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THE COMMONWEALTH OF MASSACHUSETTS
OFFICE OF THE INSPECTOR GENERAL

REPORT ON THE
WOODS HOLE, MARTHA'S VINEYARD AND NANTUCKET
STEAMSHIP AUTHORITY

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Joseph R. Barresi
Inspector General

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SUMMARY

Introduction

The Wood's Hole, Martha's Vineyard and Nantucket Steamship Authority is a public agency providing ferry boat service for passengers and vehicles to and from five locations -- Wood's Hole, in the Town of Falmouth; Hyannis, in the Town of Barnstable; Oak Bluffs and Vineyard Haven on Martha's Vineyard (Dukes County); and Nantucket.

The Authority is governed by a three-person board, with one member representing Nantucket, one member representing Dukes County, and one member representing Falmouth. The Authority has been financially self-supporting since its creation in 1960. In 1984, Authority revenues totalled nearly \$18 million.

This report begins with three case studies which describe major projects recently undertaken by the Authority: the Nantucket terminal reconstruction project, new vessel planning, and the acquisition of the Skipper Restaurant. The report then reviews other aspects of the Authority's operation and management, following which are presented the conclusions and recommendations.

Major Findings

The Nantucket Terminal Reconstruction Project

The largest construction project in the Authority's history was completed more than two years behind schedule and more than \$3 million over budget. The project was characterized by the Authority's inability to effectively manage the design and construction process and by poor performance on the part of the project engineers.

The building design process was haphazard. The decision to construct a new building rather than renovate the existing buildings was made without adequate analysis or explanation and was never approved by the Authority board. This lack of planning then led to seventeen different building designs being produced over a three-year period. The

plans for the building continued to change and evolve throughout the final design and well into construction. At one point in the building design process the Authority voted to pour a concrete foundation before deciding which building design it wanted. Only after the Inspector General's intervention did the Authority defer the foundation construction until after it had obtained cost estimates and selected a design; this approach allowed it to negotiate a much more favorable price with the contractor.

As a result of this chaotic design process, the building may be bigger than what is needed and has cost more than it should have. As finally built, two-thirds of the usable floor space on the second floor is empty. The final construction cost for the terminal building was more than \$600,000; had the final design been included in the original bid package, the cost would likely have been well under \$400,000. In addition, the Authority paid more than \$500,000 in design fees for the building. In normal practice, design fees should be ten percent or less of the construction cost. By not following an orderly design process, the Authority has spent over \$1.1 million designing and constructing a terminal building which should have probably cost less than \$500,000.

The structural integrity of parts of the facility is questionable. The Authority's design engineers, C.E. Maguire, Inc., failed to observe standard and accepted engineering practices. They made a series of errors throughout the design, testing, and installation of the structural supports, or piles, for the dolphins and transfer bridge foundations. The most serious error was Maguire's issuance of pile driving instructions based on the results of a failed pile load test and inadequate soil borings. The contract specifications stated that the pile load tests must conform to the State Building Code, which in turn requires that a load test be successful to act as a basis for the driving of other piles. Key Maguire officials offer contradictory explanations as to how the pile driving instructions were derived. As a result of these errors, as well as poor recordkeeping by all parties, the Authority cannot be certain that the piles are structurally sound. There is considerable evidence to suggest that they are, in fact,

understrength.

Portions of the north bulkhead may also be understrength. Maguire engineers knew that the water depths in the north slip were greater than had originally been assumed and that this could result in decreased safety factors. One of the engineers recommended remedial action, but no steps have been taken to date to correct the problem.

The Authority was overcharged for fill. The contract specifications called for a certain type of gravel fill; however, the Authority's construction contractor, P. Gioioso & Sons, substituted a lower quality of fill while charging the Authority for the higher quality.

Gioioso also billed the Authority on two occasions for more fill than was actually delivered. The failure of the Authority's resident engineer to maintain adequate construction records permitted these inflated billings to occur.

Poor performance resulted from management failure at all levels. The problems which arose during the course of this project were in large part the result of inadequate supervision and control. There were four different levels of management in the Nantucket project -- the designer, the project manager/resident engineer, the executive director, and the board. The performance of each was seriously flawed.

New Vessel Planning

The Authority has been using the same five vessels for over a decade; for nearly the same period of time the board has been engaged in discussions about acquiring a new vessel. These discussions have been disorganized and haphazard; there has been a complete absence of a rational planning process. Recently, the Authority retained a naval architect to prepare detailed plans and specifications for a new vessel, even though the members still had not reached a consensus on the basic requirements and design concepts, including the length and width of the vessel, whether the freight deck should be completely enclosed, and the configuration for loading vehicles.

The Skipper Restaurant

The Authority recently voted to purchase the Skipper Restaurant property, adjoining its Nantucket terminal, for \$1.3 million. This decision was made after months of haphazard discussions, again characterized by a lack of planning and analysis. The decision to purchase the property was made despite the fact that the Authority had not yet gotten an appraisal of the property; despite the fact that the Authority's attorney had indicated that the Authority already owned a major part of the restaurant building; despite the fact that the Authority had no plans for the use of the property; and despite the fact that the Authority had not reviewed the condition of the structures. After the purchase was completed, it was discovered that the main building was in such poor condition that it would be necessary to demolish it.

Other Operations and Management Issues

In addition to the three case studies, the Inspector General reviewed a number of other issues relating to the day-to-day operation and management of the Authority. Major findings include:

- The Authority lacks documented personnel policies and procedures.
- Overall staffing levels are not unreasonable, but top management positions are not well organized.
- There is a lack of competition for many contracts, along with an absence of written policies and procedures governing procurements.
- Significant improvements have been made in the areas of fleet maintenance and reservations systems.

Conclusions

The primary conclusion of the Inspector General's study is that the Authority functions adequately on a day-to-day basis but is unable to deal effectively with major, non-routine decisions and projects. There are several underlying factors which contribute to this problem.

Planning for major decisions is inadequate. Decisions about major capital facilities are not fully analyzed and documented. Little effort is made to define the Authority's operational requirements during the initial planning phases.

The board spends too much time discussing routine matters. The excessive attention to detail greatly reduces the amount of time available for planning and policy-making. The Authority lacks documented policies which would enable it to delegate routine administrative matters to staff, thereby freeing time for major decision-making.

The board does not receive adequate staff support. Essential management analysis is lacking. Discussions of major issues are scattered over dozens of memos, making it difficult for the board members to focus on significant issues.

The majority of the board has no confidence in the executive director's management ability. The basic elements of a good working relationship between the board and the staff are absent, impeding effective management.

Board members frequently take part in administrative activities. Some of the members feel that such involvement is necessary because of their unhappiness with the performance of the executive director. Instead of trying to deal with the perceived management problems, members have at times tried to become a substitute for management.

Relationships among board members themselves are poor. These relationships have been marked by hostility, rudeness, and even physical attack. The frequency of disputes at board meetings diminishes the board's ability to deal with significant issues rationally and thoughtfully.

Recommendations

The Inspector General offers twenty-two recommendations aimed at addressing the problems chronicled in this report. The recommendations are organized into five major categories:

- (1) Recommendations to improve the functioning of the board and its relationship with the Authority's staff. These include actions to increase the size of the board and to clarify the respective roles of the board and the staff.
- (2) Recommendations to improve planning, including a greater emphasis on long-range service planning.

- (3) Recommendations to improve the management of future construction, including extension of the Ward Commission reforms relating to planning, programming, designer selection, and construction supervision to the Authority's projects.
- (4) Recommendations relating to operations, including the development of contracting procedures and adjustments to the Authority's organizational structure.
- (5) Recommendations relating to the Nantucket terminal project, including steps necessary to ensure the structural integrity of the project and to recover damages from deficient work. The Inspector General estimates that more than one million dollars could potentially be recovered from the Authority's contractors.

PART ONE
INTRODUCTION

About the Authority

The Woods Hole, Martha's Vineyard and Nantucket Steamship Authority (hereinafter, "the Authority") is a public agency which was established by chapter 701 of the Acts of 1960 for the purpose of providing ferry boat service to the islands of Martha's Vineyard and Nantucket. The Authority replaced the former New Bedford, Woods Hole, Martha's Vineyard and Nantucket Steamship Authority.

The Authority currently provides service to and from five locations -- Woods Hole, in the Town of Falmouth (where the Authority's main offices are located); Hyannis, in the Town of Barnstable; Oak Bluffs and Vineyard Haven on Martha's Vineyard (Dukes County); and Nantucket. The Authority's current fleet consists of five vessels, four of which carry both passengers and motor vehicles and a fifth which is used primarily for vehicles. In 1984, the Authority had revenues from its passenger and freight traffic of nearly \$18 million. The Authority employs approximately 450 people, many of whom work only during the peak season. In addition to its own services, the Authority also has certain regulatory powers over other carriers providing service to the Islands.

The Authority is governed by a three-person board. One member must be a resident of Nantucket and is appointed by the selectmen of that town; one member must be a resident of Dukes County and is appointed by the county commissioners; and one member must be a resident of Falmouth and is appointed by the selectmen of that town. Members are appointed for three-year terms, with the chairmanship rotating annually.

The Authority has been financially self-supporting since its creation in 1960. Its enabling act provides that any deficits be apportioned as follows: ten percent to the Town of Falmouth; forty percent to the Town of Nantucket; and fifty percent to the towns comprising Dukes County (with the exception of Gosnold).

About this Report

In early 1984, various requests were made to the Office of the Inspector General to investigate certain specific allegations relating to the Authority. As a result of these investigations, the Inspector General decided to undertake a review of other aspects of the Authority's operations. The Inspector General is authorized by law to "make such investigations, audits and reports relating to the administration of the programs and operations of [such public bodies as the Authority], as are in the judgment of the inspector general necessary ..." (G.L., c.12A, §9). This review took place during the period from March 1984 to August 1985, and the results are presented in this report.

Parts two and three of this report contain case studies which describe three major projects recently undertaken by the Authority: reconstruction of the Nantucket terminal, planning for the acquisition of a new vessel, and the purchase of the Skipper Restaurant. Part four contains a brief review of various other management activities. Final conclusions and recommendations are presented in parts five and six, respectively.

A draft of this report was provided to the members of the Authority and to the executive director. Where appropriate, their comments and suggestions have been incorporated into this final version.

The Inspector General wishes to express his appreciation to the members of the Authority, James Smith, Alfred Ferro, and Bernard Grossman, and to executive director Joseph McCormack and his staff, all of whom provided complete cooperation and assistance during the course of this study.

PART TWO
CASE STUDY: THE NANTUCKET TERMINAL
RECONSTRUCTION PROJECT

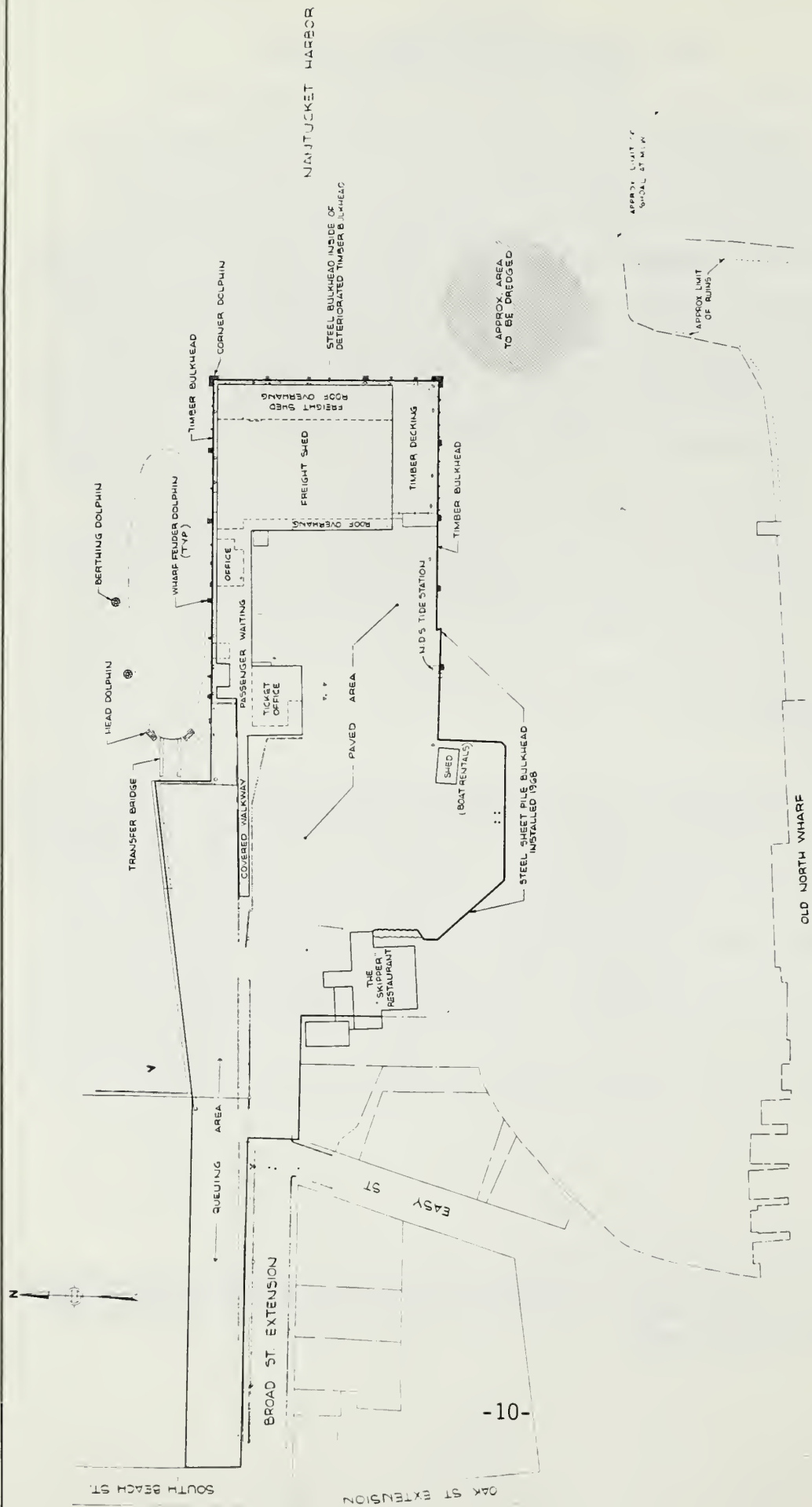
The Nantucket terminal reconstruction project is the largest construction project in the 25-year history of the Authority. The design and engineering of the terminal began in March 1981 and was scheduled to be completed in 26 weeks. Construction was to be completed in 18 months and the new facility was to be fully operational on June 1, 1983. In fact, the new terminal did not open until August 15, 1985, more than two years behind schedule. During that time, the project cost nearly doubled from the original estimate of slightly over \$3.8 million dollars to approximately \$6.8 million. In addition to these schedule and cost overruns, there are serious questions about the structural integrity of parts of the project. Problems have resulted in large part from the Authority's inability to manage the design and construction process and from the performance of the project's engineers.

A Brief History and
Description of
The Project

The drawing on the following page shows the terminal as it existed prior to the reconstruction project. At that time the facility operated with one ferry slip, located on the north side of the pier; the slip was framed by two timber pile dolphins¹. A wooden freight shed dominated the eastern end of the pier; covered passenger waiting areas and walkways were attached to the shed and continued westward to the ticket office. Many of these structures were built at the turn of the century.

During the 1970's, the Authority conducted a series of surveys of the terminal, which identified the existing conditions and made various

¹A dolphin is a cluster of closely driven piles, sometimes supporting a fender; it guides boats into the slip and cushions the impact of the boat against the dock.



NANTUCKET FERRY TERMINAL EXISTING CONDITIONS

recommendations for improvements. As a result of these surveys, in 1978 the Authority asked George Wey, a consulting engineer, to draw up detailed plans and specifications and to provide a cost estimate for the restoration of the wharf and its buildings. Wey estimated the cost of the project at \$3,825,000. In March 1979, a request for funding was submitted to the federal Urban Mass Transportation Administration (UMTA). The Authority received an initial \$192,584 grant award from UMTA for the design and engineering work. A subsequent award of \$1.2 million for construction was received from UMTA, to which was added an additional \$1.6 million in federal highway funds received through the Massachusetts Department of Public Works.

Proposals were solicited from architectural and engineering firms, and in March 1981, the Authority engaged C.E. Maguire, Inc. (Maguire), of Waltham, as project engineers.

At this point in time, the scope of the project, as outlined in Maguire's design contract, contained only the following elements:

- construction of a new bulkhead;
- installation of a new bulkhead anchorage system;
- removal of the wooden pile and timber deck around the freight shed, to be replaced by fill and bituminous paving;
- replacement of the north ferry slip, including the dolphins and transfer bridge;²
- construction of a new south ferry slip;
- dredging of the shoals off the southeast corner of the wharf;
- rehabilitation of the passenger walkway;
- installation of vessel passenger loading platforms;
- necessary modifications to serve the elderly and handicapped;

²A transfer bridge, located at each slip, is a drawbridge that allows vehicles to drive on and off the ferry boats.

- partial demolition and modification of the freight shed; and
- related grading, paving, drainage, and electrical work.

Maguire was to be paid \$223,610 for its services, with the design phase scheduled to be completed in 26 weeks. Construction was to commence shortly thereafter and continue for approximately 18 months. The new terminal was to be fully operational by June 1, 1983.

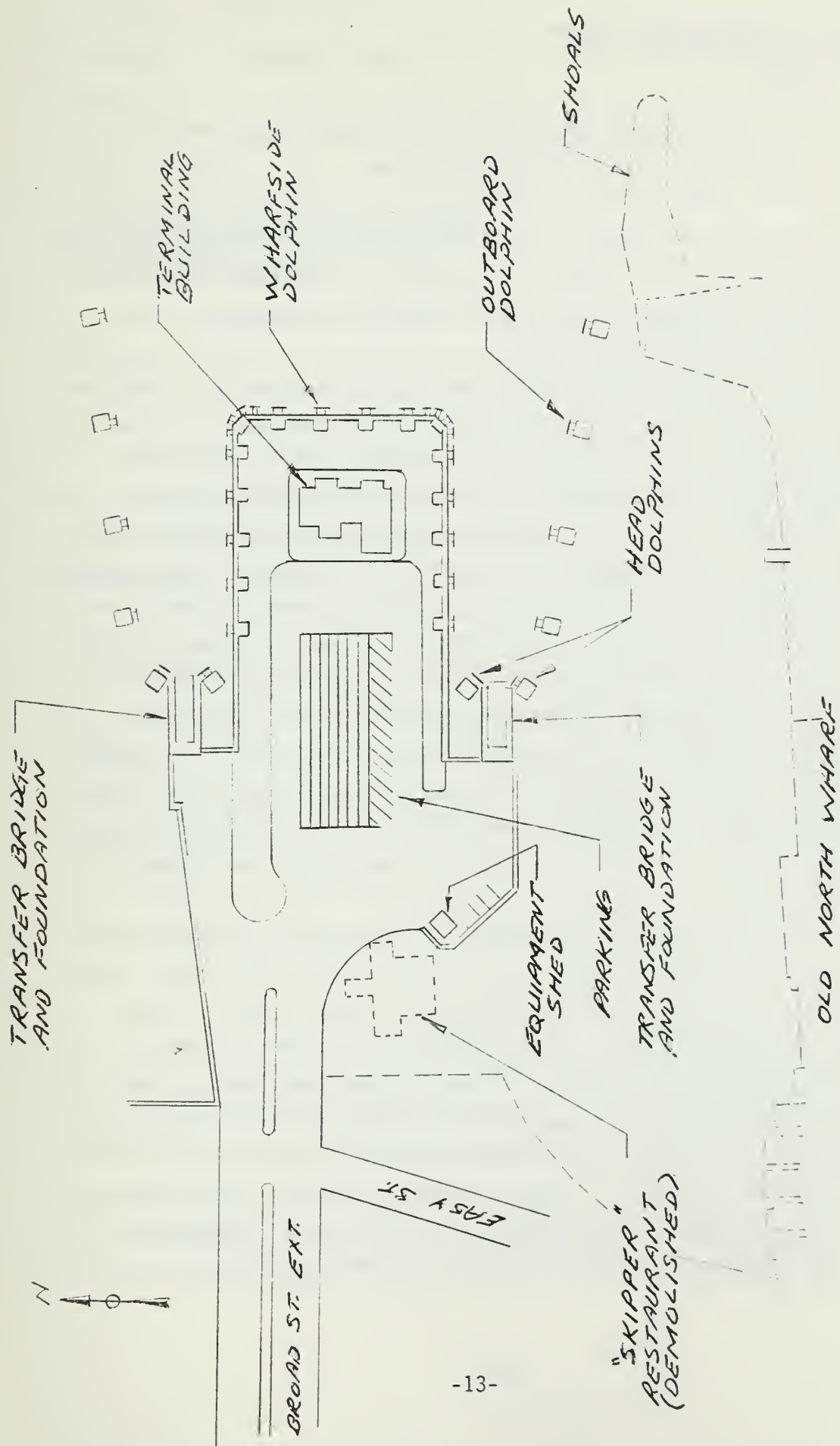
The project was not completed until August 15, 1985. The scope had also changed dramatically. The freight shed, which was originally to have been renovated, was demolished and a new building constructed, at a cost of more than \$1.1 million. The timber pile dolphins were replaced with vastly different and more elaborate concrete and steel structures, and the bulkhead abutting the Nantucket Yacht Club was replaced, with new lighting installed. The drawing on the following page shows the terminal as it appears following the reconstruction.

Partly as a result of these changes in scope, and partly because of inflation, the cost of the project, originally estimated at \$3.8 million, was revised in 1980 to \$4.2 million, and again in 1983 to \$4.9 million. As of August 15, 1985, the total project cost as estimated by the Authority amounts to nearly \$6.8 million. Design fees alone increased from the original contract amount of \$223,610 to \$655,000. To make up the difference between the actual cost of the project and the amount of available grant funds, the Authority has had to devote nearly \$4 million of its own funds to this project, which in turn has reduced the funds available for other needed capital improvements.

As will be discussed below, this project has been marred by inadequate planning, deficient design work, and poor construction oversight.

The Design of the Building

A large component of the terminal reconstruction project has been the construction of a new passenger waiting/ticket office building at the eastern end of the wharf, at a cost of over \$1.1 million.



NANTUCKET FERRY TERMINAL
CONSTRUCTION COMPLETED

The Decision to Construct a New
Building Lacked Sufficient
Justification

The new building was not in the original 1979 plans for the project. None of the various Authority documents describing the project called for the construction of a new building; the Authority's grant request to UMTA stated that "no structures will be constructed above the deck of the pier in the project." The design and engineering contract specified the "preservation and use of existing components in the rehabilitation of the freight shed."

In April 1981, a structural survey of the existing buildings was conducted by Lin Associates, one of Maguire's subconsultants. The survey found the freight shed to be in generally good condition and recommended that it be retained, but recommended that the passenger shed, ticket office, lean-to area, and covered walk be removed. The following month, Maguire presented its preliminary design report, which stated "the building could be restored if found economical and if the restored building would suit present needs." However, later in that same report, Maguire concluded that "condition surveys and Authority policies bring about the recommendation that all superstructures ... [are to] be demolished to permit construction of new facilities which will satisfy the present and future requirements." There was no further explanation of how this conclusion was reached, nor do Maguire's records contain any analysis or other justification concerning the recommendation.

The decision to demolish the wharf buildings and construct a new building was never brought before the Authority board for a vote; transcripts of the board's meetings contain no discussion of or even reference to this decision. In fact, Maguire's preliminary design report, which addressed not only the building but the plans for the entire reconstruction project, was never brought before the board for its approval. Philip Read, the Authority member from Nantucket at the time, stated to the Inspector General's office that the decision to demolish the buildings was Maguire's; he said he relied on Maguire's professional expertise to make whatever decisions were needed.

As a result of this decision, the scope of the project changed dramatically. However, the Authority made no effort to amend the Maguire contract, despite the fact that the addition of a new building would significantly expand the scope and cost of Maguire's services.

The Building Design Process Lacked
Direction and Did Not Focus on
The Authority's Needs

Over the course of the next three years, seventeen different building designs were produced. Design and redesign continued through the construction phase, almost to the end of the project. Most of the changes were initiated by Read without the approval of the full board.

The first building design was actually a sketch prepared by the Nantucket terminal agent. It consisted of a modestly-sized, one-story ticket office (2100 square feet) near the entrance to the wharf from Broad Street, along with a 3500-square foot covered waiting area at the easterly end. The ticket office was to provide public and employee rest rooms, an employees' lounge, a ticket sales area, and an office for the terminal agent. The board expressed its approval of this design, but when Read sat down with the Maguire architects, he directed them to redesign the ticket office into a two-story building with an unfinished second floor. When Maguire produced the schematics of this redesign, Read decided he didn't like the exterior appearance, so he suggested the building be redesigned again, this time to look like a restaurant that once occupied the site. At this point in the design process, Maguire informed Authority management that its \$223,610 contract limit had been reached.

Following Read's instructions, Maguire redesigned the building again. Meanwhile, Read provided the previous design to a group called the Historic American Building Team for their review and critique; he also contacted several Nantucket businessmen, requesting their ideas. After Maguire completed the next set of redesigns, Read approached the Nantucket Historic District Commission (HDC) for the first time. The HDC, at a December 1981 meeting, recommended that a local architect, who would be better acquainted with the architecture of Nantucket, be

retained to work on the building design. Thereupon Read recommended that Maguire subcontract with Design Associates.³

Maguire then informed the Authority that the cost overrun on its contract had reached \$128,000, due primarily to the repeated redesigns on the building. Read later likened the design process to this point to choosing from a "menu in a restaurant. ... Because it was a federal project we assumed that there was no budgetary restriction."

Design Associates presented a "Victorian" building design, described by Read as "a statement of the 1875 period...[based on]...the first public building on the wharves..." This design was approved by the HDC, but when the other two Authority members -- Alfred Ferro of Martha's Vineyard and James Smith of Falmouth -- learned of the \$750,000 estimated construction cost, they strenuously objected.⁴ Ferro nicknamed the building the "Taj Mahal" and demanded that it be built for under \$500,000. Read apparently agreed that the building was too expensive, for he stated: "We can operate out of a portable trailer with shingles attached to it...so we don't have to spend...a given number of dollars on the building." Read then instructed Maguire to redesign the building so that construction costs would not exceed \$500,000.

In December 1982, Maguire presented a building design that met with Read's approval: a "modified Victorian" with over 5400 square feet of first floor space and over 2100 square feet of second floor space. None of the second floor space was to be finished; it was designated for "future use." The Authority voted to approve this design and go out for

³Maguire had been selected based on the firm's marine engineering experience. Even though the scope of the project changed in May 1981 with the decision to construct a new building, the Authority continued Maguire's services without a review of the firm's qualifications relating to building design.

⁴The first building design, suggested by the Nantucket terminal agent, would have had an estimated construction cost in the range of \$100,000 (based on the \$50 per square foot figure cited in Maguire's preliminary design report), plus some additional costs for the covered waiting area.

construction bids.

But by the time the construction bids had been reviewed and a contract awarded, Bernard Grossman had replaced Read as the Nantucket member.⁵ Grossman then wrote to Maguire outlining changes in the design which he believed would result in a savings of \$100,000. These changes included reducing the square footage of the building by over 1300 square feet, rearranging the toilet facilities, and changing from oil to electric heat. But Maguire believed that these changes could only be accommodated through another total redesign. Maguire's project architect stated in a memorandum:

"...the value of the cost savings of any given configuration change must be balanced against the cost of delaying the [construction] contractor, the cost of design fees, and the multiple additional changes that must be made to accomodate [sic] the first change (the ripple effect)."

According to Grossman, such an analysis was never requested by the Authority. Instead, Maguire began work on incorporating the suggested changes into the design.

Four months into construction, Grossman offered another set of changes which significantly altered the building design. Grossman had sketched a revised floor plan and building design with Merton Barrows, an architect from Boxford with whose work Grossman was familiar. In a letter to Smith, Ferro, and Authority management, Grossman stated:

"It has long been a general concensus [sic] that the proposed Nantucket Terminal Building(s) as now designed are...ugly and incompatible with Nantucket... expensive to build...will have expensive future maintenance costs...[and are] functionally inefficient."

Grossman stated that his new design was "far more attractive in the Nantucket environment, is less costly to build, will be less costly

⁵Read chose not to seek reappointment to the Authority when his term expired at the end of 1982. Grossman, prior to his appointment to replace Read, had been serving as the Nantucket representative on the Authority's financial advisory board.

to maintain, and will be more efficient in which to operate." This latest design still contained a large amount of space on the second floor for which there was no planned use.⁶ The Authority members then voted to accept Grossman's proposal, and Maguire was directed to subcontract with Barrows. In August 1983, the construction contractor, P. Gioioso & Sons, was told to stop work on the building until further notice.

In April 1984, the "Barrows" design was completed and approved by the HDC. Gioioso was asked to provide a price for the "Barrows" design. At the April board meeting, Ronald Eastman, the Authority's project manager, recommended that the members proceed immediately with the pouring of the foundation of the "Barrows" design. Eastman told the members that Gioioso had said that any further delay in the building construction would result in delays in the installation of electrical power needed to operate the newly constructed south slip and would also delay the reconstruction of the north slip; Gioioso estimated the delay would cost an additional \$45,000 for temporary electrical services.⁷ Eastman also told the members that a "ballpark" cost estimate had been received for the new design, but the members did not ask what it was, nor did he volunteer the information. This "ballpark" estimate, provided orally by Gioioso to Eastman the day prior to the board meeting, was more than \$280,000 higher than the contract price for the "modified Victorian." Gioioso confirmed the estimate in writing several days later, but Eastman never sent copies of the letter to the members.

After hearing Eastman's recommendations, the Authority voted at

⁶As finally built, two-thirds of the usable floor space on the second floor is empty. Grossman has suggested that part of this space be used as a computer facility, although the Authority does not have any current plans to relocate part of its computer system to Nantucket. The remainder of the space is designated for "future use;" Grossman has stated that "it is quite likely that it will not be needed for Authority operations."

⁷In fact, the actual cost for temporary electrical service turned out to be considerably less -- under \$10,000.

that same meeting to proceed with the foundation of the "Barrows" design. On learning of this vote, and after reviewing the scant cost information in the Authority's files, the Inspector General suggested that the members first ascertain the costs of both designs and negotiate a firm price. In his letter to the Authority, the Inspector General disclosed Gioioso's quote for the "Barrows" design and noted that a decision to pour the foundation would effectively eliminate the option of returning to the "modified Victorian" design, because the foundations required for the two designs differed significantly. (One of the members, James Smith, later stated that he had been unaware of these facts prior to the Inspector General's letter.) In response to the Inspector General's recommendation, the Authority voted to obtain a firm price from Gioioso for the "Barrows" design, as well as cost estimates from Maguire, before pouring a foundation.

This new cost information clearly demonstrated that the Authority could no longer expect to have a building built for the original bid price, no matter which design was selected. Gioioso's original 1983 bid for the "modified Victorian" design had been a favorable one for the Authority; it was well below the estimate prepared by Maguire prior to bidding. But the year-long delay effectively eliminated the cost advantage from bidding the building as part of the entire project. In a series of letters to the Authority, Gioioso wrote that in the year since August 1983, when the Authority stopped work on the building in order to redesign it,

"there have been cost escalations for both labor and materials ... Regardless of which building is decided upon, we believe we are entitled to cancellation and associated costs of the deleted 'bid' building ..."

"[E]xcessive overhead [has been] required by the unusually long process (one year to date) of reviewing Terminal Building drawings, revised several times, requoteing and breaking out prices for the Building, as yet not final, and negotiating back and forth."

Gioioso submitted a partial bill of \$69,500 for its extra administrative costs due to the delay, and the Authority's attorney informed the members that he expected Gioioso's total bill for these

costs would reach \$150,000. In addition, if the Authority had decided to continue with the "modified Victorian" design, Gioioso would have insisted on negotiating a higher price for the building, reflecting increases in construction costs.

As requested by the Authority, Gioioso submitted a formal quotation for the "Barrows" design; this formal quote was \$90,000 more than the informal quote previously provided to Eastman. Gioioso's new quote represented a total increase in construction costs of nearly \$370,000 over the original bid price. Had the foundation already been poured, as the members had voted at the April meeting, the Authority would have been hard-pressed to avoid paying Gioioso's quoted price in full. But the cost review that followed the Inspector General's recommendation allowed the Authority to negotiate a more favorable price. Maguire's new estimates indicated that if the Authority recouped all building-related costs in the Gioioso contract and put the "Barrows" design out to bid as a separate project, the Authority might expect to pay \$140,000 over the original bid price, a cost which was nowhere near the \$370,000 increase Gioioso had quoted. Using this information, the Authority was able to negotiate a favorable agreement with Gioioso to build the "Barrows" design for only \$200,000 more than the original bid price for the "modified Victorian;" as part of this agreement, Gioioso agreed to drop all claims for extra administrative costs due to the year-long delay.

Even after the Barrows design was adopted and construction finally got underway, Grossman continued to suggest additional changes. One of the more costly concerned the flooring on the first floor. The Barrows design initially called for vinyl tile, but at a March 1984 meeting between Merton Barrows and Maguire architects, a decision was made to substitute carpeting for the tile. One year later Grossman suggested that brick flooring be substituted for the carpeting, at an increased cost of \$15,000. This last change was made after the thresholds had been placed and the doors hung; the greater thickness of the brick meant that the doors and thresholds had to be rebuilt, creating yet another delay in the completion of the building.

Under an orderly design process -- such as that established by the

Ward Commission reforms⁸ -- a feasibility study would have been undertaken to define clearly the Authority's needs and to allow the members to explore and evaluate alternative designs. No such study was ever undertaken for this project, and the plans continued to change and evolve throughout final design and even into construction. As a result of this chaotic design process, the final construction cost for the terminal building was approximately \$600,000; had the final design been included in the original bid package, the cost would likely have been well under \$400,000.⁹

In addition, the Authority paid more than \$500,000 in design fees for the building. In normal practice, design fees should be ten percent or less of the construction cost. In summary, by not following an orderly design process, the Authority has spent over \$1.1 million designing and constructing a terminal building which should probably have cost less than \$500,000.

The Design and Installation of the Piles

In Maguire's design, the dolphins and transfer bridge foundations are supported by steel piles. In designing piles, the engineer first calculates the maximum amount of weight or force which each pile must bear; this is referred to as the design load. The actual load-bearing capacity of each pile depends on several factors: the type of pile used; the length of the pile; the soil properties; and the method used to install or drive the pile. A pile must be designed and installed so that its actual load-bearing capacity is adequate for its design load.

In designing a pile, the engineer uses information from various sources:

⁸The Ward Commission reforms, enacted by the Legislature in 1980, govern most public construction projects in the Commonwealth. However, transportation facilities such as the Nantucket terminal are not currently subject to these statutes.

⁹Maguire's 1984 cost comparisons showed that the "Barrows" design would be \$65,000 less expensive to build than the "modified Victorian" design; thus, if the "Barrows" design had been included in the

- Soil borings are taken in representative areas to provide information about the type of soil.
- Based on the borings, the shape and type of material for the pile are selected.
- Engineering formulas are used to calculate the theoretical length of a pile, based on the soil properties, pile type, and design load.
- The theoretical pile lengths are verified by conducting a pile load test, in which test piles are driven, loads are placed on the pile, and the resulting settlement is measured.

Based on this information, the engineer can establish instructions for the contractor to drive the remaining piles. These instructions typically specify to drive the piles to a required minimum embedment and then continue driving, if necessary, to reach a specified minimum hammer blow count.¹⁰ The pile driving is closely monitored to ensure that the instructions have been followed. It is through this process that assurances can be given that the piles will indeed support the overlying structures.

Unfortunately, in the Nantucket project, there is evidence that Maguire failed to observe standard and accepted engineering practices in the design of the piles, in the conduct and interpretation of the load tests, and in the monitoring of the pile driving itself. As a result, it cannot be said with certainty that the dolphins or the transfer bridge foundations are structurally sound.

original bid package, its cost would have been the same as or even less than was bid for the "modified Victorian." However, the actual total construction cost for the terminal building was \$604,343. This figure includes the original bid price of \$356,000, plus the additional price of \$201,597 negotiated for the "Barrows" design and \$46,746 for various changes authorized by the Authority during construction. It does not include some paving and electrical work which were included with other parts of the project.

¹⁰Piles are typically driven by a hammer. The number of hammer blows required to drive the pile each foot is counted. Under uniform soil conditions, as the pile goes deeper, the blow count generally increases; higher counts indicate that it is becoming harder to drive the pile and that the load-bearing capacity is increasing.

The Soil Borings Should Have Been Deeper

Soil borings are necessary to obtain information about the type and strength of the soils. According to Thomas Otto, a marine structure engineering expert consulted by the Inspector General's office,¹¹ standard engineering practice is to take some borings at least 25 feet deeper than the piles are expected to go. This is because the strength of a pile depends not only on the soil through which it is driven but also the soil directly below, where some of the pile's forces are being directed. If the soil conditions just below the pile are markedly different -- for instance, a much more compressible soil such as clay -- unexpected settlement could occur at a later time.

Maguire called for seven borings and specified the depth of each. Maguire's preliminary report had estimated pile embedments of up to 80 feet. Thus, borings of at least 105 feet should have been taken. The actual depths of the borings ranged from 32 feet to 71 feet, far less than was apparently needed. Thus, there is strong evidence from which to conclude that Maguire failed to ensure it had adequate soil information.

Maguire Should Have Considered Alternative Pile Types

Maguire's preliminary design report recommended the use of steel H-piles (so-called because the cross-section resembles the letter 'H'); the report failed to provide a cost analysis of any alternatives to the H-pile other than timber piles. Otto suggested to the Inspector

¹¹In order to evaluate certain technical aspects of the Nantucket project, the Inspector General retained Thomas H. Otto & Associates, Inc., an engineering firm specializing in harbor and marine/industrial facility development. Otto is a registered professional engineer specializing in soils and foundations in harbor and marine structures. Working with Otto was Edward Han, also a registered professional engineer; his area of specialization includes fender systems and waterfront terminals.

General's office that a round pile section, such as a pipe pile, might have been more economical because it provides proportionately greater strength in sandy soils like those in the project area.¹² As a result, shorter piles could have been used. Otto calculates that under these particular conditions and for a 50-ton design load, an off-shore H-pile would have to be embedded 88 feet while an off-shore pipe pile would have to be embedded only 55 feet. Shorter lengths translate into lower costs because less material is required and less time is needed to drive the piles. For the Nantucket project, the savings in the weight of the steel alone could have been as much as fifty percent. Given that the total cost of the piles was more than one million dollars, the potential cost savings was clearly high enough to warrant an analysis. According to Otto, under these circumstances it was unacceptable engineering practice not to have considered alternative pile designs.

Maguire's Theoretical Design Work Contained Significant Errors

Using the soil characteristics obtained from the borings, the engineer can apply various formulas to determine the theoretical pile length needed to support the design load. These theoretical lengths are included in the construction contract drawings provided to prospective bidders and form the basis of the contractors' bids. The theoretical lengths are subsequently confirmed or altered based upon the pile load tests; if changes are needed, adjustments are made to the contract price.

Maguire's theoretical pile design failed to predict, within a reasonable range, the actual required pile lengths. Charles Crevo, a

¹²The Nantucket terminal piles rely on friction between the pile shaft and the adjoining sand for their strength, since there is no underlying rock stratum within reasonable depths on which the pile could rest. A pipe pile is a displacement-type pile because it pushes the sand aside as it goes down; this strengthens the frictional force because it makes the sand denser alongside the pile. An H-pile, in contrast, cuts through the sand with little displacement.

vice president and the director of engineering for Maguire, stated in a letter to Bernard Grossman that "[o]ur pile length design was based on U.S. Army Corps of Engineers' Design Manual DM-7, a standard in the industry."¹³ In using DM-7, however, Maguire engineers made a series of errors and incorrect assumptions in their calculations of the ultimate load-bearing capacity of the piles, resulting in theoretical pile lengths which were considerably shorter than they should have been.

Maguire's engineers calculated the total load-bearing capacity of the outboard dolphin, wharfside, and transfer bridge piles by first employing a DM-7 formula for skin friction capacity. Skin friction capacity, which is the frictional force exerted by the soil along the length of the pile, depends on several factors, one of which is earth pressure. In the formula, this factor is represented by the coefficient "K". Increasing the value of the K factor results in a greater load-bearing capacity. According to DM-7, the value should range from 0.5 to 1.0; given the soil properties at Nantucket, DM-7 suggests that a value of 0.6 should have been used. Instead, the Maguire engineers selected a value of 1.2. As a result of this assumption, the expected load-bearing capacity for all the piles was doubled.

The engineers then calculated the end-bearing capacity of the pile, which is the amount of load supported by the bottom tip of the pile resting on underlying soil. To maximize the end-bearing capacity, the engineers assumed the use of an endplate, which is a rectangular piece of metal attached to the bottom of the pile to increase the surface area of the pile tip. But the use of endplates can have an effect on the skin friction capacity as well. There is no evidence that the engineers compensated for this effect.

The engineers also made a mathematical error in calculating the end-bearing capacity. When the engineers prepared a table showing capacity as a function of pile length, based on an engineering formula,

¹³The DM-7 manual is actually published by the U.S. Navy, not the Army Corps of Engineers.

they mis-labelled capacity with "tons" instead of "kips"; a kip represents 1000 pounds or one-half ton. Thus, when this graph was subsequently used, it effectively doubled the expected end-bearing capacity of the piles.

As a result of these errors, the total load-bearing capacity of the piles was substantially overestimated, leading in turn to theoretical pile lengths that were shorter than they should have been. For example, Maguire's design drawings specified an embedment of 46 feet for the outboard and head dolphin piles. According to Otto, proper calculations would have shown required embedments ranging up to 95 feet for these piles.

The fact that errors occurred throughout the calculations for the transfer bridge foundation piles, outboard dolphin piles, and wharfside dolphin piles suggests that the work of these design engineers was not adequately reviewed by supervisors.¹⁴

The Pile Load Tests Were Inadequate

Two piles were driven for load tests. The first was embedded 83 feet. (Construction documents which Maguire had prepared showed pile embedments ranging from 46 feet to 82 feet.) As the test pile was driven to the full embedment called for by Maguire, however, the hammer blow counts were much lower than expected, raising the possibility that the pile's load-bearing capacity would not reach the 50 tons specified in the design. A second test pile was then driven, this time with an embedment of 130 feet. It is not clear why this particular length was selected for the second test pile; it could have been estimated that a 130 foot embedment would support a design load of 100 tons, well in excess of what was needed, so the information from a test pile of this length would not be particularly useful.

Maguire's contract specified that the pile load tests "shall

¹⁴This apparent lack of supervision and review is evidenced by two other errors made by Maguire on the construction drawings. In the first instance, a drawing showing the transfer bridge piles was inconsistent

conform to the requirements of ASTM [American Society for Testing and Materials] Designation D-1143-74, and the Massachusetts State Building Code..."¹⁵ Under the building code, increasing loads are put on the pile until twice the design load (in this case, 100 tons¹⁶) is reached; at certain increments the load must be held until the pile stabilizes. The total net settlement after the final test load is removed cannot exceed one-half inch.

The longer pile was tested first and passed the test. Then the shorter pile was tested, but it completely failed. Before the final 100-ton load was even reached, this pile began to sink and did not stabilize; final net settlement was 3.028 inches. The report submitted by Mistry Associates, the engineering consultants hired by Gioioso to oversee the load tests, stated unequivocally, "... these results indicated a pile failure ..."

It is a requirement of the state building code that a load test must be successful to act as a basis for driving other piles and can, even then, be used to establish pile driving instructions only for piles of similar type and similar size, and driven with similar equipment into similar soil. Otherwise, the load test has little or no validity in predicting the strength of the other piles.¹⁷

with another drawing showing the head dolphin piles in the same area. If the transfer bridge piles had been installed as shown, it would have been impossible to install the dolphin piles properly. In the other instance, the drawings failed to show the endplates on some piles, even though, as previously noted, the use of endplates was assumed in the design calculations.

¹⁵Despite this contractual provision, Maguire officials later told the Inspector General's office that they do not believe the building code applies to the dolphins.

¹⁶Maguire's design load for the wharfside dolphin piles was actually somewhat higher -- 65 tons -- so a 130 ton test would have been needed for these piles. Maguire seems to have ignored the higher design load in specifying only a 100 ton test.

¹⁷Section 722.9 of the state building code reads as follows:
"Application of pile load test results: The results of the load test can be applied to other piles within the area of substantially

Maguire Issued Pile Driving
Instructions Which Cannot
Be Supported by the
Load Tests

Following the completion of the pile load tests, Maguire instructed the contractor to drive the remainder of the piles to at least the lengths specified in the contract drawings. For the transfer bridge and outboard dolphin piles, the driving was to continue beyond these lengths as needed to achieve a hammer count of nine blows per foot; this was the same hammer count reached in the failed load test for the shorter pile.¹⁸ As a result of these instructions, all but six of the remaining 238 piles were embedded less than 80 feet; many were embedded as little as 60 feet. The test results did not support such a decision: the pile which was embedded 83 feet had failed its test, while the other, successful test would have required much longer piles to be used, which in turn would have caused a significant increase in the project cost.

It is not entirely clear when and on what basis the decision was finally made to base the driving instructions on the failed load test, because there is no documentation of the decision in the project records. A meeting was held shortly after the load tests to discuss the test results, with four key project officials in attendance -- project director Klaus Schoellner; former project manager John Gaythwaite; Lee Worth, a consulting soils engineer from Maguire's Providence office; and Asaf Qazilbash, at the time the head of geotechnical engineering in

similar subsoil conditions as that for the test pile; and providing the performance of the test pile has been satisfactory and the remaining piles are of the same type, shape and size as the test pile; and are installed using the same methods and equipment and are driven into the same bearing strata as the load-tested pile to an equal or greater penetration resistance."

Similar language is contained in the Navy's DM-7 manual, which, as previously noted, Maguire has stated it relied on.

¹⁸The longer pile, which had passed its load test, had been driven to 69 blows per foot.

Maguire's Waltham office. Schoellner and Qazilbash both told the Inspector General's office that the driving instructions were formulated at that meeting, while Gaythwaite and Worth said they were formulated later. Worth stated that the instructions were formulated sometime after that meeting, utilizing the results from the pile load test, calculations from the DM-7 manual, and consultations with pile driving experts. Those experts, however, told the Inspector General's office that no one from Maguire had spoken with them about the pile driving instructions for the Nantucket project.

According to Thomas Otto, there are actually three reasons why the use of this failed load test was invalid. The first, as already mentioned, is that the 83-foot pile did not pass the test and that almost all of the installed piles were even shorter. Second, the test piles were driven in the wharf area, where embedment was measured from the surface of the ground. Of the 240 project piles, 168 are located offshore, in water depths of 15 to 18 feet; in these cases, embedment is measured from the bottom of the bay. Piles embedded to equal lengths in the onshore and offshore locations would pass through different soil strata, because the onshore pile would begin higher than the offshore pile. Thus, an onshore test would not necessarily be a valid predictor of pile performance in an offshore location. Third, the validity of test results depends on consistency in pile driving methods. The impact hammer that was used to drive the test piles was of a different energy than the hammer used to drive many of the piles around the south side of the wharf. An even more drastic change occurred midway through the project, when Maguire permitted the contractor to switch to a vibratory hammer without conducting a new load test using that type of hammer.¹⁹ In summary, even if the load test had been successful, it would still have been inappropriate to apply that test result to most of the piles which were ultimately installed.

¹⁹According to Otto, use of an impact hammer may result in a different load-bearing capacity for a given length than will a vibratory hammer, all other factors being equal.

The Pile Driving Records Are Inadequate

Both the state building code and the Navy's DM-7 manual require specific and detailed information to be kept on all piles driven, so as to document the expected load-bearing capacity of each pile. Gioioso's contract with the Authority for the Nantucket project mirrored those requirements, stating that "complete and accurate records" of pile driving were to be kept. However, the subcontract between Gioioso and its pile driving subcontractor, Hub Foundations, only required Hub to keep part of the required records. Gioioso should have kept the remainder of the records but did not.

The Authority's project manager, Ronald Eastman, stated to the Inspector General's office that he was responsible for "the contractor's compliance with the contract specs [specifications]." Yet Eastman failed to require that the needed records be kept. This omission should also have been noticed by the Maguire engineers, who were responsible for certifying the contractor's compliance with the specifications. Eastman was also serving as resident engineer and should have been keeping his own pile driving records, as well.

Records for some piles were not kept at all; for other piles, the information is incomplete. Records for piles driven with the vibratory hammer are particularly deficient; there is no indication of the energy setting used on the hammer or the rate of penetration of the pile.

The Strength of the Piles Is Unknown

The lack of successful pile load tests on piles comparable to those that were installed, as well as the lack of adequate driving records and soil data, makes it difficult to determine accurately the actual load-bearing capacity of the piles. There are, however, two methods which can be used to gain at least an approximate idea of pile strength. The first is the "ENR" formula, which provides an estimate of

pile capacity based on the hammer blow counts used in driving the pile.²⁰ Based on the hammer energy used in the load tests, the ENR formula indicates that blow counts in the range of 29 blows per foot would be needed to achieve a 50-ton design load, in comparison with the 9 blows per foot specified by Maguire. According to this formula, a majority of the piles for which there is data available are understrength.²¹

A second method of estimating pile strength is to use theoretical formulas of the type used in the original pile length calculations. These formulas relate pile capacity to factors such as pile length, pile type, installation method, and soil characteristics. Thomas Otto performed these calculations for the Inspector General's office, and these calculations indicate that, given Maguire's design loads, all but 32 of the 240 piles may be substantially understrength. For example, the head and outboard dolphin piles are required to support a design load of 50 tons, yet according to these calculations, these piles are driven deep enough to support design loads of only 20 to 32 tons.

In summary, the Authority cannot be assured with any certainty that the installed piles are of sufficient strength, and there is considerable evidence to suggest that they are, in fact, understrength.

²⁰Both the state building code and the Navy DM-7 manual sanction the use of the ENR formula as a check on other calculations, although it should be noted that the formula is not considered totally reliable when used with very low blow counts, as was the case with most of the Nantucket piles.

²¹It cannot be said with certainty whether or not these understrength piles will fail, because the design load includes a safety factor which allows for unknowns and deviations during the construction process. Because such deviations cannot be controlled, the safety factor should not be used to compensate for design errors.

The Wharfside Piles
Are Shorter Than
Specified

A final problem relating to the installation of the piles concerns the wharfside fender piles. The contract drawings specified an embedment of 66 feet for these piles, but they were installed with an embedment of only 61 feet. According to Maguire's project director, Klaus Schoellner, the contractor misread the drawings when ordering the piles and did not realize they were to be installed at an angle. The 61-foot figure represented the vertical depth, not the embedment. However, Schoellner told the Inspector General's office that the length of these piles was not important "because they're actually really only a back-up system for the soils resistance." He further stated that there was "no such point" at which the piles would be too short to support the necessary design load.²²

According to Otto, it is inappropriate and undesirable to rely on soils resistance in a case such as this. He notes that the piles alone must be able to resist the entire force, because only after the piles moved excessively would the bulkhead and soil absorb any force. This, in turn, could result in warping of the bulkhead and significant movement of the soil.

Portions of the North
Bulkhead May Also Be
Understrength

The project included building a new bulkhead outside the existing bulkhead on the north side of the wharf. This new bulkhead has steel sheeting to contain and support the fill in the wharf area. It was necessary to embed the lower part of this sheeting in the bay bottom to prevent it from moving. Maguire's design called for driving 34-foot

²²If this were indeed the case, a question arises as to whether the specified length was a necessary requirement or whether money could have been saved by specifying a much shorter length.

sheets to an embedment of 16 feet; this assumed a scour depth of 18 feet off the north face of the wharf, based on soundings taken in April 1981.²³

When the pile driving subcontractor began driving the sheets on the north side, he claimed that the scour depths were much deeper than 18 feet and were as much as 26 feet in some locations, preventing him from driving the sheets deep enough to maintain stability. In August 1984, Thomas Billups, the Maguire engineer who had designed the bulkhead sheeting, wrote a memorandum to Schoellner, informing him that a scour depth of 20 feet existed for a length of about ten feet along the north bulkhead. The engineer said further that a depth of 20 feet effectively reduced the safety factor for the bulkhead strength from 1.50 to 1.40. He stated:

"Although it does not appear that the localized increase in scour depth, as we understand its extent, is an immediate threat to the integrity of the bulkhead system, it is not recommended that the design factors of safety ... be eroded away by scour."

He recommended that rock fill be placed against the bottom of the bulkhead to help stabilize it and to reduce further erosion. Although Schoellner later told the Inspector General's office that it is important to maintain a safety factor of at least 1.50, he apparently did not inform the Authority of Billups's recommendation.

Soundings taken by the Authority's resident engineer, Ronald Eastman, indicate that depths of 22 feet occur along the bulkhead. These depths were confirmed by later soundings taken independently by staff from the Inspector General's office, which showed 22-foot depths along an 80-foot length of the bulkhead. These depths reduce the safety factor for the strength of the bulkhead to 1.06 and reduce the safety factor for the stability of the bulkhead to 1.48. The effect of these

²³Scour depth is the water depth measured in areas where the harbor bottom is affected by the scouring action of the ferry propellers.

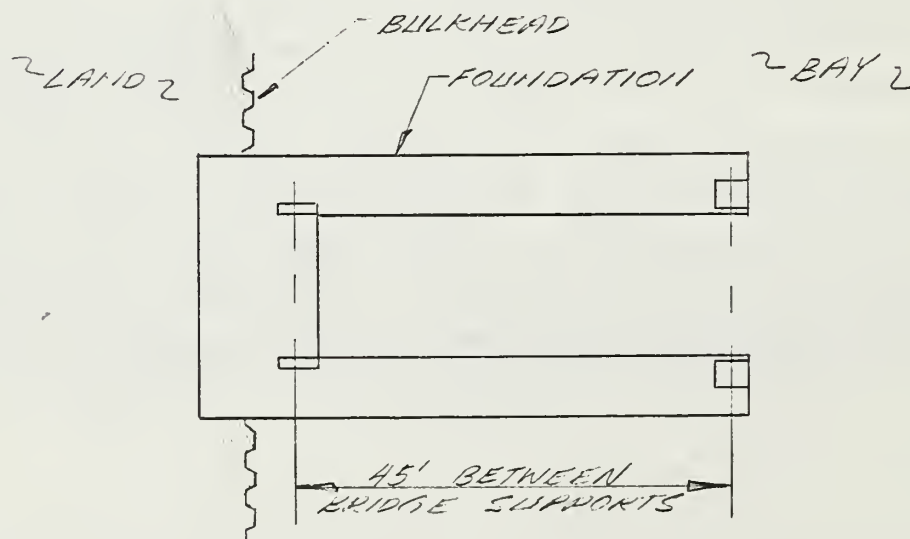
lower safety factors is an increased probability that settlement and cracking of the paved areas along the bulkhead wall will occur over time.

Although work on the Nantucket project was officially completed on August 15, 1985, no steps have been taken to correct this problem.

The Design of the Transfer Bridge Foundations

Each of the two transfer bridges is supported by a concrete slab foundation. In the Maguire design, this slab is in the shape of a "U". One of the bridge supports is located near the closed end of the "U", over water just off the bulkhead. The other support is located across the two tips of the "U", further out into the slip. The concrete slab, in turn, is supported by twenty-two H-piles. The total cost of each foundation is \$110,000.

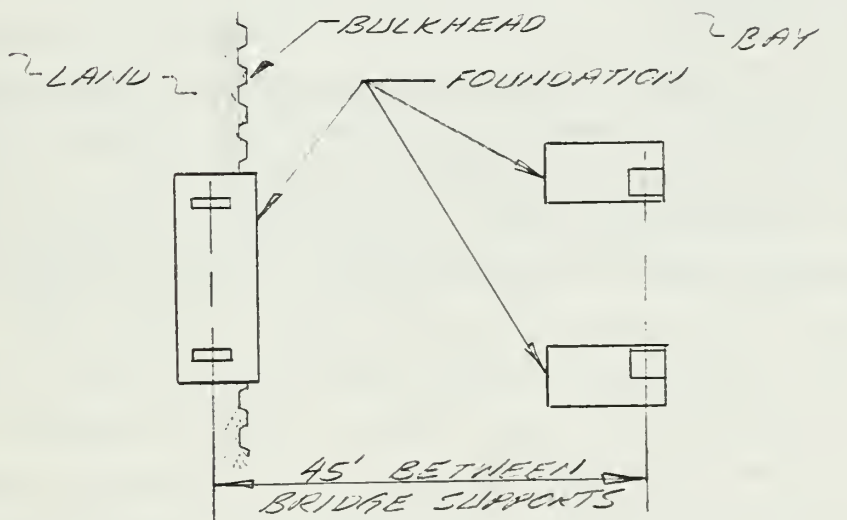
Transfer Bridge Foundation -- Maguire Design



Maguire's Design for the Transfer
Bridge Foundations Appears
Unnecessarily Expensive

Despite the large cost for these foundations, there is no indication in the project records that Maguire considered any alternative designs. One obvious alternative would have been to move the entire bridge and foundation back approximately eight feet, so that one of the bridge supports would have been located on land behind the bulkhead rather than over the water. In addition, the sections of the concrete slab which connect the two bridge supports could have been eliminated without sacrificing any lateral or longitudinal stability.

Transfer Bridge Foundation -- Alternative Design



This alternative would have eliminated ten of the twenty-two piles and nearly half of the 100 cubic yards of reinforced concrete used in each of Maguire's foundations. The cost of this alternative design

would have been approximately \$64,000 per foundation,²⁴ for a total potential savings of \$92,000. There may have also been other designs which could have offered even greater savings.

The Design of the Dolphins

Dolphins, also called fender systems, are structures located in the water and along the perimeter of the wharf. Their function is to guide the boats into the slips, prevent them from hitting the wharf, and, in bad weather, prevent the boats from being blown away from the slips. At the Nantucket terminal, dolphins are located in three areas: outboard of the wharf, framing the slip (outboard dolphins); along the edge of the wharf (wharfside dolphins); and at the front of the transfer bridge foundation (head dolphins).

Maguire's Analysis Omitted Significant Maintenance Costs

The original project scope prepared by George Wey specified timber pile construction for the dolphins, similar to that in use at the Authority's facilities in Hyannis and, at the time, Nantucket. In May 1981, Maguire produced a preliminary design report that presented an evaluation of three types of fender systems: (1) the traditional timber pile dolphins; (2) the steel and concrete dolphins used at Woods Hole; and (3) a new, state-of-the-art design consisting of concrete, steel, and rubber construction with timber facing. Maguire's evaluation indicated that the disadvantages to the first two designs were the relatively high maintenance and repair costs; the evaluation indicated that there were no disadvantages to the third design, other than a higher initial cost (about \$80,000 for each outboard dolphin, or about

²⁴This cost comparison uses Gioioso's bid price of \$450 per cubic yard for reinforced concrete and \$35 per linear foot for 14X73 H-piles.

twenty percent more than for the timber pile design). Maguire's evaluation was silent on maintenance costs for the third design, implying it was maintenance free. John Gaythwaite, Maguire's project manager, later stated to the Inspector General's office that those fender systems were "basically maintenance free, short of a[n] ... accident."

According to Edward Han, one of the Inspector General's marine structure engineering experts, the state-of-the-art fender system selected by Maguire is not maintenance free. The steel piles used in this system should have a cathodic protection system, without which significant corrosion can occur in as little as five years. The piles should also be coated with protective paint where they are exposed to the air. The piles at the Nantucket terminal were coated, but no cathodic protection was installed, contrary to preferred practice; as a result, corrosion could be accelerated unless such protection is added in the near future. In addition, both the cathodic protection and the protective coating need to be periodically renewed.

Over a twenty-year period, the total cost of this maintenance could amount to more than \$300,000.²⁵ For the timber pile system, the estimated maintenance cost over twenty years is \$240,000, based on Maguire's figures; no maintenance figures were provided for the second alternative. Thus, Maguire's recommendation to select the third alternative in large part because it offered significantly lower maintenance costs than the other alternatives appears to have been based

²⁵Repainting is estimated to cost \$10 per square foot, or \$40,000 for all dolphins. Repainting is needed every five years, so three repaintings in twenty years would cost \$120,000. The cathodic protection system is estimated to last ten years and to cost \$3300 per dolphin. With a total of 28 dolphins, two replacements over twenty years would cost \$184,800. These estimates do not include replacement of the rubber and timber components at the top of the dolphin, which will also deteriorate over time.

on an incomplete analysis of these costs.²⁶

The Quality and Quantity
of the Fill

Several problems were related to the earth fill which was used in the construction of the wharf.

The Authority Was Charged for
A Higher Quality of Fill
Than It Received

The contract specifications called for certain types of gravel fill which Maguire felt had the strength and drainage qualities needed for the pier. Maguire's project manager, John Gaythwaite, told the Inspector General's office that he was aware when the contract documents were being prepared that the specified types of fill might not be available on the island, but he included them in the specifications because he believed it provided a better foundation base for the building. Yet during construction, Maguire and Eastman approved the use of a lower quality fill, characterized as medium sand, because it was available on the island and the higher quality fills were not.

This substitution significantly reduced Gioioso's costs, but neither Maguire nor Eastman sought an adjustment in the \$274,000 contract price for this item. Contrary to contract specifications, no written change order was submitted to or approved by the Authority. As a result, Gioioso reaped the benefit of lower costs.

²⁶Maguire also did not raise, nor did the Authority perceive, potential aesthetic issues. The recommended structures were much larger and bulkier than the structures they were to replace, and some controversy should have been expected, given their location adjoining an historic district. The Authority is now facing possible litigation because of the appearance of the structures.

The Authority Paid for More
Fill Than It Received

The first invoice submitted by Gioioso to the Authority claimed that 1,520 cubic yards of fill were delivered to the Nantucket site during July 1983 at a total cost of \$18,240. A review of invoices from Gioioso's supplier during that period showed that only 850 cubic yards were supplied to Gioioso.²⁷ Gioioso told the Inspector General's office that the difference between the amount billed by the supplier and the amount billed by Gioioso to the Authority was caused by the difference between the volume of fill in its compacted state and its "fluffed up" volume after excavation. But according to the Authority's project manager, Ronald Eastman, the amount of "fluff" in the fill was normally about ten percent, which would not account for the difference between 850 and 1,520 cubic yards. In addition, the Authority's contract with Gioioso specified that payments would be based on quantities as delivered to the site and compacted; there was no provision for "fluff" even if such a phenomenon had occurred. As a result, the Authority apparently overpaid \$8,040 on the July 1983 invoice.

A subsequent invoice submitted by Gioioso claimed that 1,380 cubic yards were delivered during October 1983, at a total cost of \$16,560. Supplier invoices reviewed by the Inspector General's office showed that only 1,080 cubic yards were supplied. In this case, Gioioso claimed that the 300 cubic yard discrepancy was due to a calculation error. Gioioso subsequently refunded the \$3,600 overbilling from this invoice after being questioned about it by Inspector General's office, although Gioioso has never refunded the \$8,040 overpayment from the first invoice.

These inflated billings would have been detected had adequate records been maintained by Eastman, who was also serving as the resident engineer. Having a resident engineer keep daily construction records is

²⁷Even the figure of 850 cubic yards was a compromise between Gioioso and its supplier, after Gioioso had claimed that it had received only 640 cubic yards.

a standard practice on major construction projects, but Eastman did not maintain any such records or documentation.

When asked whether he maintained records, particularly on the quantities of fill delivered to the site, Eastman initially stated that he kept those records "in his head." If this were the case, he would have had to remember quantities delivered by various sized trucks every day for at least a month, in order to verify the amount of fill being billed to the Authority. He later amended his statement and admitted maintaining "some kind of a fudged notation." When asked where those records were, he responded, "Well, I empty my wastebasket with regularity." Eastman's failure to maintain adequate records permitted these inflated billings to go undiscovered.

Lack of Adequate Supervision and Control
Contributed to Problems on the
Nantucket Project

The problems which arose during the course of this project were in large part the result of inadequate supervision and control. There were four different levels of management in the Nantucket project, and the performance of each was seriously flawed.

The Designer Did Not Adequately Protect
The Authority's Interests

During the design phase, Maguire engineers appear at times to have proceeded in a manner that was not in the best interests of the Authority:

- in recommending the demolition of the freight shed and the construction of a new terminal building, they advocated an approach which ultimately added significantly to Maguire's fees without documenting that such an approach was cost-effective for the Authority;
- in recommending the design approaches for at least two major components of the project (the selection of H-piles and the design of the transfer bridge foundations), they failed to suggest, and apparently did not consider, a full range of alternative designs which might have been more cost-effective;

- in recommending the dolphin design with the highest construction cost, they failed to provide the Authority with complete information on maintenance costs;
- they made errors in some of their theoretical calculations and on some construction drawings; and
- they issued pile driving instructions which cannot be supported by the load tests.

More money may be required to assess the structural soundness of the facility and correct any problems.

Maguire was also responsible for certain oversight activities during the construction phase, such as ensuring that the contractor complied with the contract specifications and reviewing invoices submitted for payment by the contractor. In at least two instances -- the substitution of a lower quality fill and the failure of the contractor to keep adequate pile driving records -- Maguire certified that work conformed to the contract when it knew or should have known that the work did not fully comply with the specifications. Maguire also accepted the wharfside piles as installed, even though they were not embedded to the length specified in the design, without documenting the justification for the decision.

The Project Manager and Resident Engineer Failed to Protect the Authority's Interests

Ronald Eastman was general manager of the Authority during the early stages of the Nantucket project and later served as both project manager and resident engineer. He was assigned full-time to the project for most of its duration. Among his responsibilities were oversight of Maguire's design work, including review of the design specifications; oversight of construction activities, to ensure that the specifications were followed; review and approval of all bills and invoices; and periodic progress reporting to Authority management and the board. With these broad responsibilities, and with his background in marine construction and ferry operations, he was clearly in a position to identify and correct many of the problems which occurred, yet he failed to do so:

- he failed to seek amendments to Maguire's contract when the cost limit was reached, leaving the Authority vulnerable to large cost overruns during the design process;
- he failed to provide complete information to the board in connection with building design decisions;
- he failed to explore adequately the consequences of the failed pile load test;
- he failed to seek either a change order or an adjustment in costs when a lower quality of fill was substituted;
- he failed to keep adequate construction records, thus allowing at least two instances of overbillings; and
- he failed to enforce the contract requirements regarding pile driving records.

The Executive Director Failed to
Exercise Responsibility for
The Project

As executive director, Joseph McCormack is expected to monitor all of the Authority's activities, to identify problems, and to take action to correct those problems. In the case of the Nantucket project, the cost overruns, the repeated delays in the schedule, and the continual redesigns of the terminal building were clear signs of possible management problems. Given the size and importance of this project, one would have expected McCormack to have become heavily involved. In fact, he reduced his involvement as the problems grew. By the end of the project, he was claiming that the board was preventing him from exercising responsibility, and he and Eastman were rarely speaking to one another.

McCormack claimed that the board wanted to deal directly with Eastman, although there was never any formal board action to that effect. The board members themselves could not agree whether McCormack or the board had supervisory responsibility over Eastman. Philip Read, the former Nantucket member, told the Inspector General's office that

the decision to appoint Eastman as overall manager of the Nantucket project was a joint decision by the Authority members and McCormack. Bernard Grossman, on the other hand, stated that "the buck stops with McCormack." According to James Smith, McCormack made the decision to appoint Eastman as project manager but Eastman had total responsibility for the project. Finally, Alfred Ferro said that Eastman was responsible to both the board and McCormack.

The Authority Members Neglected Their Responsibilities

The three Authority members are ultimately responsible for ensuring that management is performing its job adequately. In this case, the Authority failed to focus its attention on why management was not performing properly. Instead, the Nantucket members, initially Read and subsequently Grossman, became extensively involved in the supervision of the project. In effect, they became a substitute for management.

The members of the Authority should have reviewed the major project decisions to ensure that the Authority's needs were met and that costs were balanced against benefits. The value of such an independent review was exemplified by Smith's and Ferro's actions in rejecting Read's original "Victorian" design because of its excessive cost. Yet on other occasions such review was lacking; for example, Maguire's preliminary design report, which included the recommendation to build a new terminal building, was never discussed at a board meeting. Similarly, the majority of the redesigns for the terminal building were never discussed or reviewed by the board.

Everyone Involved Must Share Responsibility for the Project

McCormack has stated that he was prevented by the board from exercising proper supervision over the project. Eastman believes he carried out his duties but that the "exclusive responsibility" lies with the executive director. Maguire officials have stated that the design

decisions were dictated by Read and Grossman. Ferro and Smith allowed key decisions to be made without their input. And Read and Grossman have stated that the responsibility lies not with them, but with management. This brand of accountability by fingerpointing underscores the real problem of the Nantucket project: adequate management supervision and oversight was totally missing, and when that is the case, waste is almost inevitable.

PART THREE
CASE STUDIES: NEW VESSEL PLANNING AND
THE SKIPPER RESTAURANT

Although the Nantucket terminal reconstruction was the largest such project in the Authority's history, it was by no means unique. The Authority must continually manage, as must any large organization, new situations which require coordinated planning and action. In this section, two shorter case studies are presented, both of which deal with major decisions which the Authority faced during the past year. The first concerns the acquisition of a new vessel for the Authority's fleet, and the second concerns the purchase of the Skipper Restaurant in Nantucket.

New Vessel Planning

For more than a decade the Authority has been operating the same fleet of five vessels:

- M/V Islander, a double-ended boat built in 1951 with a capacity of 770 passengers and 50 cars;
- S/S Naushon, a steam-driven boat built in 1957 with a capacity of 1242 passengers and 50 cars;
- M/V Uncatena, built in 1965, with major modifications in 1972; it can carry 650 passengers and 30 cars;
- M/V Nantucket, built in 1974 with a capacity of 1000 passengers and 55-60 cars; and
- M/V Auriga, built in 1965 and purchased by the Authority in 1973; it is primarily for vehicular traffic, with a capacity of 22-24 cars.

During recent years, there has been considerable discussion at board meetings on the need to acquire one or more new vessels. These new vessels could potentially fulfill some of the following needs:

- Replacement for the S/S Naushon. The Naushon is costly to operate, because of its inefficient power plant and large crew requirements. Replacing the Naushon with a modern, cost-

efficient boat would offer substantial savings in operating costs.

- Increased vehicular capacity. Planning studies¹ have indicated that the Authority's current fleet has adequate passenger capacity to meet the projected demand over the next decade but that there will be a significant shortfall in capacity to carry cars and trucks.
- Increased passenger traffic. The Authority has been facing increasing competition in recent years from competing boat lines for peak period passenger traffic. These competing lines can offer faster trips and more passenger comfort and amenities, in part because they do not also have to carry vehicles.

The board's discussions on a new vessel over the past decade have been disorganized and haphazard, as shown by this condensed chronology:

June 1976: James Smith, Falmouth member, wants to get another boat similar to the Nantucket.

October 1976: Alfred Ferro, Martha's Vineyard member, wants to get a fast, passenger-only vessel.

November 1978: Philip Read, Nantucket member, suggests getting another boat similar to the Auriga (vehicles only).

September 1979: The board expresses interest in reacquiring the S/S Nobska. General manager John McCue finds out that the Nobska is not available, but he commissions a marine architect to prepare a design for a similar boat.

July 1980: Ferro reiterates the need for a small, fast passenger-only vessel. Bernard Grossman, the financial advisory board member from Nantucket, says that the residents of Nantucket might not want more people visiting the island.

September 1981: Grossman reiterates Read's earlier suggestion for an Auriga-type vessel.

July 1982: The Authority receives an offer from Chesapeake Shipbuilding to build a 50-car, 1000-passenger boat and to take the

¹These include a 1979 study conducted by Harvard's Department of City and Regional Planning for the Martha's Vineyard Commission and a 1974 study prepared by the Authority's treasurer.

Naushon as a trade-in. Executive director Joseph McCormack recommends that the board accept the offer. The Authority asks Chesapeake to provide detailed designs, which are submitted in December.

January 1983: Grossman, now the Nantucket member, suggests further study on acquiring an Auriga-type vessel. The board votes to have management undertake such a study.

June 1983: Chesapeake submits a design for a so-called "super-Auriga," with a capacity of 500 passengers and 55-60 cars.

August 1983: Ferro disagrees with the "super-Auriga" proposal and calls instead for a double-ender with a freight deck similar to the Nantucket.

September 1983: Chesapeake submits a revised design for a "super-Auriga."

October 1983: McCormack recommends a single-ended vessel rather than double-ended. The possibility of Federal aid is raised.

November 1983: Chesapeake submits a design for a double-ended vessel.

January 1984: The board interviews two naval architects and then directs management to prepare a study of the needs for a replacement for the Naushon. The study is submitted the following month and contains primarily traffic projections, with no discussion of or recommendations concerning vessel design.

February 1984: Management reports that no Federal aid is currently available.

November 1984: The board votes to proceed with the design of a new vessel similar to the Nantucket and also to see if a freight vessel similar to the Auriga can be purchased second-hand.

February 1985: Management submits a design, prepared by Eastern Marine shipbuilding, for a vessel holding 730 passengers and 51 cars. Despite considerable reservations about the passenger and vehicle loading configurations, the board approves the design in concept and authorizes more detailed design work.

March 1985: Eastern Marine's latest design calls for a capacity of 1200 passengers and 72 cars, adds a drive-through capability, and increases the boat width from 39 feet to 56 feet. Ferro suggests making it still wider to allow easier access to and from vehicles. For the first time the board clearly indicates that the new boat is intended as a replacement for the Naushon. The board votes to hire John Gilbert, Eastern Marine's naval architect, to do the detailed plans and specifications and to have Ronald

Eastman, project manager for the Nantucket terminal reconstruction, work with Gilbert on defining requirements.

April 1985: The boat's width has now increased to 60 feet; questions are raised (but not answered) as to whether the boat is too long to turn around easily in Vineyard Haven's harbor. There is considerable discussion on whether the freight deck should be completely enclosed and whether there should be one or two elevators.

June 1985: Gilbert presents a summary of the five different designs which he has produced. There is considerable confusion among the board as to which version they had previously approved. Smith notes that "we've been adding to the boat every time we have a meeting ... this guy will be in the conceptual phase for the rest of his life." The board votes to approve a contract with Gilbert for the detailed design of the approved version, "subject to our review for concept."

As of this writing, Gilbert is working on the detailed plans and specifications, which, if approved, will allow the Authority to seek bids on construction next winter. However, given the evolution of this particular project, as well as the Authority's experience on the Nantucket terminal reconstruction, there is a high likelihood of additional design changes and detours before the new vessel is ever constructed.

The Skipper Restaurant

The Skipper was an old restaurant located at the foot of Steamboat Wharf in Nantucket, partly on land owned by the Authority and partly on land owned by a Henry and Sandra Fee. The Fees operated the restaurant under lease from the Authority for many years. By all accounts, the restaurant was well patronized by Islanders and tourists alike, bringing a modest income to the Authority. But as a result of the lack of an organized decision-making process within the Authority, an enormous and questionable amount of money has been spent to buy the rest of the property. The restaurant is now closed; no income is being received; and there are no plans for its use.

The Fees' latest lease, which included a base annual rent of \$4200, was due to expire at the end of 1984. In 1983, the Nantucket

member, Bernard Grossman, suggested that the Authority obtain an appraisal of the property as a means of setting a new rental figure. Grossman suggested that the board hire Webster Collins to do the appraisal; this suggestion was approved and the appraisal was received in November of that year. The Collins report gave a range for the value of the Authority land alone (slightly over 4000 square feet) of \$120,000 to \$190,000. The report also noted that ownership of the portion of the building on Authority land would revert to the Authority at the end of the lease; this additional ownership interest would bring the value of the Authority property to \$336,000 (taking into account the costs necessary to separate physically the two parts of the building).

At the February 1984 board meeting, Grossman noted that the building structure was in bad shape, and he raised the possibility of using the site as a berth for the S/S Nobska, with an adjoining new commercial development. No action was taken by the board. In June, a memo from Grossman to the other members reminded them that the lease would be expiring in December and asked that the matter be discussed at the next meeting; he indicated that he had discussed a possible renewal with the Fees and had told them that the new rent would not be less than \$15,000. The topic came up at the June meeting, but a decision was postponed until the August meeting, scheduled to be held on Nantucket.

In the interim, the board received an opinion from its legal counsel, John O'Leary, which affirmed that the Authority would own the portion of the building which was on its land at the end of the lease. In addition, O'Leary raised some questions about the accuracy of the Collins appraisal. The board also received a memorandum from executive director Joseph McCormack, recounting his recent meeting with Henry Fee. Fee proposed either a lease renewal for twenty years at a base rental of \$7500 or, alternatively, an outright purchase of the Authority's property; he apparently termed the \$15,000 figure proposed by Grossman "entirely unacceptable." McCormack's memo did not contain any recommendations to the board.

The August board meeting on Nantucket saw an outpouring of public support for the continued operation of a restaurant by the Fees. At the same time, it was revealed that another party had expressed an interest

in bidding on the new lease. The board voted to direct McCormack to enter into negotiations with the Fees toward a renewal of the lease. On September 17, McCormack transmitted to the board a written proposal from the Fees, calling for a ten-year renewal at a base rent of \$15,000, plus a provision that ownership of the building would revert to the Fees at the end of the lease, rather than to the Authority. McCormack went on to make three recommendations to the board:

- that the board accept the Fees' proposal for a lease renewal;
- that the board determine whether it wanted to sell its portion of the property to the Fees (which would be inconsistent with the first recommendation) or purchase the Fees' portion; and
- that the board obtain a second appraisal opinion and a property survey (which would be moot if the first recommendation was accepted).

At its October meeting, the board received several additional expressions of interest in the property from other developers. The Fees' attorney also noted that they would contest the reversion of the building ownership to the Authority under the current lease. The board then voted to continue negotiations with the Fees on a lease renewal. McCormack asked whether the terms already negotiated were acceptable; this question was never answered directly, although there was considerable discussion on the need to resolve the legal questions of ownership as part of any agreement.

Less than three weeks later, on November 13, McCormack and Grossman met to discuss the status of the negotiations. At the board meeting later that day, McCormack recommended that the Authority seek to purchase the Fees' portion of the property. Grossman concurred, and the board approved the recommendation.

Two weeks later, at its November 29 meeting, McCormack reported that the Fees were asking \$1.5 million for their share of the property. This figure was called "fantasy land" by McCormack and "out on Cloud 9 somewhere" by Grossman. McCormack recommended that, if the \$15,000 lease renewal proposal was unacceptable to the board, it should simply let the lease expire, at which point ownership of the building would revert to the Authority; he gave no indication of what would happen

after that. Grossman suggested that the Authority and the Fees agree to be bound by mutual appraisals. When asked what the Authority, once it bought the property, would do with it, he indicated that he would like to lease it back to the Fees for continued operation as a restaurant:

"Many people in Nantucket feel it is a community asset as a restaurant...I think there might be some very serious protest if we did come to just saying 'okay, we're going to tear it down.'"

On December 20, less than two weeks before the lease was due to expire, the board was informed that the Fees had rejected the idea of setting a purchase price based on mutual appraisals. The board then decided to make a counter-offer to the \$1.5 million proposal; the members voted to obtain an appraisal of the Fees' interests before making a counter-offer. However, such an appraisal was never obtained. Instead, in early January Grossman called Henry Fee and suggested that the attorneys for both sides meet to see if the impasse could be resolved. At that meeting, the Fees reiterated their earlier proposals and added a new proposal: they would buy the Authority's property for \$225,000.

On January 24, 1985, the board met and formally rejected all of the Fees' pending offers. It was noted that the lease had now expired and the Authority had title to the portion of the building located on its land, although the Fees were expected to contest this reversion if a satisfactory settlement were not reached. The discussion then turned to a possible Authority counter-offer for the purchase of the Fees' land and interests. Smith noted that the Authority had no idea what the value of the Fees' property was. Norman Beach, a member of the financial advisory board, quoted an unidentified person as saying the "total property is worth \$3 million," although there may have been some confusion as to whether he meant just the Fees' property or the total value of both the Fees' property and the Authority's property. Attorney O'Leary cited the \$920,000 figure set by the appraiser for the value of the restaurant as a "frame of reference," adding that it was unclear how much could be attributed to the Fees' ownership interests. (The \$920,000 was based on the value of the restaurant as an on-going

business, which might be presumed to require both pieces of property; the value of the Fees' property as an independent parcel might be quite different.) There was no mention of the considerable difference between the Fees' asking price of \$1.5 million for their property and their offering price of only \$225,000 for the Authority's property, even though the two parcels were somewhat similar.

With this discussion, or lack thereof, as a basis, Ferro recommended a counter-offer of \$1.3 million, which was quickly accepted by the Fees. The Authority now owned the entire Skipper restaurant, although it still had no plans for the property. Its options would become increasingly limited in the following weeks, however. First, it received an opinion from its bond counsel that the property could not be leased for a restaurant, because bond funds were being used to finance the purchase and such commercial development was an impermissible use of those funds. This prompted a suggestion by Smith that the Authority now sell the land it had just acquired to one of the developers who were still expressing interest. Second, an engineer was engaged by McCormack to study the condition of the main building; the engineer's report called the building "uninhabitable" and "a total disaster." It said that the structural problems were so bad that the cost to fix them would be prohibitive; demolition was recommended.

On April 25, the board voted to approve management's recommendation that the Skipper restaurant be demolished. At the same meeting, Grossman suggested the possibility of using the site for berthing the Nantucket Lightship for use as a museum. When a member of the audience questioned the wisdom of spending \$1.3 million in order to provide a berth for the Nantucket Lightship, Grossman indicated that the main reason for the purchase was for the Authority to control the land, so as to eliminate interference with the traffic flow to and from the wharf and to provide waterfront rights for future expansion. He said that "the Skipper restaurant was a very incidental and unimportant part of the considerations insofar as this Authority's purchase of that property."

PART FOUR
AUTHORITY OPERATIONS AND MANAGEMENT

In addition to the three case studies described above, the Inspector General's office has reviewed a number of other issues relating to the Authority's day-to-day operations and management. In some of these areas, the Authority's performance is satisfactory, while others evidence many of the same types of problems which have already been seen in connection with the case studies.

The Authority Lacks Documented
Personnel Policies and
Procedures

With more than 450 people on the payroll during the peak season, personnel costs represent a significant portion of the Authority's operating expenses. In addition, effective performance by staff members at all levels is essential to the Authority's success. As a result, one would expect to see a heavy emphasis on the management of personnel resources, yet such is not the case.

A 1970 management study conducted for the Authority by Arthur D. Little, Inc. (ADL), noted that the Authority lacked comprehensive personnel policies and procedures governing hiring, promotions, dismissals, pay scales, and all other areas related to personnel administration. Such policies and procedures are standard practice for any organization with as many employees as the Authority. The ADL report recommended that the Authority develop such policies; the report also recommended that the Authority hire a senior-level personnel manager who could assist in the development of these policies and then oversee their administration.¹ Neither of these recommendations was

¹The Authority currently has a personnel officer, which is basically a clerical position responsible for the processing of various forms related to personnel actions.

adopted.

This failure to handle personnel matters in a professional manner has often led to problems:

- The lack of a clear policy on pay raises led to a long-standing and heated dispute between the executive director and the board concerning raises for non-union personnel in general and the senior staff in particular.
- The lack of a clear policy on hiring senior managers contributed to the selection of the current executive director without any attempt at an open, nationwide search.
- The lack of a clear policy on responsibility for hiring and dismissal has created friction between the executive director and the board with respect to at least two positions, the proposed assistant executive director and the special assistant in charge of the Nantucket project.
- The lack of an established process for evaluating senior managers became apparent in mid-1984, when the executive director provided to the board his evaluation of each member of the senior staff. These evaluations uniformly consisted of effusive and subjective praise, such as "[he] carries out his present duties and responsibilities in an exceptional manner that has resulted in greater accountability and production." Their primary purpose appeared to be to justify the executive director's recommendations for pay raises, on which, as previously noted, there had been much heated argument between management and the board. These evaluations were completely inadequate.

The Size of the Senior Staff is Not
Unreasonably Large, But the Recent
Reorganization Was Ill-Advised

Until very recently, the Authority's organizational structure had nine senior staff members reporting directly to the executive director, as follows:

- director of operations (who supervised vessel operations)
- supervisor of terminal operations and reservations
- maintenance and construction manager
- treasurer/controller
- supervisor of marketing and customer relations
- supervisor of safety, loss prevention and security
- public information officer
- director of data processing
- special assistant in charge of the Nantucket terminal project.

In a reorganization which took effect May 1, 1985, the positions of terminal operations and reservations; marketing and customer relations; safety, loss prevention and security (which includes operation of the Authority's parking lots); and data processing were moved under the director of operations. This reorganization came after some Authority members expressed the belief that the organization had more top managers than were needed.

In addition to these positions, the Authority members have decided to create a new position of assistant executive director. Efforts to fill this position are currently being held in abeyance pending the completion of this management review and other outside investigations.

A senior staff numbering in the range of eight to ten people does not appear to be unreasonably large, given the total size of the Authority (450 employees at peak) and the wide range of operational functions and supporting administrative functions which it must provide. Efforts to reduce the size of the senior staff simply to cut costs are misplaced; rather, the focus should be on ensuring that each of the Authority's functions is adequately supervised.

In this connection, it should be noted that the recent reorganization does not reduce the size of the senior staff, since all current positions are retained. Rather, it only serves to reduce the number of people who report to the executive director by moving part of the senior staff under the director of operations. Because the executive director's former span of control was not overly wide, such a move appears unnecessary and may even be undesirable, as discussed below.

Too many functions are now assigned to the director of operations. Prior to the reorganization, the director of operations supervised only the operation of the boats themselves. The reorganization added responsibility for terminals, parking lots, data processing, marketing, and reservations. The addition of terminals and parking lots appears appropriate, as these two areas require a high degree of coordination with vessel operations. Neither marketing nor data processing belong under the director of operations; both involve skill areas in which a

director of operations is unlikely to be proficient. In addition, the marketing function needs to be upgraded to include a long-range planning function (discussed later); such an upgrade would dictate that the marketing director report directly to the executive director. The reservations function clearly has some important links to operations, but its inclusion may put a strain on the supervisory workload. A possible alternative the Authority should consider is combining reservations and data processing in a separate department, because much of the work of the data processing group relates to the reservations systems.

Some key functions are unrepresented at the senior staff level. Three functions which are essential to the Authority's operation are currently not represented at the senior staff level: service planning, personnel administration, and legal counsel. The need to add these functions is discussed later in this report.

The use of a "special assistant" to supervise major projects causes problems. The Nantucket terminal reconstruction was supervised by a special assistant who did not report to the maintenance and construction manager. The only apparent reason for this arrangement was the desire to accommodate the former general manager after his demotion. The same special assistant was also appointed by the board to play a role in the design of the new vessel, although his exact responsibilities were not clearly defined. From a managerial standpoint, such arrangements which go outside the normal chain of command dilute accountability; in the case of the Nantucket project, the unusual reporting relationship was a contributing cause of the project's problems.

Employing a public information officer is appropriate. Questions have been raised as to whether the Authority needs a full-time public information officer. There is clearly an intense interest in the Authority's affairs on the part of the local press, and some staff resources must be devoted to this need. In addition, the public information officer also serves as a de facto assistant to the executive

director, handling liaison with community officials, special studies, and other tasks as assigned. It is entirely appropriate for the chief executive of any large agency to have such an assistant.

It should also be noted, however, that a good portion of the public information officer's job presently includes making and editing the verbatim transcripts of the monthly board meetings, along with the preparation of various indices and summaries of material extracted from those transcripts. The preparation of verbatim transcripts is an unusual practice requiring extensive staff effort.

Overall Increases in Staffing
Levels Do Not Appear
Unreasonable

Between 1974 and 1983, more than one hundred people have been added to the Authority's staff, while the number of boats and basic operating schedule have remained largely unchanged. It has been suggested that this indicates that the Authority is grossly overstaffed.

The following chart, based on data supplied by the Authority, breaks down this staff increase by department:

Authority Employment, 1974-1983			
	Total Peak Employment		
	1974	1983	Change
Vessel operations	165	201	+36
Terminal operations	108	110	+ 2
Woods Hole parking lots	0	44	+44
Reservations	22	35	+13
Maint. & construction	21	22	+ 1
Administration	<u>26</u>	<u>39</u>	<u>+13</u>
Total	342	451	+109 (+32%)

Three-fourths of the total increase has occurred in the areas of vessel operations and parking lots. Staffing levels for vessel operations are determined for the most part by U.S. Coast Guard regulations. A 1981 Coast Guard ruling significantly reduced the length of the allowable work day for workers on the boats and was the cause of

virtually all of the increase in this category. The Authority is currently attempting to get a waiver from this ruling.

In 1974, an outside contractor handled the operation of the parking lots (which also includes the operation of a fleet of shuttle buses). In 1983, the Authority took over direct operation of the lots, in an effort to maintain tighter control over a major revenue source; this function is now performed by employees on the Authority payroll.

It should also be noted that not all staffing levels are directly related to the vessel schedules. The need for certain positions, such as reservations agents, is more a function of traffic carried than trips operated. In this connection, the thirty-two percent increase in employees over this period compares with an increase in passenger traffic during the same period of thirty-six percent and an increase in automobiles carried of thirty-four percent.

On the other hand, during this period the Authority eliminated the labor-intensive practice of shipping break-bulk freight. Freight carried in this manner had to be manually loaded and unloaded from the ship by Authority employees. Today, all freight is carried on trucks which are simply driven on and off the boats. This change should have resulted in a decrease in staffing requirements at the terminals, yet no such decrease is apparent. The executive director acknowledges that there is some overstaffing at the terminals, but he noted that since these are unionized positions, reductions in staffing are subject to collective bargaining.

There is no evidence to indicate that the overall size of the Authority's staff has grown excessively during the past decade. However, there are undoubtedly some opportunities for minor cutbacks in certain areas, such as the terminals staffing just mentioned. These should be identified and evaluated by management on a case-by-case basis. In addition, some additional staffing may be required in certain key areas, such as the supervision of maintenance and construction contracts; this need is discussed later.

The Authority's Use of Outside Consultants is Not Excessive

Questions have been raised as to whether the Authority has been relying excessively on outside consultants to perform work which is better done in-house. According to data provided by the Authority's staff, the Authority hired twelve outside consultants (aside from attorneys) from 1982 to 1984, for the following purposes:

- improvements to computer and telecommunications systems (3 contracts);
- actuarial study in connection with decisions about Authority pension programs;
- appraisal of real property in connection with proposed renewal of lease for the Skipper restaurant;
- evaluation of the Authority's employee relations practices;
- traffic study at the Hyannis terminal;
- architectural design of the Nantucket terminal ticket office;
- preparation of specifications for insurance coverage and subsequent evaluation of bids;
- design services in connection with the proposed acquisition of a new vessel (2 contracts); and
- assistance in recruitment of a new assistant executive director.

All of these areas require specific technical skills, and it was reasonable for the Authority to seek the services of outside consultants for these purposes.

With respect to legal work, outside attorneys currently do all of the Authority's legal work. From 1982 to 1984, the Authority averaged \$330,000 a year in legal fees. Fifteen different firms and individuals provided services during this period, although three firms handled the bulk of the work. The Authority requires legal assistance in a wide variety of areas, such as labor negotiations and grievances; contracts for major procurements, concessions, and leases; issuance of Authority bonds and notes; amendments to the Authority's enabling legislation;

claims for damages resulting from Authority operations; and compliance with a wide variety of State laws which apply to public agencies, such as procurement statutes, freedom of information laws, conflict of interest laws, and open meeting laws. The breadth of these needs and the amount of legal expense incurred in recent years clearly indicates that an in-house attorney is warranted.

There is a Lack of
Competition for
Many Contracts

The Authority procures a wide variety of goods and services as part of its daily operations. These include administrative and maintenance supplies; consulting and other professional services; and major construction and repair work. In addition, the Authority on occasion will lease the use of its facilities to outside parties. The Authority has no written policies requiring the use of competitive bids or proposals in selecting contractors or lessees. Under State law, competitive bids are required only for construction contracts exceeding \$1000. In practice, the Authority also seeks bids for most procurements of supplies. However, there are a number of areas where competition is not the general rule:

- Most service contracts are awarded without any type of open, competitive procurement process. This includes the selection of consultants, attorneys, auditors, and financial institutions (for banking services). In many cases the selection is made by the board based on the recommendation of one of the members without any participation by the staff. In other cases, contracts are routinely renewed for years and years.
- There is no clear policy on awarding contracts for the use of Authority facilities, which results in extensive discussion (and often controversy) on a case-by-case basis. We have already described the board's decision in 1984 to renew the lease for the Skipper Restaurant property without entertaining proposals from other interested parties. In another instance, the Authority's director of operations signed an exclusive contract with American Cruise Lines for docking rights at the Oak Bluffs and Nantucket terminals, leading to extensive criticism from board members. Considerable discussion was also required to decide whether to renew the contract for the food concession on the boats; ultimately, the board disapproved the

staff's recommendation favoring renewal and voted to solicit new bids.

- During a reconstruction project at Oak Bluffs in 1980-81, the Authority apparently circumvented the competitive bid requirement by selecting a contractor, Eugene DeCosta, on a sole-source basis. The Authority later argued that it was not really hiring a contractor but only "temporary employees" who would be supervised by the Authority's staff. The Authority now acknowledges that such an arrangement was inappropriate and will not be used again in the future.
- In the selection of designers for the Authority's proposed new vessel, the absence of an open, competitive process has created at the least the appearance of impropriety. Most of the preliminary design work was done by Chesapeake Shipbuilding and by Eastern Marine, two shipyards which are potential bidders on the construction contract and whose advice can hardly be characterized as impartial. The Authority has now engaged a naval architect, John Gilbert, to do the final design. Gilbert was the architect employed by Eastern Marine to prepare its proposed design for the Authority's new vessel.

A Major Maintenance Program for The Current Fleet Has Been Initiated

There is general agreement that the Authority's vessels have suffered from a lack of adequate maintenance in the past. At the board's urging, the Authority staff developed a five-year, \$3 million plan for a major overhaul of the existing fleet, with most of the work to be done during the off-season. This plan was presented in July 1984, at which time the board approved the funds for the first year's work. Major work on the Uncatena began in the fall of 1984 and is scheduled to be completed in the 1985-86 period. A major overhaul of the Islander will begin in the fall of 1986 and continue for three years. Less extensive work is needed on the Nantucket and the Auriga and will be accomplished during their normal annual maintenance periods. The Naushon, of course, is not included in the major overhaul plan because of the expectation that it will be retired from service in the near future.

Although there are still some questions as to how best to modify the winter operating schedule to accommodate the major overhaul work, it

appears that both the board and the staff are now adequately addressing the critical issue of properly maintaining the current fleet.

Financial Management Practices Under the Treasurer are Sound

The Authority's financial management practices which are under the control of the treasurer/controller are sound. This report does not offer any recommendations for change. Among the major strengths are the following:

- Timely financial reports are presented monthly to the board, comparing actual performance against budget and against the prior year.
- Cash balances are continually monitored and shifted among a variety of accounts to maximize interest income.
- External audits are performed by the State Auditor's Office and by a major CPA firm. The CPA's 1984 audit report indicated no exceptions to the audit opinion and no material weaknesses in internal control.
- The Authority has an internal audit staff which focuses on its area of greatest vulnerability, namely, ticket sales and cash collections on the part of terminal agents and their staffs.
- Most accounting functions are computerized.

The Authority has been hampered in its ability to finance needed capital improvements from operating income by restrictions in its enabling statutes which limit the amount of such financing. Legislation has recently been enacted to correct this problem.

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Improvements are Being Made To the Reservations System

One of the most frequent sources of passenger complaints is the reservations system which is used to book passage on the Authority's boats, primarily for vehicular traffic. Many customers report difficulty in reaching the reservations bureau by phone; they either get a busy signal or have to wait what seems to be a long time for the phone to be answered.

The reservations system consists of a central computer to which are connected twenty-four terminals and eight printers (used for printing tickets). Some of the terminals are located at the Authority's six ticket offices (Woods Hole, Oak Bluffs, Vineyard Haven, Nantucket, and the Martha's Vineyard Airport) for service to walk-in customers; the remainder are located at the reservations bureau in Woods Hole, where agents take reservations by phone.

The computer system itself is the major constraint in improving the level of service. All of the terminals are staffed during peak periods, but demand still exceeds supply. Some technical improvements have been made since the system was originally installed in 1978 to increase capacity, but according to the director of data processing, no further increases can be made with the current system. Accordingly, in 1984 the board approved a \$700,000, two-year plan to replace the existing system in phases. Work on this major improvement has already begun, although the results will not be readily apparent until 1986.

It should be noted that the Authority has never attempted to quantify the level of service which it wishes to provide through the reservations system. Changes in operation, including adjustments in staffing and the approval of the new system, have generally been recommended by the staff and approved by the board based on qualitative judgments or complaints. With some effort, quantification could be undertaken; for example, the quality of service could be determined by the percentage of callers who must wait more than one minute to have their call answered.

There have also been some suggestions that the Authority locate some of its telephone reservations agents on each of the two islands. This does not appear to be a cost-effective idea, as it would not increase the level of service provided (assuming the number of agents remained the same) and could very well increase costs because of the need to operate in three locations instead of one.



PART FIVE

CONCLUSION: WHILE THE AUTHORITY FUNCTIONS ADEQUATELY ON A DAY-TO-DAY BASIS, IT IS UNABLE TO DEAL EFFECTIVELY WITH MAJOR NON-ROUTINE DECISIONS AND PROJECTS

The case studies and management review presented in this report lead to one basic conclusion: the Authority functions adequately on a day-to-day basis -- the boats make their scheduled runs and people and vehicles are carried safely to and from the islands -- but the Authority is unable to deal effectively with major, non-routine decisions and projects.

The Authority continues to face a series of such decisions: capital improvements; adjustments in service schedules; staff realignments. These changes can be as "big" as the \$7 million terminal reconstruction on Nantucket or as "small" as the decision to seek a new contractor for the food concession on the boats; each is important to the organization and to the people it serves. New technology, changing market conditions, and new State laws all contribute to the need for periodic adjustments in the Authority's routine operation.

Managing such changes is the responsibility of top management -- the board, the executive director, and the senior staff. Top management should not be spending most of its time on day-to-day operations; the supervisors and staff at lower levels should be capable of seeing that the boats run on time. It is top management which should be anticipating change and planning for it. Failure to do so can result in a significant waste of public funds, as vividly demonstrated by the Nantucket project. More importantly, failure to properly manage major decisions can seriously impair the Authority's future ability to provide service to the public; the Authority's inability to plan effectively for a new vessel, for example, gives little confidence that five years from now the Authority will have an adequate fleet to meet the needs of the islands.

Some observers believe that these problems are entirely the fault of the executive director and his staff, while others believe they are entirely the fault of the board. As discussed below, the Inspector General believes both sides must share responsibility for the current situation.

Planning for Major Decisions Is Inadequate

One of the essential elements in managing change is adequate planning. Planning is the process of evaluating needs and identifying options in order to reach agreement -- before beginning implementation -- on the key elements of a project or decision. For planning to be successful, an agency should not deviate from its plans without considerable justification.

In the case of construction projects, two key elements in planning are the facility program, which defines the requirements to be met, and the preliminary design, which describes the basic design concepts and identifies how the requirements are to be met. Careful review and approval of these two documents can help ensure that a project will meet the agency's needs without excessive cost; without such review and approval, there is a high likelihood that costly design changes will be needed during detailed design or construction.

Such was the case with the Nantucket project, where the Authority proceeded without ever formally discussing or voting to accept the preliminary design report. A decision was made to demolish the freight shed and construct a new ticket office building without ever defining the specific requirements which were to be met. Later revisions focused more on the style of architecture than on uses and needs, to the point where a second floor was added for which there was no planned use.

It is not the intent of this report to criticize the final design of the Nantucket terminal building. Rather, the criticism is of the planning process. Decisions about major capital facilities should be carefully analyzed and fully documented; they should be clearly related to the operational requirements of the agency; and they should be made before detailed design and construction has begun.

Such was not the case in the Nantucket project, and such has not been the case to date in connection with the new vessel project, where an architect was again hired to do detailed design without the board having formally approved a preliminary design.

In the case of the Skipper Restaurant, the board never focused on the need to make a basic decision as to what it wanted to do, both

short-term and long-term, with the property. If it had made such a decision at the beginning, subsequent discussions and actions could have focused on achieving that aim. Instead, the plans for the property seemed to have changed from meeting to meeting, and even after the purchase was completed and more than \$1 million had been spent, there was still no agreement on how to use the property.

The Board Spends Too Much Time Discussing Routine Matters

One of the main reasons why planning has been inadequate is the board's preoccupation with routine administrative matters. The board meets at least once a month. Each meeting is accompanied by a lengthy agenda consisting primarily of routine matters; many of these items either do not or should not require any board action. Additional time is taken up by the frequent practice of reading aloud copies of letters and memos previously sent to the members. Where major decisions or policy issues are involved, the discussion typically is spread over numerous different sessions, with only a short time allotted at any one meeting. This practice makes it difficult for the board to have a coherent, in-depth discussion, as much of the time is taken up by a recounting of previous discussions.

The clutter which characterizes the board's meetings is best illustrated by listing the topics which were discussed at one typical meeting. This particular meeting took place on March 22, 1984, and lasted approximately three and one-half hours.

- (1) Approval of minutes.
- (2) Approval of ten invoices, ranging in size from \$75 to \$29,000. Most of the discussion revolved around invoices relating to the Nantucket terminal project.
- (3) Discussion of three requests for bids being issued by the Authority. One required board approval; the others were apparently being presented for information only.
- (4) Report on the Nantucket terminal project.
- (5) Treasurer's report on finances and traffic.
- (6) Discussion and approval of contract with Town of Falmouth for renewal of parking lot lease.
- (7) Discussion of proposed contracts for lease of space at Hyannis and Martha's Vineyard airports.

- (8) Approval of request by Red Cross for free transportation for certain medical emergencies.
- (9) Report on status of Inspector General's investigation.
- (10) Discussion on the reservations and accounting computer systems.
- (11) Discussion on Coast Guard requirements for having a night watchman aboard the vessels.
- (12) Report on pending legislation affecting the Authority.
- (13) Discussion on increased use of the S.S. Naushon to accommodate maintenance work on other vessels.
- (14) Discussion on the need to have a planning session and on whether such a session would violate the open meeting law. Decision to request advice from the Attorney General.
- (15) Discussion on request for 100 complimentary tickets for use by children and accompanying adults attending the cerebral palsy camp. The lengthy discussion revolved around whether to grant the request as made or whether to increase it to 200 tickets.
- (16) Report on activities of the Friends of the Nobska committee.
- (17) Approval of request from Nantucket Chamber of Commerce for a hotel reservations telephone in the new Nantucket terminal.
- (18) Selection of a consultant to assist in the search for an assistant executive director.
- (19) Report on management's meeting with the State Department of Public Works regarding potential funding for a new vessel.
- (20) Report on the revised credit rating assigned to the Authority's bonds as part of the bond refunding.
- (21) Request by one member for information on expenses of the board members, financial advisory board members, and staff.
- (22) Request by one member of the financial advisory board for additional service to the Vineyard.
- (23) Discussion of suspected abuse of special 1-8 day Island excursion tickets.
- (24) Questions from the press.

At this point the board went into executive session for the following items:

- (25) Approval of request for schedule modification by one of the other carriers serving the Islands.
- (26) Discussion of a request by another company for use of SSA dock space in Nantucket.
- (27) Report on status of union negotiations.
- (28) Approval of agreement with Nantucket Yacht Club concerning bulkhead repairs.
- (29) Discussion of possible request for easement for a water pipe by an abutter at the Nantucket terminal.
- (30) Discussion of possible purchase of property in Hyannis.
- (31) Approval of management's request for salary increases for certain non-union personnel.

Virtually every item on this list resulted in a lengthy discussion among the board members; it is rare that an item is reported on or approved without substantial comments and questions from the members.

This attention to detail greatly reduces the time available for planning and policy-making. It also contributes to the demoralization of the professional staff by its presumption that they are incapable of handling even routine matters.

Much of the need to deal with routine administrative matters results from the current lack of documented policies. For example, the Authority frequently receives requests for the use of its dock space by non-SSA vessels, each of which is individually discussed by the board. Developing a general policy would allow the board to delegate to the staff responsibility for reviewing and approving individual requests.

The Board Does Not Receive Adequate Staff Support

Another reason for the lack of adequate planning is the lack of adequate staff support for board decisions. When a board of directors is called upon to make major policy decisions for an organization, its ability to do so depends heavily on receiving adequate support from the staff. Such support typically takes the form of a written memorandum or oral presentation which describes the issues at hand, offers background information, presents various alternative courses of action, analyzes the costs and benefits of each alternative, and concludes with the staff's recommendation.

The Authority's current executive director sends a prodigious amount of written material to the members. Copies of correspondence, meeting notes, and internal staff memoranda are routinely sent to the members. By his own count, the executive director sent 666 memos to the board in 1982 and 1983. On at least two occasions, two separate memos were sent on the same day on the same subject.

Yet despite this volume, or perhaps because of it, most of the correspondence is lacking in the essential analysis necessary to good staff support. Items related to major issues are scattered over many memos rather than being condensed into a single, coherent summary,

making it harder for the board to focus on the significant issues.

In September 1984, the executive director sent a memo to the members in which he stated:

"As a result of frequent and sometimes intense inquiry by representatives of the news media, the staff and I are presently in the process of concluding an in-depth review, analysis and evaluation of the following matters:
(1) consultants; (2) vessels; (3) C.E. Maguire; (4) Nantucket Project; (5) Skipper Restaurant; (6) Salary and Personnel."

This memo was followed by lengthy memos on each of the mentioned subjects. These memos were generally limited to a chronology of events; they contained very little that would qualify as analysis or evaluation. In addition, because most of these topics were major issues facing the Authority, the executive director should have provided staff papers as a routine matter of course, rather than waiting to be prompted by press inquiries.

In all three case studies presented earlier, the board's decisions were made more difficult by the lack of adequate staff support. In the case of the Nantucket terminal reconstruction, it is not clear whether the executive director or the project manager was responsible for keeping the board adequately informed, but it is clear that neither of them did, and on at least one occasion, the project manager failed to present important information relating to the cost of a proposed building redesign. In the case of the Skipper Restaurant, the board's discussions could have been greatly condensed if the staff had provided a complete analysis, including the necessary appraisals, engineering reports, legal opinions, and recommendations, well before the lease was due to expire.

The Board Has No Confidence in The Executive Director

The Authority, like most other independent public authorities, is patterned after the traditional corporate model in which a board of directors sets overall policies and monitors performance while day-to-day operations are administered by a chief executive officer and

subordinate staff. The success of such an arrangement depends heavily on a good working relationship between the board and the staff, one which is based on mutual confidence, cooperation, and respect for the roles which each group plays. Unfortunately, the basic elements of a good working relationship do not currently exist at the Authority. The relationship between the board and the staff is marked by mistrust on both sides, a situation which is seriously impeding effective and efficient management.

Two of the three board members have indicated that they have no confidence in the ability of the current executive director to manage the organization. Whether or not this lack of confidence is justified, it is impossible to have an effectively-managed organization while this situation exists.

The board has the statutory power to hire and fire the executive director. However, when the executive director was hired in 1981, the board impaired its own power by signing an ill-advised employment agreement. This agreement requires two years' advance notice before the executive director can be fired. In November 1984, the board voted to serve the required two years' notice; under these terms, the contract will remain in force until January 1987.

The inability of a majority of the board to replace the executive director undoubtedly has contributed to their frustrations and exacerbated the tensions. As a remedy, the board has proposed to hire an assistant executive director, who would be a candidate to replace the executive director when his contract expires. Under this awkward arrangement, the hiring of an assistant executive director would have the effect of further limiting the executive director's ability to manage. Such was the case on the Nantucket project, where there was confusion as to whom the project manager reported.

It is also important to note that the history of poor relationships between the board and the chief operating officer began prior to the hiring of the current executive director. Board members indicated in interviews that they had had problems with the performance of the two prior general managers, one of whom was involuntarily relieved of his duties.

Board Members Frequently Take Part In Administrative Activities

The Nantucket terminal and Skipper Restaurant case studies clearly illustrated one of the major problems in the relationship between the board and the staff -- the involvement of individual members in Authority business outside the board room. Two other incidents further illustrate this problem. In the first, one of the board members issued instructions directly to a subordinate on the staff to change the vessel schedules on a busy fall weekend. In the second, a member participated in discussions with local officials concerning police coverage at the terminals; following this, the member received Board approval for an "agreement" which had never been seen by the executive director or his staff, and then criticized several staff members for questioning the agreement.

There are several reasons for this tendency of Authority members to become involved in matters which are more properly the responsibility of the executive director and his staff. The first is the unwritten policy that in matters concerning a particular geographic area, particularly one of the two islands, the board will defer to the member representing that area. Second, all of the members are extremely knowledgeable about the Authority and concerned with its affairs, so it is understandable that they wish to participate actively. Third, as previously noted, two of the board members are unhappy with the performance of the executive director and see direct involvement in management as a necessary alternative.

Relationships Among the Board Members Themselves are Poor

It is not only the relationship between the board and management which has been poor. Within the board itself, relationships among the members have been marked by hostility, rudeness, and, in at least one instance, physical attack. While differences of opinion are to be expected, the disagreements and arguments appear to go beyond all reason. A typical disagreement going beyond the bounds of reason is excerpted below from the transcript of the board's meeting of

December 20, 1984. It is reprinted at length so as to capture the atmosphere of these meetings.

The topic is the routine election of officers for the coming year. By statute, the chairmanship rotates annually, leaving the board to designate a vice-chairman and a secretary. Neither of these positions has any substantial duties or powers; by tradition, they are also rotated annually. The members are James Smith of Falmouth, the outgoing chairman; Alfred Ferro of Martha's Vineyard; and Bernard Grossman of Nantucket.

Smith: The next item is, I guess (going backwards) is the secretary.
Grossman: I nominate Mr. Smith to become secretary in accordance with tradition.
Ferro: Second.
Smith: All in favor?
Grossman: Aye.
Ferro: Aye.
Smith: Anyone opposed? I'm the secretary. And the next item is the vice-chairman.
Grossman: I nominate Mr. Ferro to become vice-chairman in accordance with tradition.
Smith: I second it. All in favor?
Grossman: Aye.
Ferro: Aye.
Smith: And I'm opposed, for the record.
Ferro: OK, that's why you wanted to do it backwards. I figured that. Why don't we do it over again and do it the right way? Because if I was going to be opposed to the ...
Smith: Well, you can change it. Do you want to change your vote?
Ferro: Sure. And go back to the regular way. I knew you were doing it backwards for a reason.
Smith: No, I ...
Ferro: Mr. Smith, I was thinking faster than you were.
Smith: No, you're just more paranoid than I thought you were.
Ferro: I was right, anyway.
Smith: You can change your ... Let the record show Mr. Ferro's vote is opposed to my appointment, or whatever it is.
Ferro: Let the record show ...
Grossman: Let's get this straight -- for the record.
Smith: All right.
Murphy (member of Financial Advisory Board): Why don't you re-vote it?
Smith: Well, you're going to have to make a motion to do that. Whatever you people want to do, we'll do.
Grossman: What do you ... What was your last statement or

what was the gist of it?

Ferro: He wanted to ... He wanted the treasurer first, the secretary second and then the vice-chairman third, see? I wanted it the other way around.

Grossman: Are the officers duly elected now?

Smith: Yes.

Grossman: Okay.

Ferro: Wait a minute! Hold it. I want to change. I want it to go back the right way because Mr. Smith is opposed to me being the vice-chairman. He wants it in the record. I certainly surer than hell am opposed to Mr. Smith being the secretary.

Grossman: Oh, I see.

Ferro: You understand? Especially when Mr. Smith's statement this year was that he wants to get Mr. Grossman and Ferro out -- according to the papers.

Smith: Well, I have a reason for it and I'd be glad to give it to you.

Ferro: Well ...

Smith: I didn't want to be specific about it ...

Ferro: I want ...

Smith: ... but I'll give you my reasons. As an officer of the court and ...

Ferro: Yeah. Oh, yeah.

Smith: ... a member of the judicial family -- Federal -- I'm extremely uncomfortable participating in any vote placing anybody in a public position whose fitness to serve is the subject of an on-going investigation by a governmental body. That's my reason. And I understand that the ethics commission is engaged in investigations with respect to both Mr. Grossman and Mr. Ferro and I recognize the need for these investigative agencies of the Commonwealth to proceed with care in a very serious matter. And I think the public we all serve is entitled to a timely resolution of this problem -- and that was my reason for doing it.

Ferro: What makes you think, Mr. Smith, that you're not part of the investigation by the Inspector General's office?

Smith: I know I am. I have no problem.

Grossman: May I make a statement in view of your remarks, Mr. Smith?

Smith: Sure.

Grossman: You did write to the ethics commission concerning, principally, my status ...

Smith: Sure.

Grossman: ... in which you stated that you had concluded that I was in conflict of interest. That was your conclusion ...

Smith: That's my personal conclusion. As my ...

Grossman: ... together with certain inane and irrelevant remarks about ...

Smith: That's all right. Sure.

Grossman: ... the fact that I know the governor.
 Smith: Sure.
 Grossman: I assume that you have now received a letter of Dec. 13th from the ethics commission ...
 Smith: Yes, sir.
 Grossman: ... in which they did transmit to you a copy of an opinion they gave me on Jan. 13, 1983 (prior to the time that I was appointed as a member of the Steamship Authority) which indicated that I was permitted to serve in both capacity of selectman and as a member of the Authority?
 Smith: Correct. With reservations.
 Grossman: With certain reservations under situations involving actions on the Town of Nantucket and the Steamship Authority -- to the extent they appear.
 Smith: No problem with that, Bernie.
 Grossman: And I believe the record will show that in any case where there has been anything either before this body affecting the government of the Town of Nantucket or -- conversely -- before the Board of Selectmen of the Town of Nantucket affecting the Steamship Authority, that I have, in all cases, abstained as was suggested in this instrument.
 Smith: That's where we have a disagreement. And it's an honest and open dispute.
 Grossman: Well, I think the record will show it and I'm prepared ...
 Smith: Fine.
 Grossman: ... to have any comment you made specifically in that regard.
 Smith: I think that it's appropriate to wait for the investigation results. I think that the ethics commission has had this an unfairly, overly long period of time. Mr. Rollins was in touch with them in January and we've been waiting since January of 1984 for an indication of ...
 Grossman: The ethics commission opinion as to my status was prior to my accepting a position on the Steamship Authority board.
 Smith: Precisely. Precisely. It was an informal letter. I have a copy of it. As a matter of fact, you gave me a copy of it before you came aboard.
 Grossman: It was confidential and that's why, despite your ventilation in the press, I did not see fit to release it before.
 Smith: I didn't ...
 Grossman: However, I am advised I am free to release it.
 Smith: I dispute your "ventilation in the press". I don't know what you mean by that. But I have a public trust to uphold and ...
 Grossman: So does everybody else.
 Smith: Correct. And I have a little different position

than you do -- and I'm protecting it. And I want the public to understand it and that's why I did it -- and I'll stand behind it.

Ferro: Is that why you told them that you were a magistrate, was that you were trying to use that as sort of a force to make them [unclear]? I mean, is that what ...

Smith: I read ...

Ferro: You know, you don't answer these things, Mr. Smith, but I kind of seem to feel that some of the statements that you make are ... well, you're like a big kid when you ain't getting your way. And we would agree with you, Mr. Smith, I will, anytime I believe that you're right. But if I think you're wrong (right?), I'm going to vote against you.

Smith: Fine.

Ferro: And you can hold that sword or whatever you want to call it as a magistrate and as an attorney and a goodwill ambassador, all you want, it doesn't amount to a hill of beans here.

Smith: Thank you, Mr. Ferro.

Ferro: Thank you, sir. Now let's get back to the vote again. I would like the vote to be done according to Hoyle, the way it's always been done for the last 20 some odd years.

Smith: I dispute that. I don't think there's been any set way that we've done it. And if you want to look it up or if you want to change it, make the motion. But I don't recall any particular way we've done it, and I've been here for 20 some odd years.

Ferro: I would like ...

Grossman: Is it only for the purpose of changing your vote, Freddy?

Ferro: Yes. Yes. And I went along because you made the motion whether it was that because it was symbolical or whatever you want to call it. So I would like to withdraw my motion, Mr. Smith, backing Mr. Smith.

Grossman: You mean you wish to change your vote?

Ferro: Yes. Yes, I would. The only reason I went along is...

Smith: Is that a motion?

Ferro: Yes.

Smith: Do you second?

Grossman: I don't object to it.

Smith: I don't object to it either. Let the record show that Mr. Ferro's vote in favor has been changed to a negative vote.

Ferro: Fine. Thank you.

Smith: We're even.

Ferro: Temporarily.

Smith: The minutes?

Murphy: Did you elect a chairman? Or don't you have to do it?

Grossman: That's appointed by law.

Smith: We don't have to ... the section 3 of the Authority's

enabling act: "The Chairman of the Authority shall rotate every year in the following order: first the Member from Nantucket, second, the Member from Dukes County (the County of Dukes County, pardon me) and third, the Member from Falmouth." So Mr. Grossman is, by law, chairman for 1985.

Murphy: Congratulations.

Grossman: Thank you.

Smith: The next, if we may ... are we ... is that enough?

Ferro: Do your thing, Jimmy boy. Go ahead, do your thing.

Smith: Thank you, Mr. Ferro.

Ferro: Just remember: I take no more back seat. I will come forward with my ideas as I see fit.

Smith: Mr. Ferro, this is an open forum. Welcome.

Ferro: I know.

Smith: The next item is the minutes.

Grossman: I'll move approval of the minutes of Nov. 13th as is. If you want to treat them separately, because I did have an insertion that I want made in the Nov. 29th.

Smith: Okay. Nov. 13th, '84, at Woods Hole. Someone move it?

Grossman: I move them.

Smith: Moved them. Second them?

Ferro: I will not second the minutes. I will not second any of the minutes ...

At this point, the board began a similarly-lengthy dispute over the approval of the minutes. Such disputes, unfortunately, are not isolated occurrences; their frequency and regularity further diminishes the board's ability to deal with significant issues in a rational and thoughtful environment.

PART SIX
RECOMMENDATIONS

This final section details the Inspector General's recommendations for addressing the problems described in the earlier parts of this report.

Recommendations to Improve the Functioning
of the Board and its Relationship with
the Authority's Staff

The first set of recommendations focuses on the need to improve the board's performance as a policy-making body and to eliminate the long-standing antagonism between the board and the professional staff.

Recommendation 1:
The General Court Should
Increase the Size of
The Board

The 1970 management study prepared by Arthur D. Little (ADL) noted that many of the Authority's problems stemmed from the small size of the board and the corresponding dominance exercised by each of the members in matters related to his geographical area. The ADL study recommended increasing the size of the board from three to six, citing the following reasons:

"First...we believe that it will be easier for each member to view his role as being that of a policy maker and reviewer rather than as having individual involvement in activities which may better be delegated to full-time management. It would be more difficult for six men than three to become involved in making decisions concerning day-to-day operations.

second...there will be greater assurance of continuity and consistency at the policy level...

third...with six rather than three members, the pressures on each individual to support the interest of a potential employee or vendor as a personal favor should diminish because no individual member will have as great a voice in decision-making as at present...

fourth...with two members from each community there is also greater assurance that the interests of the community, as contrasted with the special interests of any individual member, will be represented in Authority deliberations and policies..."

This recommendation, and the supporting arguments, have as much relevance today as they did in 1970, and the Inspector General strongly supports them.

There are a number of ways in which such an increase could be accommodated. The Inspector General will seek the assistance of the legislators who represent this area in developing a specific legislative proposal which will be acceptable to the local communities.

As an adjunct to this recommendation, the Inspector General also recommends (as did the ADL study) that the financial advisory board be eliminated. The amount of effort expended by members of the financial advisory board, in attending board meetings and keeping abreast of Authority activities, is far out of proportion to the negligible powers they have and their consequent impact on board decisions.

An alternative suggestion has been raised by various people connected with the Authority, that the Authority be split into two separate authorities for each of the two islands. In the Inspector General's opinion, such an arrangement would be ill-advised because of the staggering operational inefficiencies which it would entail.

Recommendation 2:
Board Members Should Avoid
Acting in Individual
Capacities

This report has noted the propensity of the members, particularly those representing the islands, to become involved in Authority activities outside of board meetings. This involvement has ranged from active participation in meetings along with Authority staff to giving directions to staff members or contractors.

This involvement is in part caused by the members' extensive knowledge of Authority operations and deep concern for its success. The members' knowledge and concern constitute one of the Authority's real

strengths, in refreshing contrast to many other public authorities where the board members exercise little oversight and serve merely to rubber-stamp staff decisions. But this activism should be channelled into more effective supervision and policy-making in the forum of board meetings. Involvement outside the board room may be undertaken with the best of intentions, but it is generally inappropriate because it seriously undermines the executive director and his staff.

As much as possible, the members should use the forum of board meetings to oversee and direct the operations of the Authority. Where outside involvement is necessary, for example, a desire to participate in a planning session for a terminal improvement, such involvement should always be with the knowledge of the executive director. At such times, the members should weigh their comments carefully, recognizing that what may be intended as merely a "suggestion" directed at an employee or contractor can easily be misinterpreted as a direct order.

Recommendation 3:
The Board Should Focus Its Attention
on Developing Plans, Policies,
and Procedures

Everyone interviewed in the course of this study agreed that the board's appropriate role is to develop overall policies and procedures to govern the Authority's operations. Yet most of the board's energies are devoted to routine administrative matters and to ad hoc discussions of the latest crisis or problem, leaving little or no time for discussions of policy. Areas in which such policies and plans are lacking include personnel administration, contracting and procurement, capital facilities, and service standards.

The board should reduce the time it spends at its monthly meetings on routine administrative matters; a significant portion of its time should be devoted to in-depth discussions of major topics where long-range plans or policies are needed. The major topics should be scheduled in advance to allow the staff to prepare the necessary working papers.

The next two recommendations focus on ways in which this shift in emphasis can be accomplished.

Recommendation 4:
The Board Should Prepare Written
Delegations of Authority

The board should specify in writing exactly what powers and responsibilities it delegates to the executive director and what powers and responsibilities it reserves to itself. Such a document would eliminate many of the misunderstandings and uncertainties which currently arise. At the same time, the board should be able to reduce significantly the amount of time it spends on routine administrative matters by delegating appropriate functions to the staff.

Here are some examples:

- Hiring of staff. Responsibility for hirings and promotions should be delegated to the executive director, in accordance with any policies established by the board. The board might wish to reserve to itself the power to approve appointments to certain designated top management positions.
- Salaries. The executive director should have responsibility for making salary adjustments for each non-union employee, within the range established for each position by the Board. Union contracts would be subject to the approval of the Board.
- Procurement. The executive director should have authority to procure goods and services without board approval, up to a certain dollar limit. For contracts exceeding this limit, board approval would be required, but the staff should have responsibility for soliciting and evaluating proposals or bids and making a recommendation to the board.
- Invoices. Where goods or services have been properly provided in accordance with a valid contract or agreement, the staff should have authority to make payment without board approval.
- Schedules and Fares. The basic operating schedule and fare structure should be approved annually by the board. The staff should have authority to make short-term changes in the schedule to meet unforeseen circumstances.

In preparing these delegations of authority, a good model that the members and staff may wish to review is the by-laws of the Massachusetts Convention Center Authority, which were prepared with the advice and assistance of the Inspector General's office.

Recommendation 5:
The Executive Director Should Totally
Reorganize the Material Sent
To Board Members

The board's ability to reduce the time it spends on routine matters and increase the time available for major policy discussions depends heavily on the staff's ability to provide supporting information in a well-organized manner. As previously noted, the current flood of disjointed memos is more of an impediment than a help. The executive director should prepare a single package to be mailed to each member at least one week prior to each meeting. This package should contain the following:

- A list of administrative items requiring board approval, such as contracts, budget increases, fare changes, and schedule changes. Each item should be accompanied by a description of the item, the reason for management's recommendation, and a proposed motion.
- A report from the executive director on major events and activities of the past month which do not require board action. Included in this category are the monthly treasurer's reports on finances and traffic. These items are included for information only, and it should be unnecessary to discuss any of these items at the board meeting unless one of the members wishes to raise a specific question.
- A staff paper on the major topics to be discussed, including background information, identification and analysis of options, and management's recommendations. In some cases the recommendations might take the form of draft policies or procedures for the members' consideration.

There will, of course, be instances where urgent or late-breaking items require separate correspondence from the executive director to the members, but such items should be the exception rather than the rule.

Recommendation 6:
The Board Should Resolve the Status
of the Executive Director

Two of the three Authority members have expressed extreme dissatisfaction with the performance of the current executive director. The members have voted to terminate the executive director's employment

agreement, but under the terms of that agreement, the termination cannot take place earlier than January 1987.

It is essential for the proper operation of the Authority that the board have confidence in its chief operating officer. It is undesirable to have the current situation continued for another year and a half. The board must decide whether it wishes Joseph McCormack to continue as executive director; this is a decision for the board alone, and this report offers no recommendation regarding his continued services. If the board wishes to retain McCormack for the duration of his contract, it should be prepared to grant him the powers and responsibilities which he needs to carry out his job. If the board does not wish to retain him, it should act immediately to relieve him of his duties. Under the employment agreement now in effect, McCormack would still be entitled to full pay and benefits through January 1987; this would simply be a cost which the Authority must be prepared to bear.

If and when the board decides to hire a new executive director, several steps would be required. First, the board should clearly decide on the qualifications needed for the position. For example, is it more important to have a person with a background in ferry operations or to have a person with previous experience managing a large public agency? Second, the salary range for the position should be reviewed to ensure that it is competitive but not excessive. Third, an open search process should be conducted, with appropriate local, regional, and national advertising. Finally, after a candidate is selected, the board, with the assistance of legal counsel, should draft a new employment agreement which would reserve to the board the power to remove an executive director whose performance is considered unsatisfactory; at the same time, provisions to provide some financial protection to the executive director against an abrupt termination would not be inappropriate.

Recommendation 7:
An Assistant Executive Director
Should Not Be Hired

According to Authority members, the board's recent decision to hire a new assistant executive director was prompted primarily by dissatisfaction with the current executive director. The members who voted to create this new position expect that the person selected will eventually move up to fill the top spot. The executive director has privately expressed his opposition to this new position, although he did propose that a member of the current staff be given the job, a proposal which was rejected by the board.

Creating this new job at this time has two serious flaws. First, such a move would likely increase the divisiveness currently plaguing the Authority. The executive director certainly could not be held accountable for the performance of a staff member who was selected without his involvement and with the expressed intent of replacing him, and any significant duties assigned to the job by the board would effectively undermine the executive director's authority. Second, the quality of candidates for such a job is likely to be much lower than the candidates who would be attracted for the executive director's position, if and when the Authority chooses to fill that slot directly. Many senior public administrators who might be interested in the top spot would likely not be interested in the assistant's position, because of the difficult political situation in which such a person will be placed as well as the lower salary.

Hiring an assistant executive director will not solve the Authority's management problems and in fact will likely exacerbate them. Therefore, the Inspector General recommends that this position not be created. ⁷

Recommendations to Improve Planning

The major step required to improve the quality of the Authority's planning efforts is greater board involvement and action; this recommendation was discussed earlier in this section. Presented below

is a second recommendation aimed at achieving this goal. Further recommendations dealing specifically with planning for construction work are discussed later.

Recommendation 8:
The Marketing Department Should
Be Expanded to Include
Service Planning

The marketing staff currently focuses on advertising, promotion, group sales, customer relations, and other short-term efforts to generate increased traffic. The 1970 A. D. Little management study recommended that the marketing function be expanded to include long-range service planning. At the time of that study, there was no single person with responsibility for long-range planning, a situation which still exists today.

Among the key functions which an expanded marketing and planning group would perform are the following:

- developing and updating long-range traffic forecasts (such projections are currently prepared by the Treasurer's staff);
- conducting research to identify the factors which determine the overall size of the market and the Authority's share of the market, so as to improve the quality of traffic forecasts as well as to identify policy changes which could increase the Authority's revenues;
- analyzing the impact of traffic forecasts on vessel requirements, terminal facilities, staffing levels, and finances; and
- analyzing the impact of proposed tariff changes on traffic levels and revenues.

The Inspector General recommends that this long-range planning function be instituted, as originally recommended in the Little study.

Recommendations to Improve the Management of Construction Projects

Construction projects represent the Authority's largest category of procurements. Approximately fifteen to twenty such contracts are awarded each year. These include repairs to boats and terminals; major boat overhauls; major terminal reconstruction projects (such as the recent Nantucket project and the proposed rebuilding of slip 3 at Woods Hole); and the construction of new vessels.

Many of the recommendations in this section -- dealing with adequate supervision, long-range planning, programming, and designer selection -- are based on the State construction statutes enacted as a result of the Ward Commission's investigation and report. As a legal matter, most of the Authority's projects are not currently covered by these statutes, but the Inspector General intends to file legislation which will bring the Authority under the statutes. Until such legislation is enacted, it would be highly desirable from a management perspective for the Authority to adopt them voluntarily.

Recommendation 9: The Maintenance and Construction Manager Should be Given Clear Authority Over All Construction Activities

This report has already described how a "special assistant" was placed in charge of the Nantucket project and how that same staff member was then given a role (albeit a vague one) in planning for the Naushon replacement vessel. Such ad hoc arrangements only serve to diminish accountability and responsibility. Responsibility for all future construction work should be clearly delegated by the board through the executive director to the maintenance and construction manager. All employees, consultants, and contractors involved with construction projects should work only under the direction of the construction manager.

Recommendation 10:
Better Supervision and Oversight
Should be Provided on
Construction Projects

The Nantucket case study clearly illustrates the need for improved supervision of all future design and construction work. The Authority must establish a clear set of standards and procedures and must provide adequate staff resources and assure adequate expertise.

Standards and procedures would provide guidance to the Authority's staff and would help ensure that all projects are managed in a uniform and acceptable manner. Examples of items which should be included in these standards and procedures are: standard contract terms and conditions; change order approval process; required construction records; invoice approval procedures; and contract close-out/punch list procedures. As a guide, the Authority can consult the various design and construction procedures used by the state's Division of Capital Planning and Operations, the Department of Public Works, Massport, and other public agencies which are involved in construction.

In terms of staff resources, there are currently three full-time supervisors in the construction unit, including the manager. This group is responsible for overseeing all work done by the in-house work force as well as all outside contracts (the Nantucket project, of course, was a notable exception). The construction manager has told the Inspector General's office that he would like to assign one person full-time to supervise the construction of the new vessel; given the size and importance of that project, this appears to be appropriate. It is questionable, however, whether the two remaining supervisors can effectively handle the remainder of the unit's workload. The addition of at least one more supervisor to this unit would appear to be warranted.

The Authority must also ensure that it has adequate expertise to supervise its wide range of projects. This is particularly important during the design phase, when a high degree of technical skill is needed to oversee the work of architects and engineers hired by the Authority. The Authority should ensure that such expertise is available for each project, either from the Authority's own staff or from consultants engaged on a project-by-project basis.

Recommendation 11:
Long-range Capital Plans
Should be Developed

A number of ideas have been proposed for future improvements to the Authority's capital facilities, including passenger loading docks at Hyannis, a multi-level parking garage at Woods Hole, and the acquisition of a sixth vessel for the fleet. The Authority needs to adopt a long-range plan which identifies for each potential project the scope, the priority, the estimated cost, and the estimated timeframe. The plan should be periodically updated, based on the latest traffic projections.

The development of a long-range capital plan offers several management benefits: it would allow the Authority to better estimate its future financial and funding needs; it would enable detailed planning for high priority projects to be started in a timely manner; and it would focus the discussion during the requirements and programming phase of design on long-range needs. Without such a plan, future board discussions will continue to be as protracted and indecisive as were the discussions on the Naushon replacement vessel.

Recommendation 12:
Formal Programs Should be Required
For Major Construction Projects

In the construction of any major capital facility, whether land-based or water-borne, it is essential that the Authority clearly define at the outset the specific requirements which are to be met by that facility. These requirements should then be used to prepare a facility program, which sets forth the basic components and functional features to be included in the design as well as a complete cost estimate. This definition of requirements and preparation of a program should be prepared with the assistance of a qualified designer (typically an architect or engineer). For very large projects, the designer doing the program should not be eligible to do the final design work, to ensure that the designer's recommendations are not self-serving.

For example, in the case of a new vessel, a definition of requirements would start with an agreement on the objectives to be met

(e.g., increased vehicular capacity, reduced operating costs, or increased ability to compete for passenger traffic). Any decision to increase capacity significantly by adding a sixth vessel must also be accompanied by financial planning and policies, since it is unlikely, at least in the short run, that the costs of such a vessel could be fully offset by an increase in traffic. Therefore, a decision would be needed as to whether the increased costs would be funded by deficit operation (in which case the municipal governments would be assessed the cost), by an increase in fares, or by a combination of the two.

Once the underlying objectives were established, discussion should then focus on the basic design concepts, for instance:

- capacity desired (vehicular and passenger);
- speed desired;
- whether the boat will be a subchapter T vessel (this refers to a set of Coast Guard regulations which afford significant savings in operating costs);
- passenger loading configuration (the Authority has devoted considerable effort in the past to minimizing conflicts between passengers and vehicles during loading and unloading operations);
- single-ender or double-ender (there has been much controversy on this subject in the past, although the costs and benefits of each have never been clearly documented by the staff);
- vehicular loading configuration (this is another area with a significant impact on operations; issues include the ability to drive a vehicle straight through versus the need to turn around, and the amount of space between vehicles to allow occupants to leave and enter their cars); and
- general level of passenger amenities (this can range from plush to spartan).

In establishing the facility program, the board should, of course, avail itself of recommendations from both the staff and outside consultants. But the decision is ultimately the board's alone, and an architect should not be hired to do the detailed design until the program has been clearly set forth in writing and adopted by the board.

Recommendation 13:
Procedures for Selecting
Designers Should be
Adopted

The Authority needs to ensure that only highly qualified architects and engineers are selected for Authority projects. The Authority must rely on these outside designers for advice during the development of a program, for detailed design work, and in some cases for day-to-day supervision of construction. The designer plays a key role in ensuring the successful completion of the project.

There are currently no written policies or procedures governing the selection of designers. As a result, in the Nantucket project an architect was selected simply because his name was suggested by one of the Authority members.

The Inspector General recommends that the Authority develop a selection process for designers modeled on the process developed by the Ward Commission for use by other State agencies. This process includes widespread advertising (in the Central Register, in local newspapers, and in trade publications where appropriate); standardized application forms to ensure that all relevant information is obtained from applicants; and written evaluations based on predetermined criteria. Most importantly, the Ward Commission process requires agencies to focus on the quality of the applicant rather than the cost of the service. This approach recognizes that the cost of the design work is typically a small part of the overall project cost; selecting an inferior designer simply on the basis of a lower fee can result in much more costly problems as a result of poor design.

Recommendations Relating to Operations

Recommendation 14: Formal Contracting and Procurement Procedures Should be Developed

The Authority currently lacks any written policies or procedures governing procurements, leasing, concessions, and other contractual arrangements. As a result, many contracts are let without open competition. Open competition assures the public that the Authority is obtaining the best possible price and/or quality of services; it is fair to all private firms who wish to compete; and it provides a measure of protection against fraud and abuse. The Inspector General recommends that the Authority develop policies setting forth the procedures to be used for various types of procurements and the circumstances in which competition can be waived. Such policies should also recognize the limited pool of potential contractors for many types of procurements in the Authority's own service area. In the interest of fostering as much competition as possible, advertising of larger procurements should be done in Boston as well as in the local area. In addition, all construction contracts should be advertised in the State's Central Register, whether or not such advertisement is specifically required by State law.

In preparing such policies, the Authority might wish to use as a model the proposed municipal procurement code which the Inspector General's office developed and which is currently awaiting legislative action.

Recommendation 15: A Senior-level Personnel Manager Should be Appointed

Personnel administration is a complex function within the Authority. The large number of employees includes many seasonal workers, resulting in a significant number of hires and terminations each year. Also, the Authority has contracts with five labor unions. These contracts have a significant impact on operations and costs.

A senior-level personnel manager would improve the personnel function by performing the following activities:

- developing personnel policies and procedures, none of which are currently documented outside of union contracts;
- assisting in labor negotiations;
- periodically reviewing and recommending changes in the Authority's personnel classifications and salary structure for non-union staff;
- periodically reviewing and recommending changes in the Authority's fringe benefits package;
- handling the administrative aspects of recruitment and hiring, thus allowing line managers to focus on the substantive evaluation of candidates; and
- developing appropriate employee evaluation and training programs.

In connection with this last item, the Inspector General recommends that the Authority develop and institute a management-by-objectives (MBO) evaluation process for its senior-level managers. Under this process, each manager, in conjunction with the executive director, would develop an annual list of objectives to be accomplished in the following year. The yearly evaluation would then focus on actual progress in meeting those objectives, which would provide a better measurement of performance than the subjective, general comments currently used.

Recommendation 16:
An In-House General Counsel
Should be Appointed

The Authority has sufficient legal work to justify the hiring of an in-house general counsel. An attorney on the staff would be able to handle, at significantly lower cost, much of the routine legal work currently contracted out. Some outside legal counsel would still be necessary, particularly in specialized areas such as bond opinions and labor negotiations. In these cases the in-house counsel would supervise and manage the outside work.

Recommendation 17:
The Number of Managers Reporting
To the Director of Operations
Should be Reduced

The marketing, data processing, and reservations functions should be removed from the jurisdiction of the director of operations, to balance the supervisory workloads and allow the director of operations to focus on the key areas in which he has expertise, namely, the day-to-day operation of the vessels and terminals.

This recommendation, in conjunction with the other organizational recommendations already presented, would result in a senior staff of eight people reporting to the executive director:

- director of operations (vessels and terminals)
- director of maintenance and construction
- director of marketing and service planning
- treasurer/comptroller
- personnel manager
- general counsel
- director of reservations and data processing
- public information officer.

In absolute numbers, this proposed organization of the senior staff does not differ significantly from the current arrangement. However, it creates some new positions and realigns some existing positions to ensure better supervision of all critical functions.

Recommendation 18:
Level of Service Standards Should be
Developed for the Reservations
System

The Authority's computerized reservations system easily lends itself to the development of a level of service evaluation process. Under such a process, the quality of service would be quantified based on one or more predetermined measures (for example, the percentage of callers who must wait more than one minute to have their call answered);

standards would be established as to the level of service desired;¹ and staffing and equipment decisions would be made in accordance with those standards. Such a process would provide a more rational basis for allocating resources to the reservations function. It would also establish a methodology which could later be used to evaluate other areas of the Authority's operation, such as the parking lot shuttle buses in Woods Hole.

Recommendations Relating to the Nantucket Terminal Reconstruction Project

The Nantucket case study pointed out a number of serious problems which continue to exist at the new Nantucket terminal. The Inspector General recommends that the Authority seek to remedy these problems through the following actions:

Recommendation 19: The Authority should engage a qualified, independent marine engineer to test the strength of the piles and to identify specific options for strengthening piles which are determined to be understrength.

Recommendation 20: The Authority should engage a qualified, independent marine engineer to evaluate the existing corrosion protection measures for the piles and to determine whether cathodic protection should be installed.

Recommendation 21: The Authority should hire a marine contractor to place a system of rock scour protection along the north slip to prevent the north bulkhead from slipping.

Recommendation 22: The Authority should seek through appropriate legal proceedings to recover:

¹The standards could differentiate between the level of service to be provided during the bulk of the year and the level of service to be provided during the short, intense peak which occurs when reservations for the summer season are first accepted.

- (a) the cost of testing the strength of the piles and the cost of strengthening them, if necessary;
- (b) any unnecessary costs of the piles resulting from any failure to consider an appropriate alternative design;
- (c) any additional costs attributable to the failure to provide full cost information on corrosion protection;
- (d) damages relating to the substitution of fill material without a change order; and
- (e) damages relating to overbilling for any material not delivered.

The Inspector General's office estimates that more than one million dollars could potentially be recovered through such proceedings.



