Rhode Island Port Authority and Economic Development Corporation and other port authorities. In this chapter conclusions and recommendations are forwarded relative to:

- . Appropriate uses of the Davisville piers
- . Financial implications of alternative uses of the piers
- . Organizational and financial alternatives available to RIPAEDC.

These conclusions and recommendations are elaborated upon below.

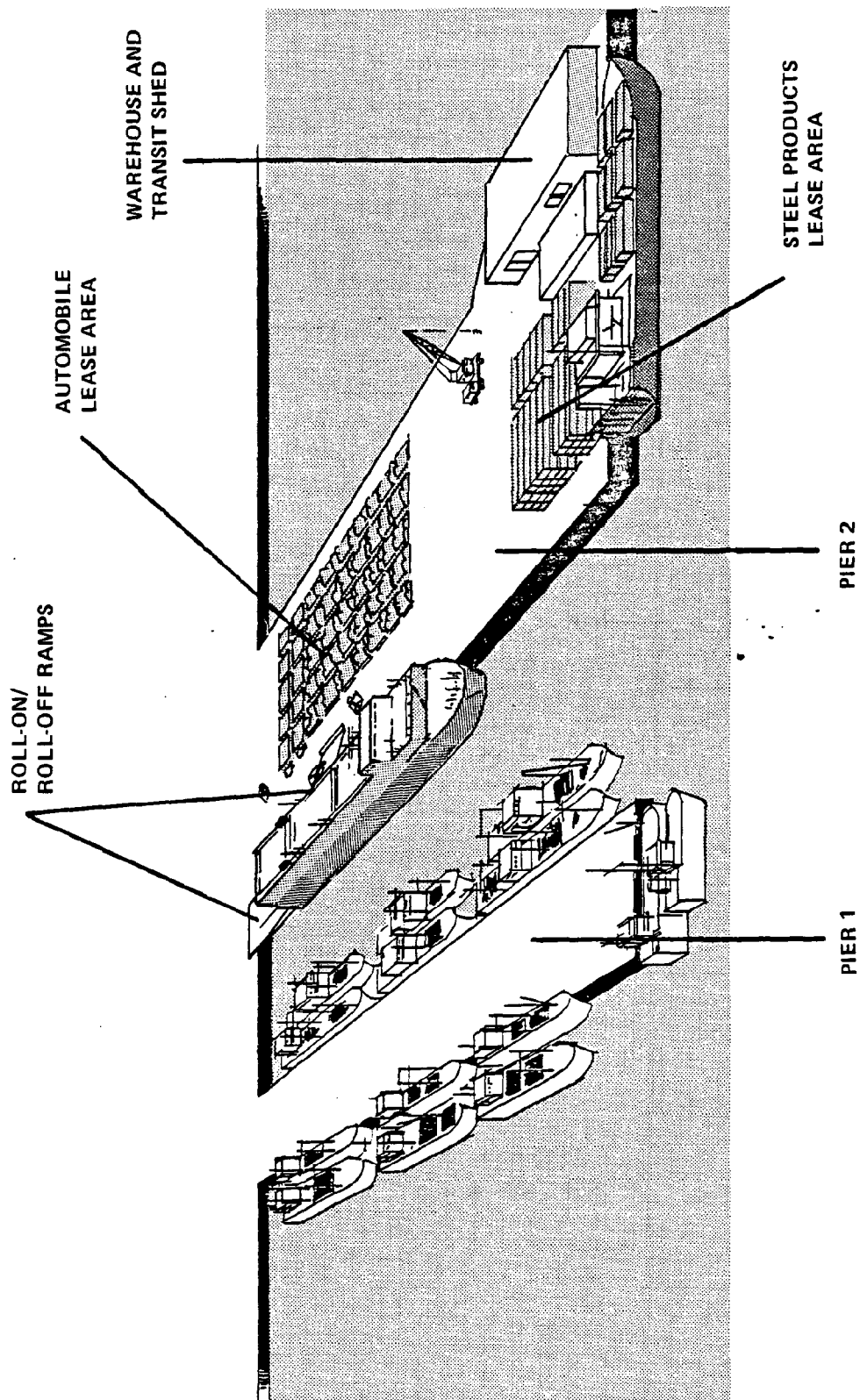
1. THE FACILITIES AT DAVISVILLE ARE ADEQUATE TO MEET THE REQUIREMENTS OF BOTH AN OCS SUPPORT BASE AND LIMITED PURPOSE GENERAL CARGO APPLICATIONS

The facilities at Davisville are adequate to support multiple uses. Figure V-1 shows one possible way in which the facilities could be allocated to multiple uses. The figure shows that:

- . Pier 1 could be used as the OCS support pier because the relationship of berthing space to adjacent land area is high. This is appropriate because berthing space is the critical requirement of this sector of the industry.
- . Pier 2 could support limited general cargo applications such as automobiles and steel products. Pier 2 has more back-up space per unit of berthing space and thus is responsive to the unique requirements of this sector of the commercial cargo industry. The back-up area could be leased to one or more automobile importers and steel terminal operators.

Other configurations are also available to RIPAEDC. If leasing of the pier area limits the flexibility of the Port Authority, then the commercial cargo interests can be leased areas behind the pier and the piers can be left open for public use. Lease of the area immediately adjacent to the berth may be a unique marketing strategy that could attract potential users immediately. It could be leased at premium rates as well.

FIGURE V-1
Alternative Facility Use Plan



In our judgment no major facility modification would be required to meet the needs of potential users over the next several years. Any improvements such as a steel warehouse and special cranes should be provided by leaseholders.

Major modifications for OCS applications should not be made unless they are guaranteed by potential users. This is particularly important due to both the uncertain business outlook for the industry and the availability of a number of suitable competitive sites in the region¹⁴.

2. A DUAL-PURPOSE FACILITY WILL REDUCE THE FINANCIAL RISK OF THE RIPAEDC WITHOUT INCREASING THE NEED FOR ADDITIONAL STAFF OR OPERATING COSTS BEYOND THAT REQUIRED FOR A SINGLE USE

A dual-purpose use strategy will reduce the business risk that would result if the facility were dedicated to a single use such as OCS support. Table V-1 identifies the potential revenue range that could result from pursuing a dual-use strategy.

TABLE V-1
Annual Revenue Potential of a Dual-Purpose
Facility at Davisville
(Dollars in Thousands)

APPLICATION	LOW ESTIMATE ¹	HIGH ESTIMATE ²
OCS	\$250	\$1,000
COMMERCIAL CARGO	500	1,000
TOTAL	\$750	\$2,000

¹ The low estimate for OCS use represents support of approximately three offshore rigs. The low estimate for commercial cargo represents the handling of 50,000 imported automobiles and 150,000 tons of steel products per year.

² The high estimate for OCS support represents support of 10 offshore rigs using Pier 1 only. This probably represents the maximum revenue potential of a one pier operation. The high commercial cargo estimate represents a doubling of throughput but does not represent the capacity limit of Pier 2.

¹⁴ There are not as many suitable commercial cargo sites available in the region as there are potential OCS bases. Davisville's commercial cargo capabilities are unique.

A diversified strategy is sensible for a new entry into the commercial port industry and is similar to the strategy of other similar ports like Manatee and Hueneme. Based on the experience of these other ports, it also appears that the same staff can administer both the commercial cargo and OCS programs. This is treated more fully in the next section of this report.

3. PRIVATE FIRMS SHOULD OPERATE THE FACILITIES UNDER LEASE TO THE RIPAEDC

The potential uses treated in this report suggest that the operating strategy of RIPAEDC should be different from ports such as Providence. Providence, like many ports, is a public user port. This means that the facility is available to any user and the agency responsible for the port has a significant operating and maintenance obligation. The OCS and imported automobile and steel sectors are more proprietary in nature. Due to both the specialized nature of these sectors and their need for guaranteed access at port facilities, it has been a practice that these industries' operate designated areas within a port under lease with a port authority. Such a lease also provides the leasee with preferential use of one or more ship berths.

(1) The RIPAEDC Should Publish a Terminal Tariff But Most Revenue Could Be Generated From Leases

The Port Authority should publish a tariff that anticipates a wide variety of maritime activity. Table V-2 identifies a number of the key elements in the tariff and provides a suggested list of charges based on the experience at other ports.

The tariff would apply to all users of a facility. The principal sources of revenue, however, should be from tenants with whom the Port Authority has negotiated leases. These would include the most important users such as automobile and steel products importers and the key OCS users.

The characteristics of such leases should be as follows:

- . Users should be rented parcels of land and should be required to conduct the operations within the lease area.

TABLE V-2
Suggested Tariff Items

ITEM	CHARGE
DOCKAGE	\$12 PER NET REGISTERED TON OF VESSEL OR \$1.00 PER FOOT OF VESSEL LENGTH WHICH- EVER IS GREATER
WHARFAGE • AUTOMOBILES • STEEL • OTHER CARGO	\$1.00 PER UNIT \$.70 PER TON \$1.25 PER TON
AUTOMOBILE USAGE	\$2.00 PER UNIT
STORAGE • AUTOMOBILES • OTHER CARGO	\$.25 PER UNIT AFTER 5 DAYS OF FREE TIME \$.25 PER TON AFTER 5 DAYS OF FREE TIME
HARBOR MASTER FEE	\$10 PER VESSEL ARRIVAL AND DEPARTURE

- Leases should be from one to five years depending on the extent of leasehold improvements involved.¹⁵
- Payment terms could be based on the tariff with the following exceptions:
 - The fixed land rental would replace storage charges.
 - A minimum guarantee from the leasee should be specified in order to encourage activity at the site. Conversely incentive rates should be provided in cases where activity exceeds the specified minimum.

Under lease conditions, the Port Authority's responsibility for operating and maintenance would be clearly stated and would be minor. Under tariff circumstances, the Port Authority's responsibility, while unclear, would be substantial.

¹⁵ A steel importer may have to construct a warehouse/transit shed and the appropriate lease would require a minimum of 5 years with renewal options.

(2) A Director of Maritime Operations, and a Limited Staff
Should Be Added to the Port Authority Organization

In the previous chapter the impact of commercial cargo and OCS operations on the organization of the Rhode Island Port Authority was determined. It is recommended that the following policy and organizational changes be implemented:

- . The Rhode Island Port Authority should consider actively marketing one of the piers to commercial cargo interests and particularly those sectors where the limited harbor depth is not a constraint.
- . The Port Authority should, through the negotiation of leases, require that tenant/users operate the facilities in connection with both commercial cargo and OCS activity.
- . The Davisville piers should be operated as a separate profit center and staff with the appropriate training and experience should be provided to manage the maritime operations.

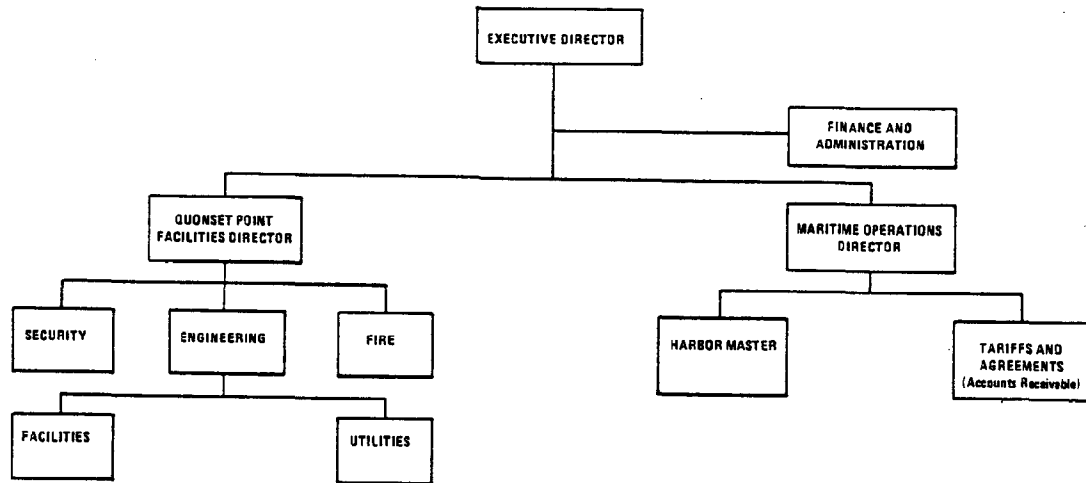
Figure V-2 presents a proposed organization alignment for the Rhode Island Port Authority.

The following new positions would be required:

- . Director of maritime operations.
- . A tariff and agreements group to publish and administer a tariff and insure proper billing for both tariff and lease charges. Such a group would require no more than three individuals.
- . A harbor master to control berth and security at the piers.

Such a change would require the creation of no more than five new positions. The director and the senior staff member in the tariff group would probably need to be recruited as the requisite skills are not available within the organization. Suggested requirements for these positions are provided in Appendix B. The other positions can be filled with internal staff.

FIGURE V-2
Proposed Port Authority Organization



(3) The Financial Implications of the New Organization Would Be Less Than \$1/2 Million in Annual Operating Expenses But Could Require Significant Capital Expenses in the Future

The establishment of a maritime operations group would require an operating budget of approximately \$450,000. This would include amounts for maintenance and marketing support which represent current expenditures of the RIPAEDC. An estimate of the operating budget was presented in the previous chapter. The organization would be required to administer both the commercial cargo and OCS operations but would probably spend most of its time in cargo related activities.

No significant capital expenditures would be required by RIPAEDC. Most capital equipment should be provided by tenants under the terms of leases. In the near term, however, and particularly if commercial cargo activity increases at Davisville, there would probably be a need for dredging the channel and the berthing area to at least 35 feet at mean-low water, or 5 feet more than the current authorized depth. The federal government would be responsible for dredging the main channel while the Port Authority would be responsible for the berthing area and perhaps the immediate approach area and turning basin. If efforts were

successful and the federal government dredged the main channel, the Rhode Island Port Authority would be required to dredge from 320,000 to 1 million cubic yards of material depending on the intersection of federal/state responsibility. Such a project could cost the Authority from \$1-3 million¹⁶ and would only be warranted based on the business volume that would result from such a project.

¹⁶ Cost is based on a 1980 estimate of \$3 per cubic yard. It is not known at this time if the piers would maintain their structural stability after dredging to 35 feet.

APPENDIX A – OCS BIBLIOGRAPHY

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APPENDIX B – POSITION DESCRIPTIONS

Appendix B
Position Descriptions

Presented below is the position description for a maritime operations director.

Education: Requirements--B.S. in Business Administration, Engineering or equivalent areas.

Prefer--Graduate of federal or state merchant marine academy or equivalent.

Experience: Requirements--5-10 years in any of the following industry positions:

- General manager of a private cargo stevedoring firm or terminal operating company
- Operations manager of a steamship line
- Operations manager of an operating public port authority.

Prefer--More than 10 years of experience in any of the above positions or some experience as the executive director of 2 small- to medium-sized Public Port agencies.

General: The individual should be thoroughly knowledgeable of international shipping and cargo handling methods and technology. Such knowledge should have been gained through direct involvement in the chain of ship to shore cargo handling.

Alternatively, and particularly if OCS activities are more important to the future development of the Port of Davisville, the individual should have experience in the exploration department of 2 medium- to large-sized petroleum companies with emphasis on logistics of offshore operations.

Salary Range: \$30,000-\$40,000 per year

Presented below is the position description for the supervisor of tariffs and agreements.

Education: Requirements--Credits toward a bachelor degree in Business Administration with a major in Accounting or Financial Management.

Prefer--A bachelor degree in the above areas plus some formal training in the administrative proceedings of the Interstate Commerce Commission and/or the Federal Maritime Commission

Experience: Requirements--One to three years of experience in any of the following positions:

- Director of traffic for a port authority
- A rate examiner in a motor carrier or rail freight rate bureau
- Management Position in the traffic department or tariff group of a water carrier.

Prefer--An ICC or FMC licensed practitioner.

General: The individual should be knowledgeable, through hands-on experience, in publishing tariffs for water carrier, ports and marine terminals. The individual should also have experience or knowledge of the development and administration of port lease and use terms. The individual should also be somewhat familiar with accounting and billing procedures.

Salary Range: \$25,000-\$30,000 per year

Presented below is the position description for the Harbor Master.

Education: High school diploma or equivalency. No higher, formal education required.

Experience: This position does not require experience in the maritime industry. The individual should have 5-10 years of work experience and some familiarity with security force operations.

General: The individual will be responsible for berth assignments and use, and for providing harbor security. Other duties will include responsibility for port provided vessel services such as electricity and water and insuring that port charges and services are recorded and billed properly.

This position is not a full-time job and could be assumed by another RIPAEDC employee.

Salary Range: \$16,000-\$22,000 per year

NOTE: The salary ranges are estimated, based on salaries at small Atlantic and Gulf Coast ports.

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