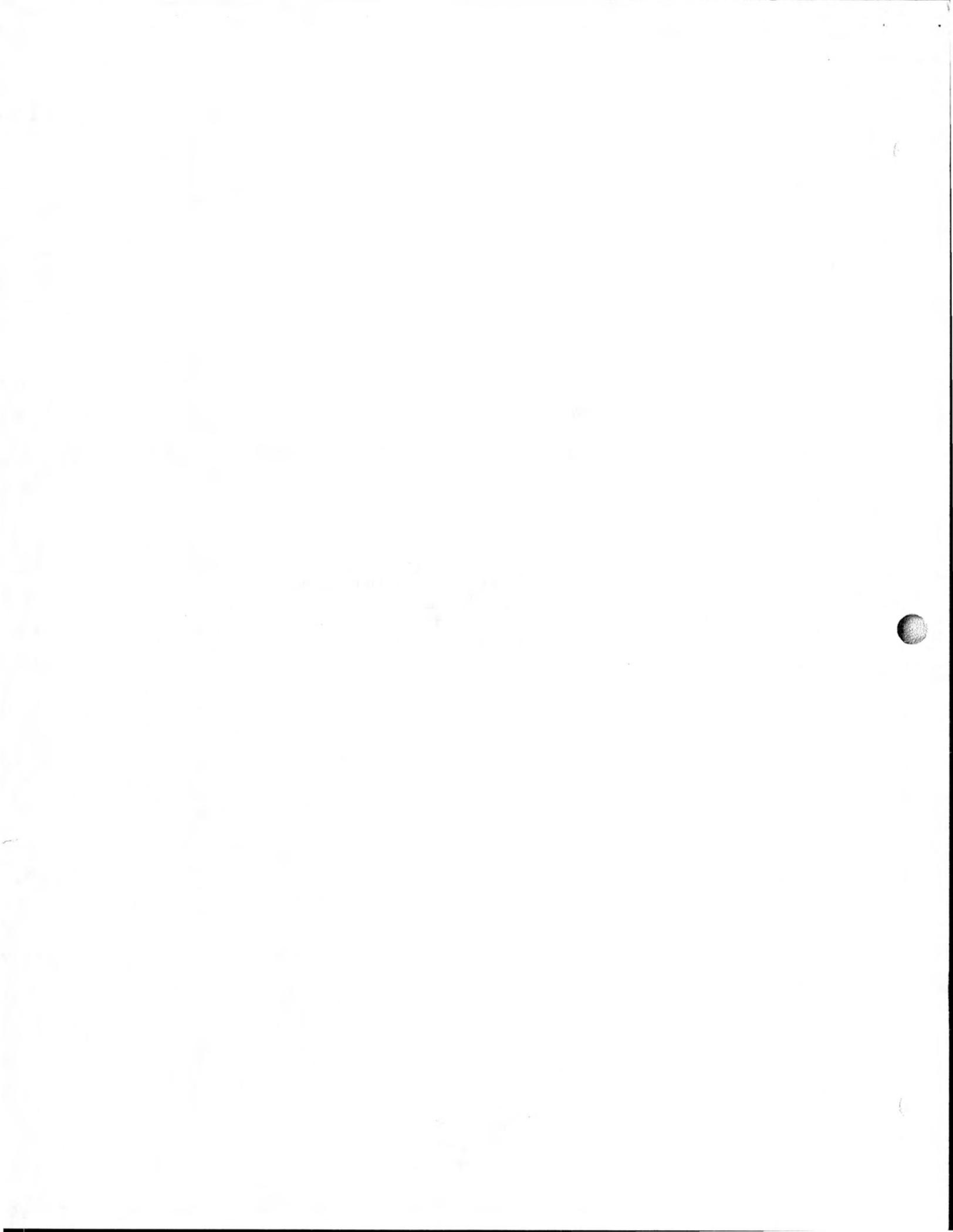


San Francisco Bay Area Seaport Plan:
A Study of Its Development and Implementation

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ABSTRACT

The purpose of this paper is to describe the process by which the San Francisco Bay Area Seaport Plan was developed, to compare it to other regional port planning efforts, and to evaluate recent and impending implementation actions. The plan was prepared to serve the needs of the Metropolitan Transportation Commission (MTC), the Bay Conservation and Development Commission (BCDC) which is responsible for managing the development of the Bay and its shoreline, and the Bay Area ports. The basic goal of the plan is to help resolve the inherent conflict between port development and maintenance of environmental quality. Policies were developed to achieve this goal and are the means by which the plan is implemented.

Development of the plan required both a technical studies phase and a policy formulation phase which collectively spanned an eight year period. The policies are the result of extensive deliberation by a divergent group of opposing interests. This plan has several elements common to other regional port plans, including federal participation which proved to be important and the first instance of cooperation in facilities planning among traditional adversaries. Unlike other regional port plans, however, it has a reasonable chance of being implemented, because BCDC uses the plan policies as its detailed criteria for judging permit applications.

Since the plan was completed in 1982, several port development proposals have been or are about to be considered. These proposals demonstrate that the basic plan precepts can be implemented.

INTRODUCTION

The purpose of this paper is to describe the process by which the San Francisco Bay Area Seaport Plan was developed, to compare it to other regional port planning efforts, and to evaluate recent and impending implementation actions. The plan was prepared to serve the needs of the Metropolitan Transportation Commission (MTC), the Bay Conservation and Development Commission (BCDC) which is responsible for managing the development of the Bay and its shoreline, and the Bay Area ports. The basic goal of the plan is to help resolve the inherent conflict between port development and maintenance of environmental quality. Policies were developed to achieve this goal and are the means by which the plan is implemented.

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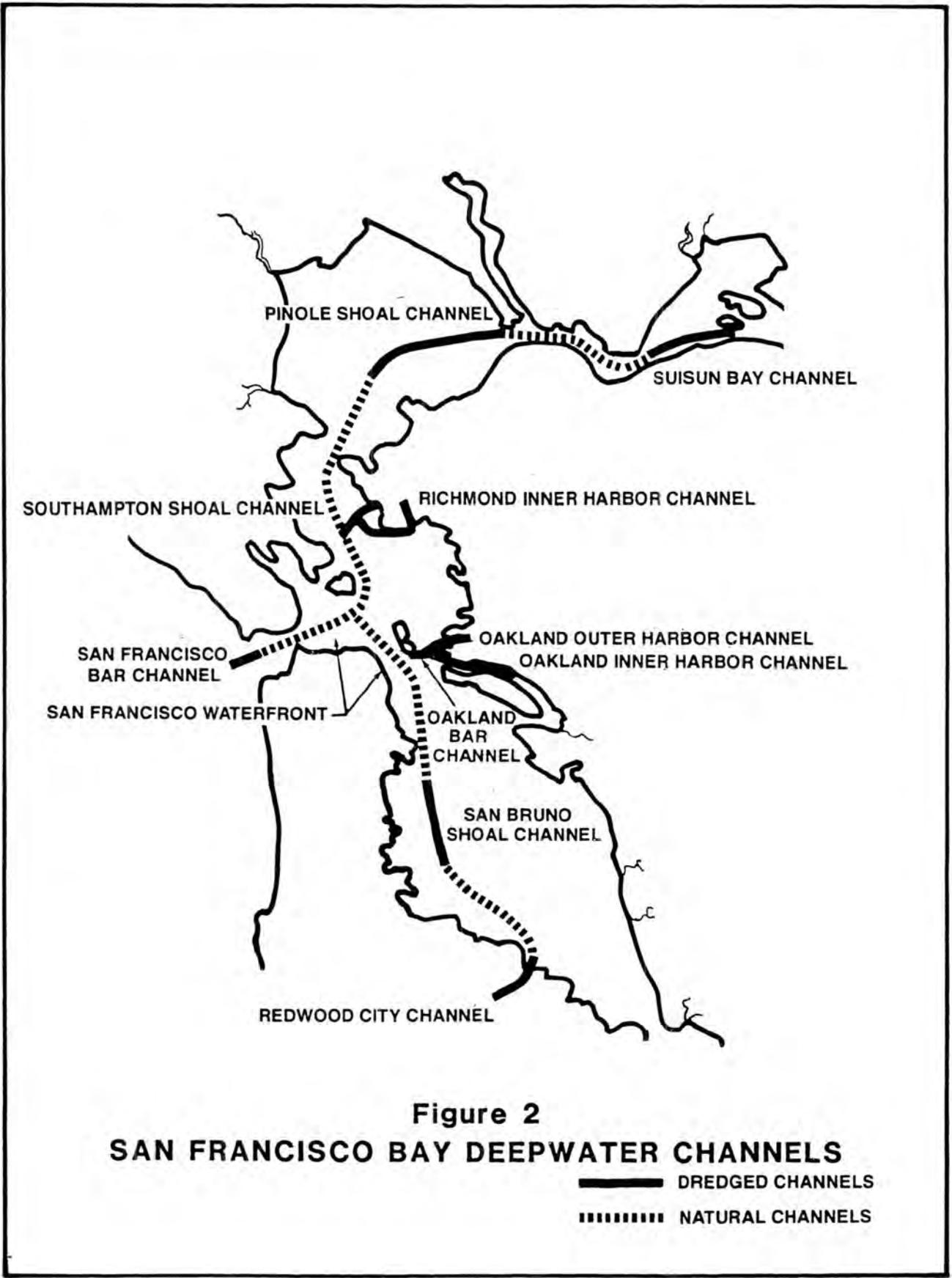
This paper is organized as follows: setting and background, plan development, key provisions of the plan, comparison to other regional port planning studies, recent and impending implementation actions, and conclusions.

SETTING AND BACKGROUND

The Bay Region's nine counties comprise some 7,000 square miles (18,000 square kilometers) of land inhabited by 5.2 million people. The major topographical features of the region are San Francisco Bay and the hills and valleys surrounding the Bay. Because a majority of the land is occupied by hills, transportation facilities have been concentrated in the narrow plain around the Bay and in the adjacent valleys. The largest and most important single feature of the region is San Francisco Bay, covering almost 435 square miles (1,130 square kilometers) and affecting climate, land use, and transportation.

The San Francisco Bay port system is composed of marine terminals--both publicly and privately operated, natural and dredged deepwater channels, and ground transportation facilities serving the ports. There are six port operators in the Bay Region: The ports of Oakland, San Francisco, Richmond, Redwood City and Benicia, and Encinal Terminals in Alameda. The Port of Benicia and Encinal Terminals are privately-owned, but offer marine terminal services to a variety of users. The other ports are arms of their respective local governments. The ports of Oakland and San Francisco are the two major ports handling containerized and other general cargoes. Marine terminal facilities exist elsewhere in the region for specialized cargoes (e.g., crude oil), but these facilities were not the focus of the plan. Figures 1 and 2 show the location of the six ports (including the Bay Area highway network) and the deepwater channels, respectively.

The development of the San Francisco Bay Area Seaport Plan(1) was sponsored by both the Metropolitan Transportation Commission (MTC) and the Bay Conservation and Development Commission (BCDC). MTC is the regional transportation planning agency for the nine county, San Francisco Bay Area and is responsible for setting transportation funding priorities. California state law requires MTC to maintain a regional transportation plan which is to include, among other things, a maritime element. The Seaport Plan is intended to satisfy this requirement. MTC will use this plan to review port-related transportation funding requests and environmental documents for port-related projects. BCDC is the state agency designated by the California legislature to regulate



filling and dredging in San Francisco Bay and to manage the development of its shoreline. The San Francisco Bay Plan, BCDC's comprehensive plan for the Bay, identifies ports as one of the important water-oriented uses in the region and calls for a regional port development plan. BCDC's concern with the Bay and the development of its shoreline is largely one of environmental protection and can best be expressed by the following statement from the Bay Plan (2):

" . . . the Bay must be protected from needless and gradual destruction. The Bay should no longer be treated as ordinary real estate, available to be filled with sand or dirt to create new land. Rather, the Bay should be regarded as the most valuable natural asset of the entire Bay region, a body of water that benefits not only the residents of the Bay Area but of all California and indeed the nation."

BCDC will use the Seaport Plan to review permit applications from port developers, to review federal actions affecting the Bay, and to review environmental documents.

To assist with the development and implementation of the Seaport Plan, MTC and BCDC formed the Seaport Planning Advisory Committee composed of 17 members representing government, the ports, and development and environmental interest groups. Many of the Committee members are policy makers for their respective organizations. In fact, the work of the Committee is of such great importance to BCDC that its chairman serves on the Committee. In addition, each port has generally appointed either its port director or a port commissioner. The Committee met over a period of eight years and completed the plan in May 1982. The Seaport Plan, with some revisions, was adopted by the MTC and BCDC in the fall of 1982.

PLAN DEVELOPMENT

The plan development process took approximately eight years, in part due to the level of funding available for technical studies, in part due to the need to achieve a consensus among diverse interest groups, and in part because there was no previous plan to start from. At the beginning of the planning

project, the ports were resistant to the idea of a regional port plan and of regional agencies "interfering" in their affairs. By the end of the project, the port community as a group had endorsed the Seaport Plan and all but one of the six Bay Area ports had voted in favor of the plan. Even the one port that voted against the plan concurred with 99% of the document, but voted "no" due to one provision affecting its lands. Of the fifteen members of the Committee present and voting on plan adoption, there was only this one negative vote and some dissent on individual provisions. When the plan came to a vote before MTC and BCDC, it was unanimously adopted by both commissions.

Many factors influenced this outcome of virtual unanimity on the plan:

- technical studies that sought to answer the questions brought to the process by the various participants;
- a strong commitment at both MTC and BCDC to the development of a regional port development plan;
- a mechanism to enforce the plan through BCDC's permit authority;
- the ports' desire to protect themselves through the planning process;
- the involvement of the environmental community; and
- the influence of time, including the changes it brings.

The technical studies consumed a majority of the eight year period of plan development.⁽³⁾ These studies were intended to answer the following key questions:

- What is the projected growth in waterborne cargo for the San Francisco Bay Area?
- How many new marine terminals will be required to serve the projected cargo?
- Where can the new marine terminals be located?
- What improvements are necessary to the channels, roads, and rails?
- What are the impacts and costs of the required new facilities?
- What methods exist to mitigate the adverse impacts of marine terminal development?

Beyond these questions, other concerns arose as the process proceeded. One such question was voiced by the ports: why do our statistics show a greater growth rate of containerized cargo than those derived from Corps of Engineers' data? This question was answered during the development of the waterborne cargo forecasts.⁽⁴⁾ The answer was in the units used to compile the statistics --revenue tons by the ports and short tons by the Corps. This may seem to be a minor matter, but it did uncover an important factor that needed to be accounted for in developing estimates of demand for new container terminals. This factor was quantified and included in the computations. Although it is only speculation, it seems probable the result was to increase the ports' acceptance of the demand estimates used in the plan. In fact, the process of developing the forecasts upon which these estimates are based is a good example of the approach to the technical studies. The stated goal of the forecasting effort was to strive for a consensus among the affected parties.

The commitment at MTC and BCDC to the development of the plan was also a significant factor affecting the outcome. This commitment took the form of financial support, persistence, a desire to develop a plan that was acceptable to the participants of the process, and a clear focus on the goal of the plan. During the first several years of the study these factors were particularly important. Initially, the Bay Area ports clung to the idea MTC and BCDC would abandon the study effort, if they gave limited support and proceeded with their own studies. As explained later in this paper, the ports conducted studies in the late 70's, but these studies did not alter the direction or level of effort of the MTC/BCDC studies, primarily because the port studies did not deal with the issue of the trade-off between port development and environmental protection. The persistent focus on this primary goal continued to drive the MTC/BCDC studies. Gradually, the ports began to realize that MTC and BCDC fully intended to develop a port plan. At the moment this realization was ripe, the U.S. Maritime Administration agreed to participate in the funding of the MTC/BCDC project, after years of funding studies by the Bay Area ports. This was one of three significant turning points in the development of the plan. The ports began taking the planning process much more seriously following this event.

No plan has much meaning if it cannot be implemented. BCDC's permit authority over shoreline development gives the Seaport Plan this ingredient, and provided an important incentive for the participants to take the planning process seriously. The importance of this incentive was particularly evident when the Seaport Planning Advisory Committee spent several months midway through the process preparing a short paper that would define the nature of the upcoming plan and its uses. The critical importance of the permit process was clear in the detailed questions posed during the development of this paper. Considerable discussion centered on how BCDC would exercise its permit authority and how this would affect future port development. While MTC has a significant authority over transportation funding, this authority does not directly affect terminal development as does BCDC's authority. The completion of this paper was the second significant turning point in the planning project. The ports came to fully understand exactly what assurances BCDC expected from the Seaport Plan. Many concerns only vaguely referred to previously were now on-the-table. The ports did not agree with all the proposals in this paper, but it did pass a vote of the Committee and became the general policy format for the plan. The ports began to focus their attention on the parts of the technical studies they now knew would affect them most. This early introduction of the general plan policies also allowed the ports an extended period of time to fully understand them, and to see the advantage of certain policies as well as the initially perceived disadvantages.

The desire of the Bay Area ports to protect themselves through the planning process also aided in attaining a successful outcome. The ports, of course, had the incentive of BCDC's permit authority, but they could have opted to seek a legislative remedy. At the beginning, they were naturally suspicious of the two regional agencies' intentions, but these suspicions seem to have faded with time. Their continued involvement was important and, whatever their motives, is to the port community's credit.

An essential purpose of the Seaport Plan is to strike a balance between port development and environmental protection. One of the most critical factors affecting San Francisco Bay is fill, and ports require fill for virtually all types of marine terminal development. The environmental activist group, Save

San Francisco Bay Association, has among its concerns Bay filling, retention of water surface area and volume, and the overall effects of channel dredging. This association was represented on the Seaport Planning Advisory Committee, and provided an important balance in the deliberations.

Time brought several beneficial changes to the process. The Committee's ability to work together improved as the years progressed. Time also introduced several new port managers who were more sympathetic to regional cooperation. In this context, it seems probable that a higher level of funding, permitting a speedier process, might actually have resulted in an inferior outcome. The third significant turning point began with a change of management at the Port of Oakland. In the late 70's, the then Executive Director of BCDC resigned and was quickly offered the position of Chief Engineer at the Port of Oakland. He deliberately distanced himself from the regional port planning process for several years, although he firmly believed in regional cooperation and had, as Executive Director of BCDC, been the first to call for a regional port plan. When the serious negotiations on the plan began in early 1982, he once again became active in the process and helped to a very considerable degree in bringing the negotiations to a successful completion.

KEY PROVISIONS OF THE PLAN

The Seaport Plan focuses on marine terminals, but also contains findings and policies covering both deepwater channels and ground access. The various provisions of the plan are intended:

- to encourage cooperation among the Bay Area ports with regard to their development;
- to foster cooperation between the ports and their parent cities;
- to provide increased predictability to the ports with regard to BCDC permits;

- to steer port development to those sites with the least potential for adverse environmental impacts while still providing reasonable terminal development;
- to decrease the pressures for Bay fill resulting from actions by the ports and their parent cities;
- to provide a regional context for evaluating the environmental impacts of individual port projects; and
- to provide a clear statement of the actions that will be taken by BCDC and MTC in implementing the plan.

While there are policies covering a range of issues, the Seaport Plan has two key provisions: (1) only needed development should proceed; and (2) terminals should be located at the sites considered to be the best by the plan and these sites should be protected for marine terminal use.

The first of these key provisions is in direct response to the concerns of the environmental community, BCDC, and others that terminals were being built and then left idle or underused for long periods of time. Such idle terminals represent unnecessary environmental damage and wasted public investment in facilities. These concerns, however, represent only part of the complex equation. The plan also recognizes that increased waterborne trade is an important economic benefit to the Bay Area. While this point might be argued by some, the Seaport Planning Advisory Committee found ample backup in BCDC's Bay Plan and the history of Bay Area development to support this contention. To balance these two concerns, the Committee agreed to measure the need for new terminals using mutually acceptable forecasts, and the concerned parties agreed to abide by the decisions made using them with regard to BCDC permits.

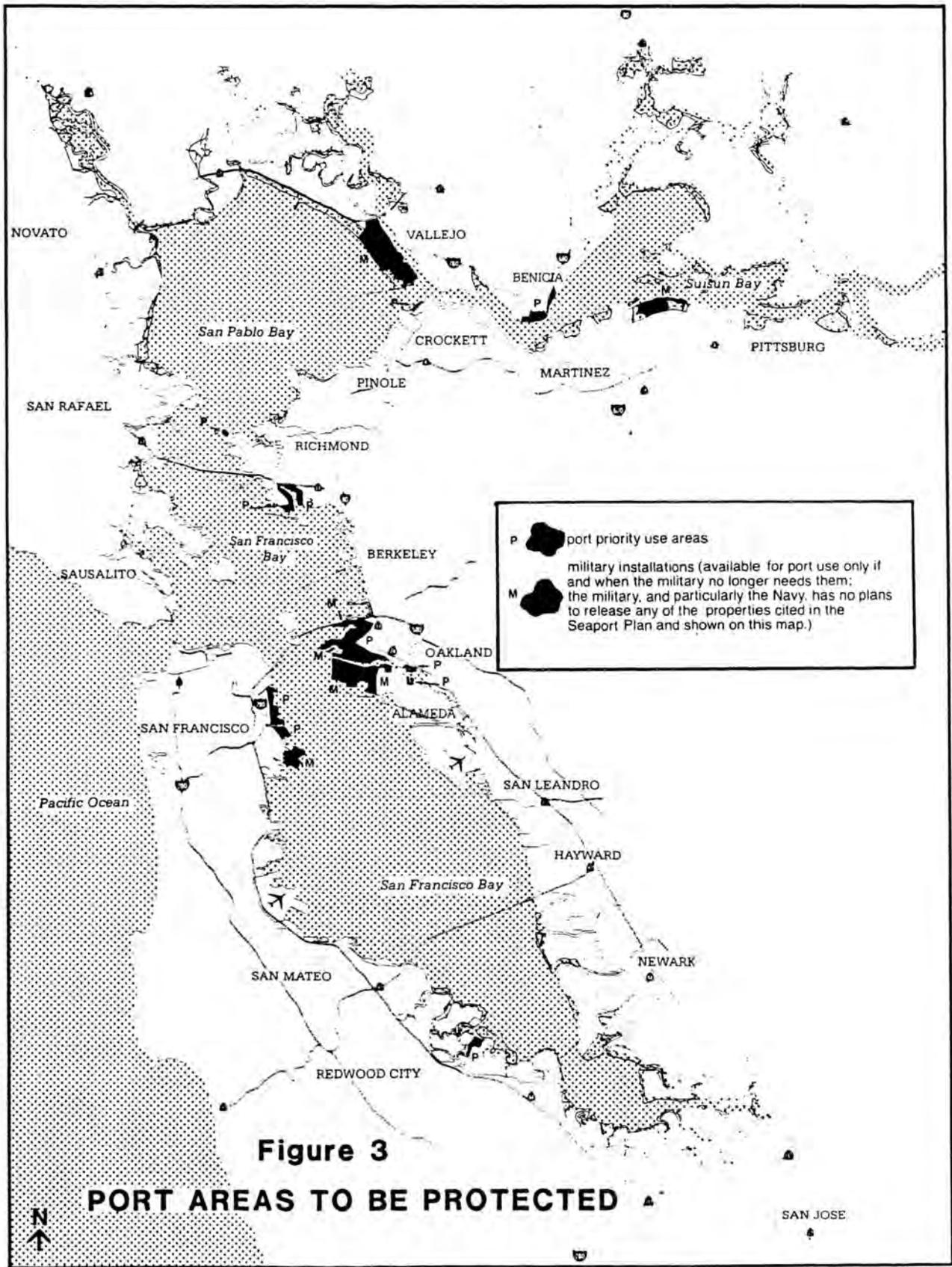
The need criterion, however, provides only part of the assurance desired by BCDC and the environmental community. The ports of the Bay Area still compete with each other and with other West Coast ports for cargo and the ocean carriers that transport this cargo. This competition is generally in the

public interest because it helps keep shipping costs down, may generate new shipping business, and keeps the Bay Area ports sensitive to changes in shipping technology and the needs of the shipper. Nevertheless, such competition may have undesirable side effects. Terminals may still be permitted and constructed and go unused or underused, which in turn may result in unnecessary expenditure of public funds and unnecessary Bay fill. Recognizing this problem, the Seaport Plan:

- encourages the Bay Area ports to cooperate among themselves to avoid duplicating facilities;
- Provides that BCDC permits should include a schedule for financing and construction of a project in order to avoid, to the extent possible, partly completed projects; and
- provides that, if existing terminals remain unused or little used for a significant period of time, no new terminal development of the same type shall be considered until a reevaluation of the plan is completed.

The second key provision has two parts. The first is to steer port development to the best sites. The result of the extensive site screening process was a list of sites that are considered the best. The plan calls for these sites to first be used before any other sites, including the second rated sites, are considered. It does, however, provide a reconsideration of other sites if it can be shown that development at some other location can occur with impacts equal to or less than those of the selected sites. The plan also requires a thorough review of the alternatives once all the best sites are used. This provision is important because it implies that development does not automatically move to the second rated sites whenever all the best ones are used; other alternatives may be preferable for accommodating future demand.

The plan also provides that the sites chosen for marine terminal development should be protected for that use (see Figure 3). To this end, the Seaport Plan recognizes that these sites cannot be fully protected without the cooperation of the ports and local government, and calls on local government and the



ports to protect the sites. This is particularly important since there are many competing uses for the Bay shoreline, and because the alternatives are vastly increased amounts of Bay fill at other sites or potential loss of Bay Area cargo to other Pacific Coast ports. With the increasing need of local government to find revenue sources, the temptation to seek the quickest, highest tax revenue from valuable waterfront lands will increase. This will increase the pressure to utilize port property for other uses rather than for marine terminals, which provide a longer-term benefit to the local and regional economy. Protecting port lands will probably be one of the most important and troublesome issues in implementing the plan.

COMPARISON TO OTHER REGIONAL PORT PLANNING STUDIES

There have been sixteen regional port planning studies (see Table 1) throughout the United States in the last ten years (5). These studies vary with regard to geographic area, sponsor, funding, study scope and process, and implementation. From a process and policy perspective, the most interesting comparisons to the San Francisco Bay Area Seaport Plan center on federal involvement, study process and implementation.

A common element to all regional port studies, including the San Francisco Bay Area Seaport Plan, has been funding and management involvement by the U.S. Maritime Administration (MARAD). MARAD involvement has been an ingredient of these studies not because federal regulations require such studies--federal regulations do not, but because ports and local governments have requested federal financial support. This federal involvement has helped develop consistency in planning techniques, such as forecasting and capacity estimating, and has provided MARAD with inventory data which it can use to fulfill its national defense preparedness responsibilities. Consistency in forecasting is particularly important. Regions often compete for the same cargoes, and regional waterborne cargo forecasts typically make liberal assumptions about the capture rates for a region. Thus, these individual regional forecasts, if summed, would add to cargo flows much greater than U.S. Trade as a whole could justify. MARAD involvement helps to bring this consideration to the attention of the planners, and to some extent reduce the chances of unrealizable fore-

casts being prepared. Inflated forecasts can result in wasted investment of public funds in marine terminals and infrastructure, and unnecessary environmental damage. Unfortunately, cutbacks in MARAD research and development funds have eliminated federal funding participation in regional port planning studies. Important local and national benefits are derived from federal involvement in these studies, and it is hoped federal interest will be renewed. In fact, no regional port planning studies have been initiated recently. It is not clear whether the lack of federal participation is a factor or not.

While the details of the planning process vary from study to study, there is a common aspect to the process in many cases. These regional planning endeavors have been "the first time that normally adversary groups have communicated for a common goal" (5, page 339). Taken as a broad statement about all port activities, this is not precisely accurate. Ports have actively cooperated with regard to setting tariffs and promoting navigation projects. Nevertheless, prior to regional planning studies, ports had never cooperated with regard to planning their terminal facilities since they compete with one another.

In the San Francisco Bay Area, the ports began working together when MTC and BCDC initiated port planning in the early 70's. Even though the Bay Area ports were all represented on the Committee formed to provide guidance to MTC and BCDC, they revived a dormant port organization and started cooperative planning, in defense against the regional agencies interfering in their affairs. In fact, they completed a study in 1976 (see Table 1). This study, however, did not satisfy the requirements of the laws and policies under which MTC and BCDC were pursuing regional port planning. The regional agencies continued to move forward with their planning, and after several further attempts to do planning in the late 70's, the ports finally accepted the fact that MTC and BCDC would ultimately produce a plan and that they should begin to seriously work with the regional agencies to structure the plan to their best possible advantage. The pivotal action which coalesced this change in the port's approach was MARAD's agreement to participate in the funding of the MTC/BCDC port planning project.

Table 1

REGIONAL PORT PLANNING STUDIES

<u>REGION</u>	<u>LOCAL SPONSORS</u>	<u>YEAR</u>
1. Pacific Northwest	Washington Public Ports Association & Portland, Oregon	1975
2. San Francisco Bay	Northern California Ports Association	1976
3. Metropolitan St. Louis	East-West Gateway Council	1976
4. Mid-America	17 States along Mississippi River from Illinois to Louisiana	1978
5. Florida	State DOT	1978
6. Virginia	Virginia Study Commission	1979
7. Maryland	State DOT	1980
8. Alaska	State DOT	1980
9. Oregon	State Economic Development Department	1980
10. Great Lakes	8 Great Lakes States	1981
11. New England	New England River Basins Commission	1981
12. Hawaii	State DOT	1981
13. State of Washington	Washington Public Ports Association	1981
14. San Francisco Bay	Metropolitan Transportation Commission and Bay Conservation & Development Commission	1982
15. Delaware River	Delaware River Port Authority and Area City and Port Authorities	1982
16. New York - New Jersey	NY-NJ Municipalities	1983

Source: Wardwell, Robert H., Regional Port Plans: Government Without Regulations, Coastal Zone '83, June 1983.

During the planning process, the ports learned to work with not only each other but with the members of the MTC/BCDC Seaport Planning Advisory Committee, which included representatives from government agencies, from an environmental interest group, and from development interests. The working relationship was not always comfortable for all parties, and divisions among the ports and among Committee members existed. Nevertheless, the Bay Area ports did begin talking to each other, and have continued to cooperate on limited areas of common interest, such as marketing materials.

With regard to implementation, more will be said in the next section, but it is worth noting two important differences in the San Francisco Bay Area Seaport Plan from other regional port plans. First, through the policies in the plan and BCDC's permit authority, this plan can be enforced to an extent not available to other regional port plans. Any shoreline development will require a BCDC permit and will be reviewed for conformity with the Seaport Plan. This review helps assure port development will be consistent with the plan and helps assure other shoreline uses will not preempt future port development at the sites reserved for port use. Second, BCDC and MTC have agreed to continue to use the Seaport Planning Advisory Committee to provide advice on proposed port projects. Typically, the groups formed to prepare regional port plans disband following completion of the plan, either because the sponsoring agencies terminate the group or because of friction among the members, such as fear that the large port will dominate. This will not be the case in the Bay Area and has not been the case in Washington State where the planning committee continues to provide peer review of proposed projects.

RECENT AND IMPENDING IMPLEMENTATION ACTIONS

Since completion of the Seaport Plan in 1982, three marine terminal developments have been authorized, three projects are being or will shortly be considered, and one unconstructed project will require an extension of its BCDC permit. Of these, three provide good examples of the policy and process issues discussed above. They are: Port Master Plan, Encinal Terminals, Alameda; the Alameda Gateway Project; and Pier 50 Ship Repair Facility, Port of San Francisco.

The Encinal Terminals port master plan was approved by BCDC in late 1983 and was the first permit to be issued under the Seaport Plan. The plan consists of expansion of an existing container terminal, redevelopment of an old marine terminal facility into a container terminal, and various other improvements, including a marina expansion and commercial development. This project was first reviewed by MTC and BCDC during the public comment period on the draft environmental impact report, and then underwent extensive review during the deliberations leading to BCDC issuing a development permit. During the permit proceedings two issues surfaced.

The first issue pertains to scope and schedule for the project and can be best expressed with the following question: Is it reasonable to issue a permit for the entire master plan when some parts of the plan will not start construction for many years? This is important because there are a limited number of terminals that may be permitted according to the forecasts of need in the Seaport Plan. If one port receives permits for several terminals, no other port may be able to receive a permit for a considerable time, until the demand forecasts show that more new terminals are needed. To avoid a single port gaining a monopoly on permits for new terminals, the Seaport Plan requires a development schedule which contains milestones that must be met. These milestones must be consistent with the guidelines provided by the Seaport Plan. If the applicant is unable to meet that schedule, the permit is to be revoked and the terminal capacity represented by that permit can then be made available to other ports.

Encinal Terminals prepared a schedule in which construction would not begin for four years. This is excessive based on the Seaport Plan's guidelines. In addition, the other ports in the Bay Area objected to the proposed schedule. After much discussion and testimony at the public hearing on the project, BCDC found (6):

"To allow four years to the commencement of construction would allow the applicant to control the capacity represented by this authorization for that entire period of time without any firm indication being demonstrated that the terminals would actually be built. The Commission finds this period to be excessive."

A compromise was then reached with the applicant which involved a two year period till commencement of construction and milestones with regard to financing, both of which are consistent with Seaport Plan policies. It is significant that the outcome of this debate, over the first permit to be issued under the Seaport Plan, was to reaffirm the basic precepts and findings of the plan.

The second issue relates to the adversary role the ports have with one another. As stated above, the other ports objected to the schedule originally proposed by Encinal Terminals. This was only a part of their concern with the master plan, and their testimony before BCDC came very close to a recommendation to deny the permit, but stopped short of this. Clearly, as competitors, their own self interest must prevail, and they can only be expected to cooperate to a point where that self interest is not threatened.

The Alameda Gateway Project and the Port of San Francisco ship repair proposal have significant policy implications--primarily that of protecting marine terminal sites. These proposals are the first example of the Seaport Planning Advisory Committee functioning as an aid to implementing the plan.

The Alameda Gateway Project is a commercial and water-related industry project proposed for shoreline lands designated for marine terminal use in the City of Alameda. When the Seaport Plan was developed, certain military lands were designated for marine terminal use, should the military ever release the property. This site was among those, since city and regional land use plans showed the site as military ownership. This site, while surrounded by military lands, is not in military ownership. Thus, there was an oversight in the plan, but this oversight has raised an issue of protecting lands designated for marine terminal use: would loss of this shoreline land compromise potential marine terminal use of backland areas and adjacent shoreline areas? MTC and BCDC staff reviewed the project and concluded that it would not diminish the potential for marine terminal development on adjacent military lands, should the military release them. The Seaport Committee discussed this project at its meeting in August 1984; thoroughly debated the staff recommendations; took testimony from the project proponent,

the Mayor of Alameda, the Port of Oakland, and an Alameda citizen opposed to the project; and voted to recommend to MTC and BCDC the marine terminal designation be deleted. Again, the basic precepts of the plan were affirmed.

The dynamics of the Committee are important with regard to this project and the San Francisco project. Of the nine Committee members present at the August meeting, five were new, including the chair. Therefore, a review of the plan's policies was necessary prior to discussing project proposals. More importantly, though, the new members deferred to the members who had seen the plan through its development. In fact, several of the new members abstained during the voting.

The Port of San Francisco ship repair proposal involves a questionable interim use at an existing pier designated for marine terminal development. The port plans to lease a major portion of the pier for ship repair and installation of a dry dock. The lease would be for five years with five-year options thereafter. Substantial investment will be required by the lessee to make the pier suitable for its uses and to anchor the floating dry dock. This project was also discussed at the August 1984 meeting, and the Seaport Committee was faced with the following question: is this truly an interim use or is it likely the ship repair facility will become permanent, foreclosing future marine terminal use and development? This was an extensively debated question. Those speaking for the ship repair project were the Port of San Francisco (a member of the Committee) and the prospective lessee. Those speaking against included a member of the Committee, a former Port of San Francisco commissioner who is also a former Committee member, and another ship repair firm in San Francisco. Interestingly, the Committee member speaking against the project is the Mayor of San Francisco's appointee to MTC, who had participated in the development of the plan. Despite the Mayor's support of this project, this Committee member believed it was not in keeping with the Seaport Plan. Again, the views of those Committee members who participated in the plan development dominated, and a motion to recommend BCDC deny the permit was passed. This project is not dead, however. The Port of San Francisco has requested the chair of the Committee call a meeting to reconsider this vote, claiming they have new information. The meeting will be December 5, 1984.

CONCLUSIONS

The following can be concluded with regard to the process of developing and implementing the Seaport Plan:

- Implementation authority is essential. Developing a plan without such authority will be frustrating and the plan will collect dust, once completed. This authority must be tempered, however, with a desire to resolve disagreements such that a near consensus can be reached. The legitimate interests of all parties must be recognized.
- The sponsoring agencies must be persistent and focussed on the primary goal of the plan. Persistence keeps the process moving when there are forces opposing its direction, and focus permits compromise while preserving the essential goal.
- Fortuitous changes occurred in port management that facilitated the process of plan development.
- The participation of the U.S. Maritime Administration (MARAD) was beneficial and provides important benefits to all regional port planning projects. MARAD funding of such studies should be reinstated.
- The Seaport Plan can be implemented and the basic precepts of the plan have been reaffirmed in recent actions.

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THE SAN FRANCISCO BAY AREA SEAPORT PLAN

prepared for

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and

The San Francisco Bay Conservation & Development Commission

1982

Revised, 1988

Approved by the Seaport Planning Advisory Committee
on January 4, 1989

Approved by the San Francisco Bay Conservation and
Development Commission on March 16, 1989



(3077P)





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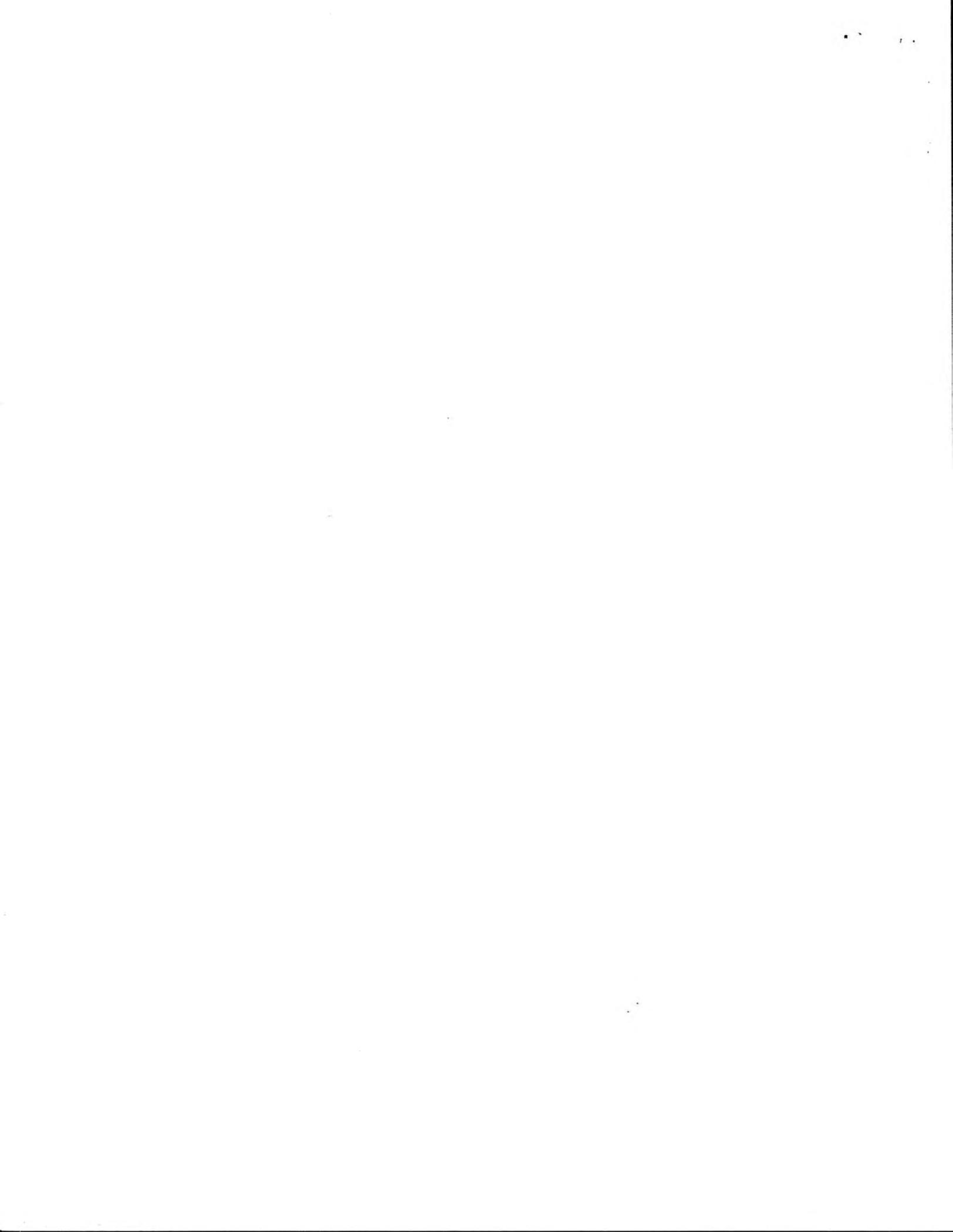
PARTICIPATING AGENCY STAFF

Marc Roddin, Project Manager	Metropolitan Transportation Commission
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¹ ABAG may designate two members to the Committee; these are currently vacant.

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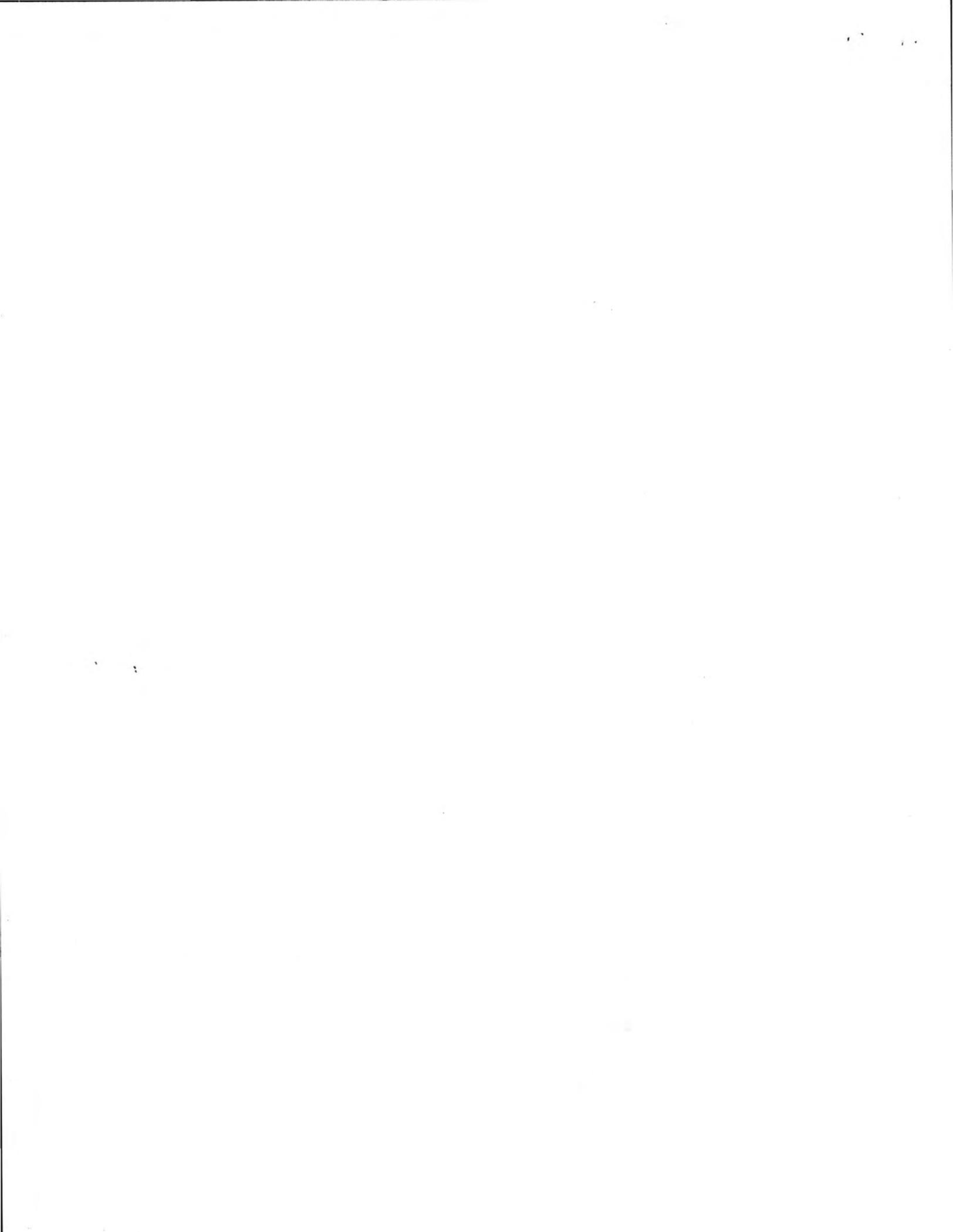
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I. INTRODUCTION

The Seaport Plan for the San Francisco Bay Area is the result of a cooperative effort sponsored by the Metropolitan Transportation Commission (MTC) and the San Francisco Bay Conservation and Development Commission (BCDC). The Plan responds to state law requiring a maritime element to MTC's Regional Transportation Plan and to BCDC's original Bay Plan policy that called for a regional port development plan. MTC and BCDC set forth the following goals for the Seaport Plan:

- o Ensure the continuation of the San Francisco Bay Port system as a major world port and contributor to the economic vitality of the San Francisco Bay Region.
- o Maintain or improve the environmental quality of San Francisco Bay and its environs.
- o Provide for the efficient use of finite physical and fiscal resources consumed in developing and operating marine terminals.
- o Provide for integrated and improved surface transportation facilities between San Francisco Bay Ports and terminals and other regional transportation systems.

To assist in developing the Seaport Plan, MTC and BCDC created the Seaport Planning Advisory Committee (SPAC). The Committee consists of representatives from various local, state and federal agencies, from the six Bay Area ports, and from environmental and development interest groups. It met over a period of several years and oversaw the preparation of extensive technical studies which are summarized in the Final Technical Report for the planning project. This Plan is the result of extensive deliberations by the Committee.

The Seaport Plan focuses on marine terminals, and more specifically on marine terminals where the transfer of cargo is the primary activity of the business entity operating on the shore. Bay Area marine terminal facilities that serve a manufacturing activity were not analyzed. At present, all marine terminal facilities of concern to this Plan are located within or near six Bay Area ports: Benicia, Oakland, Redwood City, Richmond, San Francisco, and Encinal Terminals in Alameda; and the City of Vallejo. The Plan also addresses the need for privately owned crude oil terminals, due to the large volume of crude oil shipped into the Bay Area. It does not, however, address the development of the Ports of Stockton and Sacramento, which are beyond the jurisdiction of both MTC and BCDC.

On October 27, 1982, MTC adopted revisions to the Regional Transportation Plan including a maritime element based on this Plan. Most important of the policies in the maritime element is Policy 5.1 which states that the Seaport Plan "shall guide MTC in its decisions on seaport development and related proposals for transportation and land use development." MTC also certified the environmental impact report for the Seaport Plan on this date. On December 2, 1982, BCDC adopted the Seaport Plan as part of the Bay Plan. This was accomplished by adopting summary policies which incorporated the Seaport Plan into the Bay Plan by reference, by adopting the findings, policies, recommendations and maps section of the Seaport Plan, and by making other revisions to the text and maps of the Bay Plan and Special Area Plan No. 1.

As a result of public hearings and discussions held by both commissions, changes were made to the original recommendation of the Seaport Planning Advisory Committee. These changes were incorporated in the Plan on which the two commissions acted and have been included in this document. The changes were also endorsed by the Committee.

Under the policies of this Seaport Plan, BCDC and MTC, with the assistance of the Seaport Planning Advisory Committee, must periodically update the Seaport Plan to reflect new information obtained since the last major review. In 1988, revisions were drafted by the Seaport Planning Advisory Committee and referred to both commissions for review and adoption. After public hearings, both commissions adopted the proposed revisions and they have been incorporated into this document.

BAY AREA PORTS

There are six publicly-used ports in the San Francisco Bay Area (see Figure 1). Each of these ports was developed to provide a needed service.

With the advent of the gold rush in 1850, the city of San Francisco rapidly developed, becoming the only major port on the West Coast. Virtually all of the other Bay Area ports were started by an operator offering service to and from San Francisco. San Francisco continued as the major Bay Area port until consolidation of cargo into containers revolutionized shipping in the 1960s. It is still the major break bulk port in the region and provides container handling facilities at two terminals.

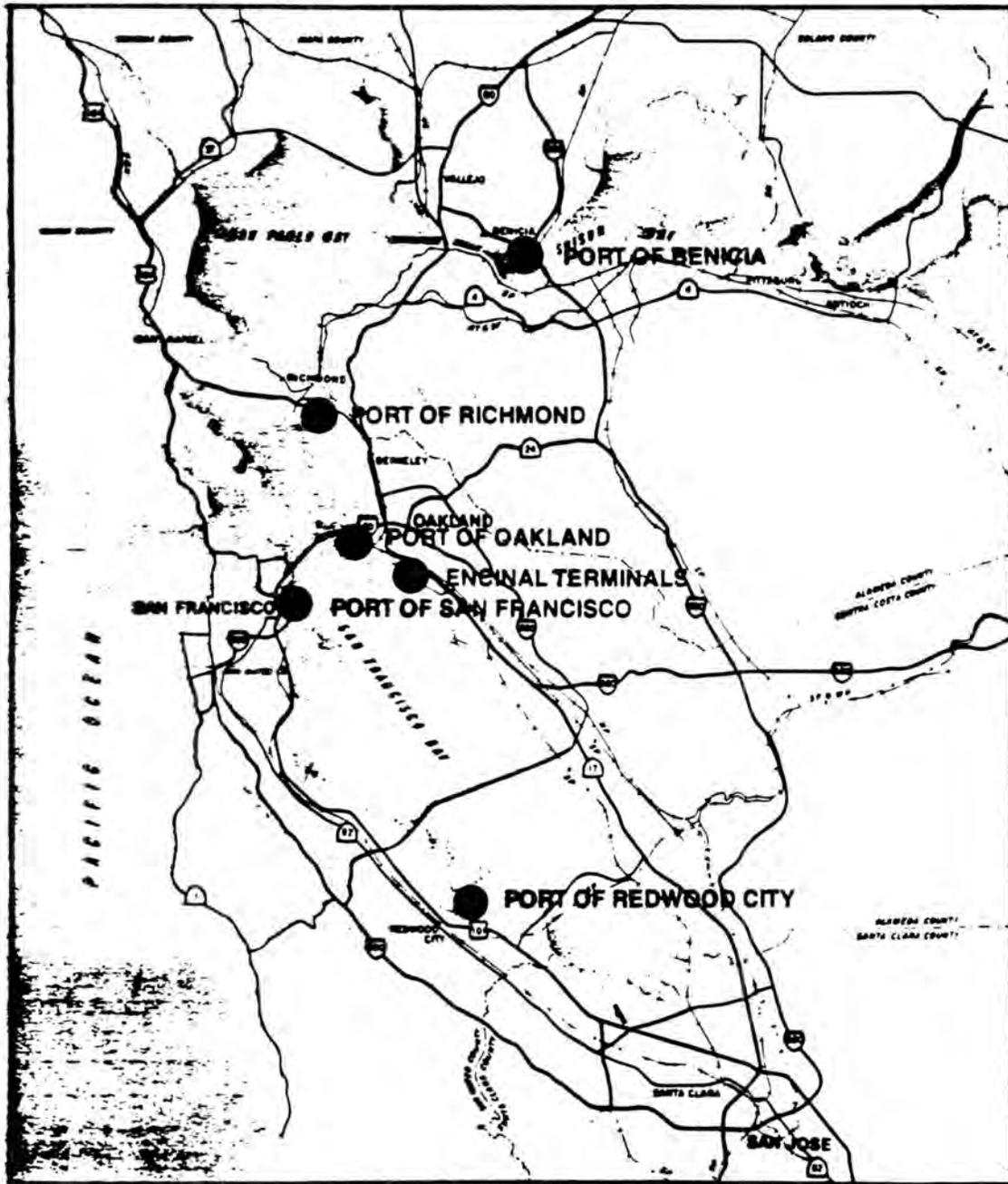
Oakland established a separate port authority in the 1920s, but it developed slowly until the advent of containerization. Good rail connections and the large amount of available land contributed to Oakland's rapid development of container terminals and emergence as the major Bay Area port.

Alameda shares the Oakland Estuary with Oakland, and port activity began by offering service to San Francisco. Encinal Terminals in Alameda was formed in 1924, and was a major steel importing point.

After Sante Fe Railroad established its transcontinental rail terminus in Richmond, many industries began to locate there. By 1940, the petroleum industry had become the largest contributor to Bay Area waterborne cargo, and the bulk of the shipments moved through Richmond. The Port of Richmond has container handling capability.

In the South Bay, Redwood City's harbor began as a lumber port serving San Francisco in the mid-1800s. It has remained a relatively small port handling specialized commodities such as scrap and limestone. In the North Bay, Benicia was the site of a military arsenal from the 1850s to 1964 and also the center of considerable shipbuilding. After the arsenal closed, the Port of Benicia was established and has become a center for auto imports.

Figure 2 provides a chronology of major events affecting West Coast port development. Development of ground transportation, particularly rail, has had a major impact on port development. For example, the location of the transcontinental rail terminus in Oakland stimulated harbor development. Also, the development of rail links to the east from the Pacific Northwest caused the lumber trade to shift from San Francisco to Puget Sound. Neither of the world

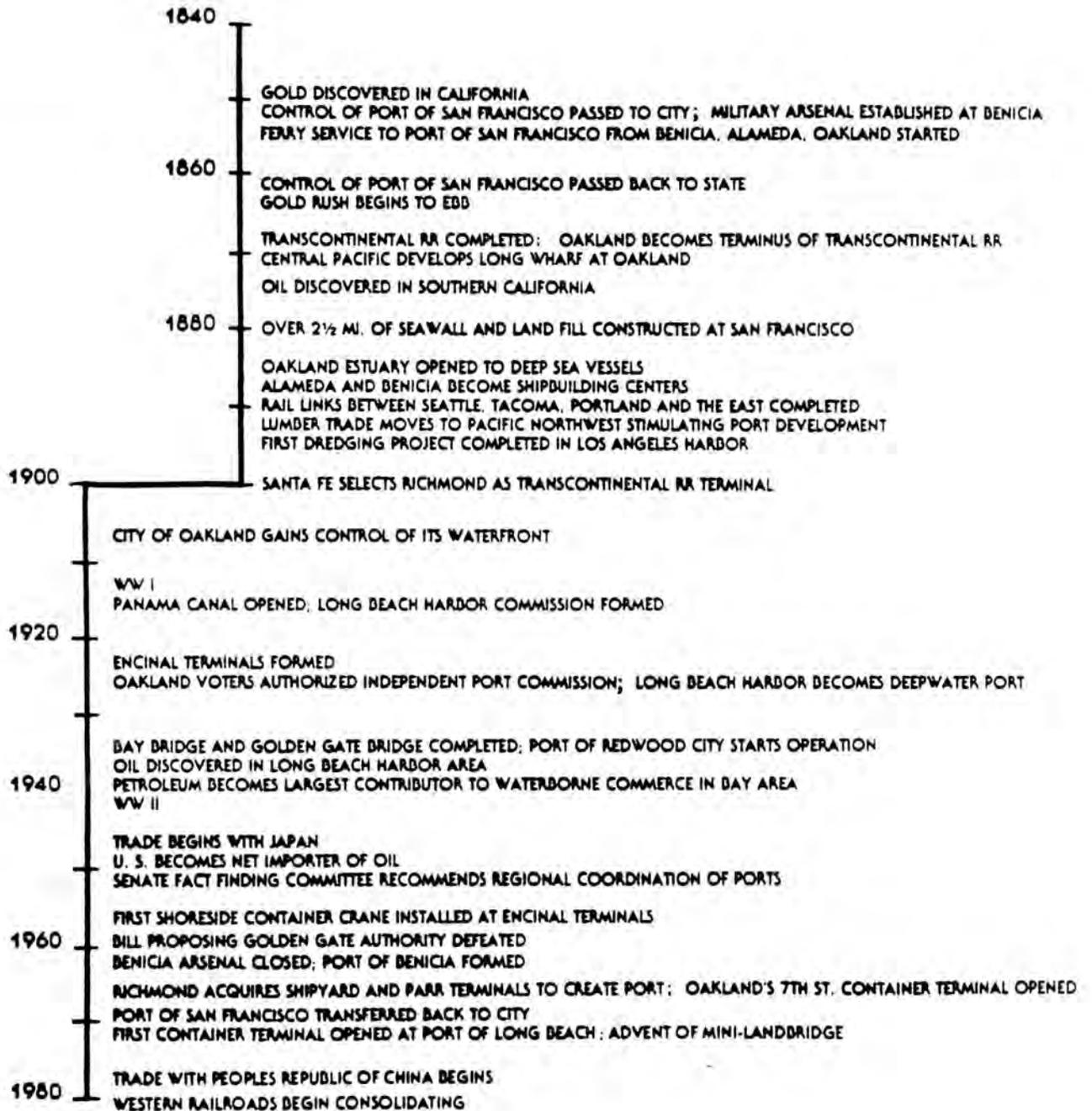


SAN FRANCISCO BAY AREA PORTS

Figure 1 
 0 5 MILES

Figure 2

WEST COAST PORT DEVELOPMENT CHRONOLOGY



wars seems to have had a long-term major impact on port development even though the federal government did take over the ports during World War II. Since World War II, the emergence of Japan as a major United States trading partner has stimulated considerable port development on the West Coast.

STEAMSHIP LINES

The steamship lines are the users of the region's port facilities. These ocean carriers of many nations compete for the cargo moving through the Bay Area to and from points all over the world. Their desire for efficient marine terminals creates the demand for new facilities the ports must provide. This demand, of course, also creates competition among the Bay Area and West Coast ports for their business. The steamship industry is currently experiencing a period of change including rationalization of services which may affect the demand for new marine terminal facilities.

ISSUES

Of the many issues pertaining to the development of the port system in the Bay Area, the following are the most relevant to the concerns of MTC and BCDC and have been addressed by this Plan:

- o What is the projected growth in waterborne cargo for the San Francisco Bay Area and what factors will affect this growth? How can the need for new facilities be assessed?
- o What is the capacity of existing Bay Area terminals and what factors can be expected to affect marine terminal capacity?
- o How many new marine terminals will be required to serve the projected cargo?
- o Where can the new marine terminals be developed with minimum adverse environmental impacts? How much shoreline must be reserved?
- o What improvements are necessary to the channels, roads, and rails?
- o What are the environmental impacts and costs of the new facilities? Can the adverse environmental impacts be minimized or mitigated? If so, what methods exist to mitigate these impacts? What methods exist to reduce the overall cost of port system development in the Bay Area?

II. PLAN IMPLEMENTATION

RESPONSIBLE ORGANIZATIONS

Improvements to the channels, marine terminals or ground transportation facilities are the responsibility of:

- o the Corps of Engineers and the ports or private sector in the case of the channels;
- o the ports or private sector for the marine terminals;
- o the cities, counties and/or Caltrans for the roadways and highways; and
- o the railroads and/or ports for rail facilities.

The development decisions of these entities are influenced by state and federal laws requiring that projects be reviewed at various stages by a number of agencies. Among these agencies are:

- | | | |
|----------|----|--|
| Federal | -- | Environmental Protection Agency, U.S. Fish and Wildlife Service, National Marine Fisheries Service, Coast Guard, Army Corps of Engineers, Office of Coastal Zone Management, Maritime Administration, Department of Transportation and others; |
| State | -- | Department of Fish & Game, California Transportation Commission, and others; |
| Regional | -- | Regional Water Quality Control Board, Air Quality Management District, Association of Bay Area Governments, MTC, BCDC, and others; and |
| Local | -- | City or county governments. |

The purpose of this Plan is to provide MTC with policies for reviewing draft environmental assessments and funding applications, and to provide BCDC with policies for reviewing applications for a permit, draft environmental assessments, and federal actions affecting the Bay. In addition, the Plan calls for city and county governments to institute land use protections for the port areas and for the ports to cooperate through their voluntary organization, the Golden Gate Ports Association (GGPA), or through other agreements among themselves. The primary responsibility for implementing the policies of the Seaport Plan is therefore a shared responsibility of MTC, BCDC, local governments, and the ports.

AGENCY BACKGROUND

MTC is the Regional Transportation Planning Agency (RTPA) for the Bay Area. It is responsible for comprehensive transportation planning and financial programming. The Metropolitan Transportation Commission Act of 1970, which created MTC, provides that:

Any application to the federal or state government for any grant of money, whether an outright or matching grant, by any county, city and county, city, or transportation district within the region shall, if it contains a

transportation element, first be submitted to the Commission for review as to its compatibility with the regional transportation plan. The Commission shall approve and forward only those applications that are compatible with the plan.

The Act also required MTC to study harbor accessibility in the region and report to the Legislature. In subsequent legislation (AB 69 and AB 402, Government Code 65080), all RTPAs in California were required to prepare:

...a regional transportation plan and a regional transportation improvement program directed at the achievement of a coordinated and balanced regional transportation system, including, but not limited to, mass transportation, highway, railroad, maritime, and aviation facilities and services.

MTC also receives environmental documents for review and comment if the project includes a transportation element.

BCDC is the state agency designated to manage the waters of San Francisco Bay and the development of its shoreline. The Legislature created BCDC in 1965 and charged it with preparing a comprehensive plan for the Bay. In 1969, through the McAteer-Petris Act, the Legislature expressly recognized the San Francisco Bay Plan prepared by BCDC and gave BCDC the authority to implement the Plan. Under the McAteer-Petris Act, approval must be obtained from BCDC for all filling and dredging in the Bay and for all development, including changes in uses, within 100 feet of the shoreline. In addition, BCDC's Bay Plan is an integral part of the federally approved coastal zone management program for San Francisco Bay, and BCDC is the agency responsible for administration of that program.

One of the major objectives of BCDC is to ensure that all filling of the Bay is limited to the six high-priority, water-oriented uses identified in the McAteer-Petris Act—one of which is ports. In order to provide sufficient shoreline sites to accommodate these high-priority uses with the minimum fill necessary, the Bay Plan provides that shoreline sites especially well-suited for these priority uses be reserved for such uses. In the case of ports, BCDC has designated numerous sites around the Bay for port priority use.

Although a proposed fill may be for a priority use and is proposed to be located within a designated priority use area, the BCDC law still requires that the fill proposed be "the minimum fill necessary." Together with other sections of the McAteer-Petris Act, this means two tests must be met: (1) the total Bay fill for all port development in the region must be the minimum necessary; and (2) each project must be designed and constructed so that it avoids unnecessary fill. The former issue is answered by this Plan; the latter issue can usually be addressed in a permit proceeding.

PROJECT REVIEW COORDINATION

To avoid potentially conflicting comments on a maritime development project, a procedure for coordination between MTC and BCDC will be required. Four points exist where MTC and/or BCDC would be asked to comment or take action on a project pertaining to the port system in the Bay Area:

- o review of draft environmental documents - both MTC and BCDC receive such documents through federal and state clearinghouses; it is very likely this will be the first opportunity to comment on any proposed maritime project.
- o review of applications for federal or state funding - MTC receives funding applications for review if they contain a transportation component and BCDC reviews such applications when the proposed project would affect the Bay or its shoreline; such applications may include street and highway projects, rail assistance, and federal or state grants for economic development; a notice of intent to apply for funding may precede review of environmental documents; MTC will only approve a funding application if the environmental assessment has been certified.
- o review of federal actions affecting the coastal zone - BCDC must determine whether federal actions affecting the coastal zone are consistent with its federally approved management program; such actions include, but are not limited to, funding (as described above), surplusing or leasing of federal land, and Corps of Engineers permits.
- o review of applications for a BCDC permit - projects having an effect on the Bay or its shoreline must obtain a BCDC permit; BCDC will only accept an application for a permit if an environmental assessment has been certified; while MTC has no responsibility in BCDC's permit process, MTC may be reviewing the same project at the same time under its responsibilities.

III. FINDINGS, POLICIES AND RECOMMENDATIONS

The policies and recommendations are intended to achieve the goals set forth for the Seaport Plan, and to reflect MTC's and BCDC's shared purpose to enhance economic activity while protecting the environment, making efficient use of all resources, and coordinating development. Maritime development must also be consistent with the Regional Transportation Plan, the McAteer-Petris Act and the San Francisco Bay Plan.

FINDINGS

Forecasts of Waterborne Cargo

- a. Figure 3 provides a graphic representation of the forecasts for all commodities except petroleum and liquid bulk petroleum products. Tables 1 and 2 show the baseline, high and low forecasts of waterborne cargo for the Bay Area. The baseline cargo forecast is considered to be the most likely projection while the high and low variations represent possible alternative levels of trade. These forecasts do not include the movement of cargo through the ports of Sacramento and Stockton.
- b. The baseline forecast indicates that waterborne dry cargo for the San Francisco Bay Area will more than double by the year 2000. Containerized cargo movements, automobiles, iron and steel scrap, and grain exports are all expected to increase, with containerized cargo representing the majority of the growth. In fact, containerized cargo is forecast to increase to four times its present volume by the year 2010.
- c. While detailed forecasts suggest increased movements of liquid cargoes, such as petroleum, these are mostly handled at proprietary terminals (such as Chevron USA's Long Wharf at Richmond) that are outside the purview of this Plan.
- d. A basic precept of the Seaport Plan is that, in order not to limit economic activity, improvements should be made to the Bay Area port system to handle forecast waterborne cargo. However, the ports of the Bay Area compete with each other and with other West Coast ports for cargo and the ocean carriers that transport this cargo. This competition is generally in the public interest because it helps keep shipping costs down, may generate new shipping business for the Bay Area, and keeps the ports sensitive to changes in shipping technology and the needs of shippers. Nevertheless, such competition may have undesirable side effects in the form of investment in facilities that go unused or little used, which in turn may result in unnecessary expenditures of public funds and unnecessary Bay fill. Therefore, another precept of the Seaport Plan is that proposed marine terminal development should be more closely linked to projected regional need for new facilities based upon reasonable forecasts of waterborne cargo.

Figure 3. BASELINE FORECAST

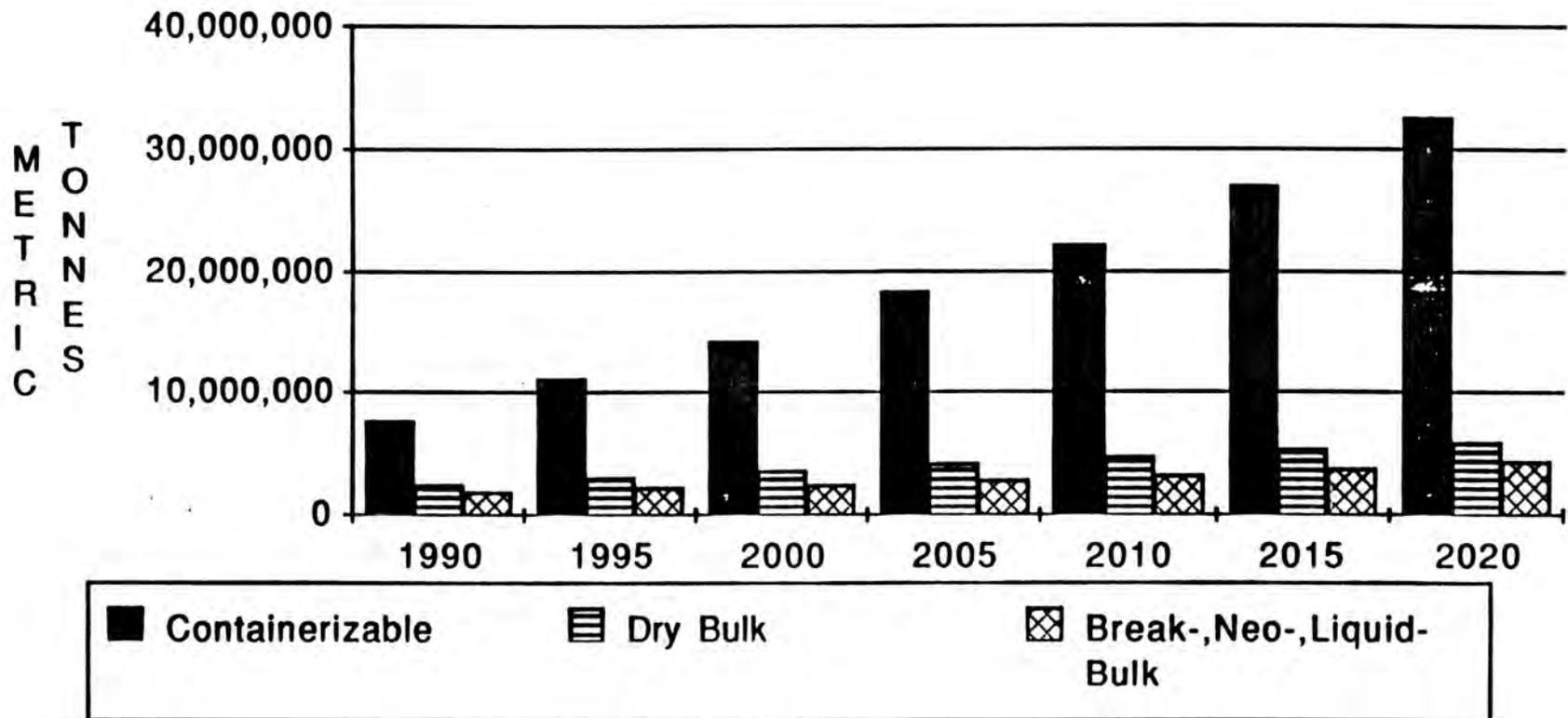


Table 1
SAN FRANCISCO BAY AREA CARGO FORECAST

BASELINE FORECAST

(1,000's of metric tonnes)

	1978	1985	FORECAST		
			1990	2000	2020
CONTAINER¹	4,295	5,033	7,773	14,334	32,567
Foreign Container	3,292	4,086	6,657	12,844	29,888
Domestic Container	1,003	967	1,116	1,490	2,679
BREAK BULK	406	295	291	498	1,146
Foreign Breakbulk	397	287	281	480	1,083
Domestic Breakbulk	9	8	10	18	63
NEO-BULK	1,260	1,465	1,136	1,290	2,217
Autos - Imports	173	333	321	337	454
- Exports	21	3	6	10	23
- Domestic	46	49	59	87	193
Iron & Steel-Imports	648	802	444	438	693
-Other	62	15	28	26	40
Newsprint - Imports	309	263	277	391	811
- Other	1	0	1	1	1
DRY BULK	2,775	2,680	3,676	5,058	7,410
Grain - Exports	514	120	174	279	418
- Other	1	36	81	112	164
Iron & Steel Scrap	523	525	621	795	914
Petroleum Coke	258	365	605	696	607
Sugar	835	672	641	586	508
Other Bulk ²	644	962	1,554	2,590	4,799
DRY CARGO	8,736	9,493	12,876	21,180	43,340
TOTAL BASELINE					
LIQUID BULK	31,312	31,953	37,600	44,560	47,485

¹ Includes the majority of RO/RO cargoes; RO/RO cargoes other than those included in the container forecast are included in the other cargo categories. For example, automobile RO/RO cargo is included in the neo-bulk forecast.

² Includes salt.

SOURCE: San Francisco Bay Area Cargo Forecast, prepared by Manalytics, Inc. and The WEFA Group, April 1988.

Table 2
SAN FRANCISCO BAY AREA CARGO FORECAST

HIGH AND LOW FORECASTS

(1,000's of metric tonnes)

	1978	FORECAST			
		1985	1990	2000	2020
HIGH FORECAST					
CONTAINER ¹	4,295	5,053	9,484	16,254	35,340
Foreign Container	3,292	4,086	8,357	14,734	32,567
Domestic Container	1,003	967	1,127	1,520	2,773
BREAK BULK	406	295	293	807	1,186
Foreign Breakbulk	397	287	283	489	1,121
Domestic Breakbulk	9	8	10	18	65
NEO-BULK	1,260	1,465	1,148	1,316	2,297
Autos - Imports	173	333	324	344	470
- Exports	21	3	6	10	24
- Domestic	46	49	60	89	202
Iron & Steel-Imports	648	802	448	447	718
- Other	62	15	29	27	42
Newsprint-Imports	309	263	280	398	840
- Other	1	0	1	1	1
DRY BULK	2,775	2,680	3,711	5,152	7,656
Grain - Exports	514	120	176	284	433
- Other	1	36	82	114	169
Iron & Steel Scrap	523	525	628	811	946
Coke	258	365	611	710	628
Sugar	835	672	647	898	530
Other Bulk ²	644	962	1,567	2,635	4,950
TOTAL BASELINE DRY CARGO	8,736	9,493	14,636	23,229	46,479
LIQUID BULK	31,312	31,953	37,976	45,451	49,148
LOW FORECAST					
CONTAINER ¹	4,295	5,053	7,695	14,047	31,427
Foreign Container	3,292	4,086	6,590	12,587	28,842
Domestic Container	1,003	967	1,105	1,460	2,585
BREAK BULK	406	295	288	488	1,106
Foreign Breakbulk	397	287	278	470	1,045
Domestic Breakbulk	9	8	10	18	61
NEO-BULK	1,260	1,465	1,119	1,265	2,141
Autos - Imports	173	333	312	330	438
- Exports	21	3	6	10	23
- Domestic	46	49	58	85	188
Iron & Steel-Imports	648	802	439	430	669
- Other	62	15	28	26	39
Newsprint-Imports	309	263	275	383	783
- Other	1	0	1	1	1
DRY BULK	2,775	2,680	3,654	5,001	7,301
Grain - Exports	514	120	173	273	404
- Other	1	36	81	110	158
Iron & Steel Scrap	523	525	615	779	882
Coke	258	365	599	682	586
Sugar	835	672	635	875	494
Other Bulk ²	644	962	1,551	2,582	4,777
TOTAL BASELINE DRY CARGO	8,736	9,493	12,756	20,801	41,975
LIQUID BULK	31,312	31,953	37,225	43,668	45,822

¹ Includes the majority of RO/RO cargoes.

² Includes salt.

SOURCE: San Francisco Bay Area Cargo Forecast, prepared by Manalytics, Inc. The MEFA Group, April, 1988

- e. The forecasts will have to be revised from time to time. Three years of waterborne cargo statistics are considered the minimum necessary to show evidence of long-term variations from the forecasts, because a review of past data shows that economic events, such as recessions, tend to have an effect for two years but, by the third year, growth rates have returned to the long-term trends.

Marine Terminals

- f. There are two basic ways of accommodating future waterborne cargo-- constructing new terminals and increasing terminal productivity.
- g. Measuring the demand for new terminals as a number of marine terminal berths is a practical means of assessing the need for new construction. The demand for new terminals was computed by subtracting the estimates of existing marine terminal capacity from the forecasts and dividing the remainder by an average capacity per berth (in metric tonnes/berth) for each type of terminal. For container terminals, average capacity figures were adjusted for projected changes in the character of containerized cargo and possible increases in productivity. The various factors used to derive the demand for new terminals will have to be updated from time to time.
- h. To accommodate the forecast increase in dry cargo, new marine terminals will be required. The demand for new container terminals will be the greatest by far; however, there will also be a smaller but significant demand for newsprint and dry-bulk terminals. Some of the increased demand for container handling capacity may be accommodated by combination terminals (container/ break bulk). Development of new break bulk berths should not be necessary. Non-container terminals having potential for redevelopment to other marine terminal uses were evaluated by the technical analysis and have been designated for development by this Plan. Other terminals are assumed to remain in their current use; however, if redevelopment is proposed, it is assumed to occur with minimum adverse impacts. Expansion of dry- and liquid-bulk handling capacity may be required.
- i. There may be a demand for new crude oil tanker berths by the end of the century. These berths would probably be provided at existing privately-owned terminal facilities; demand may exist for new or expanded petroleum product terminals.
- j. Development of a central Bay supertanker terminal does not appear likely at this time for these reasons: the oil companies have expressed little interest due to the high cost; many environmental questions remain unanswered; and the San Francisco Bar Channel would need to be deepened to accommodate supertankers.
- k. BCDC permits for marine terminal construction must be issued several years before the terminal is needed. Therefore, information on lead time is as important as the forecasts in determining whether a new terminal is needed and when a permit should be issued. The lead time pertinent to this plan includes not only the construction time, but also the time it takes for the new terminal to reach capacity (see

Figure 4 for a graphic presentation of the importance of these two time spans). For a major container terminal project, the typical lead time from an application for a BCDC permit until the terminal reaches capacity appears to be:

	<u>Typical Lead Time (years)¹</u>
Established operator transfers to new terminal requiring major reconstruction	4-1/2
New single operator terminal	6-1/2
New Multi-user terminal	7-1/2

Relatively simple container terminal projects may have a shorter lead time. If construction or land acquisition is complex, lead time could be longer. The average of the above lead times is six years. In order to provide predictability, this average for container terminals can be considered the appropriate lead time for issuing a BCDC permit. No specific data has been developed for other types of terminals, but the anticipated construction period can be used as a reasonable lead time. Also important is the EIR review period which precedes the above lead time (see Figure 4). The EIR review time, by law, cannot exceed one year. This review must be complete, and the EIR certified, prior to filing a BCDC permit application. As soon as the EIR is certified and local approvals obtained, the BCDC application can be filed and the lead time begin.

- l. The demand for new marine terminals creates a demand for shoreline sites that can accommodate marine terminal development. To select suitable shoreline sites, an extensive screening process was undertaken for the MTC/BCDC port planning project (see text beginning on page 89 of Final Technical Report for details). The selected shoreline sites were classified as near-term, long-term, active or military.
- m. Marine terminal development at the active and near-term sites would result in the minimum potential adverse environmental, land use, and ground transportation impacts when compared with the long-term sites and sites studied but not included in this Plan. The amount of Bay fill will vary among the active and near-term sites, and some active and near-term sites may require considerably more Bay fill than others. However, reasonable development of any of these sites would result in roughly comparable environmental, land use, and ground transportation impacts to the region. Furthermore, if actual demand meets projections, development of the active and near-term sites will meet the demand with the minimum cumulative Bay fill. These sites should accommodate the demand for new terminals through at least the year 2010 and probably beyond.

¹ Of this time, processing of a BCDC permit application can be no longer than 90 days due to restrictions of California law.

- n. The amounts of fill used for the technical studies in developing this Plan are estimates only, and the actual amounts of fill required for any marine terminal development can only be determined at the time a permit is issued.
- o. Other development sites are classified as long-term due to the greater potential for adverse impacts, including greater amounts of Bay fill. Development of the long-term sites plus the near-term sites should accommodate the demand for terminal capacity beyond 2010 but not through 2020. If the potential adverse environmental impacts, including Bay fill, can be reduced by project design to levels equal to or below those of the near-term sites, a long-term site could be considered for reclassification as a near-term site.
- p. The selected military sites, if and when no longer needed by the military, could provide a reserve capacity for accommodating demand. Marine terminal development at these sites is expected to have less adverse impacts than at the long-term sites and these impacts are expected to be equal to or less than those of the near-term sites.
- q. The sites included in this Plan appear to be adequate to meet the projected long-range demand for marine terminal development. There is, however, considerable competition for these sites from uses not necessarily needing a waterfront location, and this could lead to the sites being preempted for uses other than marine terminals. If this occurs and actual demand for marine terminals meets projections, the result will be additional pressure to fill the Bay to create new sites for marine terminals and higher costs for their development, or possible loss of Bay Area shipping activity to other West Coast ports. To protect these sites, this Plan designates shoreline areas for port use. These areas, called "port priority use areas," include the marine terminal sites as well as additional land areas for directly-related ancillary activities. Protection of these port priority use areas is a shared responsibility of MTC, BCDC, local governments and the ports. In fact, these areas cannot be fully protected without the cooperation of local governments and the ports.
- r. Port priority use areas include within their premises marine terminals and directly-related ancillary activities such as container freight stations, transit sheds and other temporary storage, ship repairing, support transportation uses including trucking and railroad yards, freight forwarders, government offices related to the port activity, chandlers and marine services. Other uses, especially public access and public and commercial recreational development, are permissible uses provided they do not significantly impair the efficient utilization of the port area.
- s. The regional economic benefit of marine terminal activity is provided for by reserving sufficient sites that could be developed to accommodate the forecast cargo movements. However, the economic advantage (jobs and income), if any, to the region of one site over another site was not considered in selecting among sites because:
 - this type of data can be developed only when the details of a proposed terminal are known;

- provided the terminal is in productive use, the location of a marine terminal has little effect on its economic advantage to the Bay region; and
 - it is difficult to objectively weigh economic advantage against adverse environmental impacts on a site-specific basis.
- t. If all near-term and long-term development sites are used, the following impacts could be experienced by 2020 (these impacts are based on planning assumptions, and the associated adverse effects on the physical environment probably can be reduced by careful design):
- nearly 1000 acres of new marine terminal development--this would double the amount of shoreside land and more than double the length of shoreline which is devoted to the marine terminal facilities;
 - over 300 acres of potential Bay fill, of which approximately 150 acres is associated with the long-term development sites;
 - approximately 4.0 million cubic yards of initial channel dredging from the main ship channels to the sites--all of this dredging is associated with the long-term development sites (this does not include the dredging quantities for the maintained ship channels); and
 - displacement of industrial activities on the shoreline.

Some sites are currently occupied by industrial activities; however, only those sites where it is reasonably likely the involved industry can be displaced are included in this Plan.

- u. At today's cost (1988 dollars) of about \$40 million to develop a single container terminal berth, the long-range investment in new marine terminal facilities could exceed \$1 billion.
- v. If some ports in the regional system do not have the funds necessary to complete facilities needed by the region, a regional agency may be required to finance or develop them. Otherwise, there will be tremendous pressure to allow the ports with the strongest finances to provide all of the regional facilities, even though this might result in pressures to fill the Bay unnecessarily.
- w. Considering the substantial impact and cost of new marine terminals, the following actions (all of which provide additional terminal capacity without the need for new terminals) become important:
- deepening the channels to the ports of Oakland, Richmond and Benicia, or increasing terminal backland area where it constrains capacity; and
 - increasing the capacity of marine terminals through operator-induced improvements that do not involve new berths or land area.

These actions can increase the productivity of marine terminals as it was measured for this Plan--marine terminal capacity per berth. While channel deepening would, of course, incur a cost, it appears to be substantially less costly than the investment in new marine terminals. Furthermore, increasing terminal productivity can likely provide capacity with the minimum adverse environmental impacts.

- x. Channel deepening and land-use policies which would permit backland expansion on existing dry land are currently the responsibility of federal and local government, respectively. Other productivity increases are a function of terminal operator practices. Thus, if the productivity of terminals is to be increased and the pressure for new terminals to be reduced, both government and the terminal operators must share the responsibility.
- y. Project-by-project mitigation will probably be necessary to achieve the goal of maintaining or improving environmental quality. Furthermore, attaining this goal will depend in large part on the mitigation policies developed by the concerned agencies.

Deepwater Channels

- z. Some improvements to the deepwater channel system in the Bay Area will be required to economically accommodate the vessels of the future.
 - aa. The San Francisco Bar Channel limits the size of vessels that can enter San Francisco Bay; therefore, deepening the interior channels to handle vessels that cannot transit the Bar Channel is generally unnecessary. Using Corps of Engineers' design criteria, at present, this places a practical limit on the depth of the interior channels of 50 feet or less at mean lower low water. Since no planning is underway to deepen the Bar Channel, it is unlikely it will be deepened before the end of this century.
 - bb. Generally, the most significant economic benefits of channel deepening are derived from the movement of containerized cargoes and crude petroleum in larger vessels.
 - cc. Channels leading to some portions of the Port of San Francisco are naturally deep and do not require any significant dredging, although the areas in which container terminals are being developed will likely require channel and berth deepening to accommodate major containership activity. At present, the Oakland Inner Harbor Channel east of the Alameda Tubes is at its maximum depth of 35 feet because it is constrained by these tunnels.
 - dd. The U.S. Army Corps of Engineers is now the only entity that can undertake a federally authorized channel deepening project, and will undertake such a project only if: (1) the deepening is physically possible; (2) navigation and transportation operational benefits exceed capital and maintenance costs of the deepening; and (3) the deepening is environmentally acceptable. If, however, the channels

Listed below are deepened to the depths indicated, the following dredging amounts and costs (1988 dollars) could be involved:

	New Depth (ft)	Initial Dredging	
		Quantity CuYd (000)	Cost Range \$(000)*
Oakland Channels	42	7,000	\$30-72 mil.
Richmond Channel	38	1,500	5.3-15 mil.
John F. Baldwin Project	45	8,000	28-80 mil.

* 1988 dollars; mil. = million

Actual project depths may vary from those shown in the table. This table is not intended to suggest that such deepening should be undertaken; it is only intended to indicate the possible effects of increased Bay Area port activity. These data were prepared for this Plan by using Corps of Engineers methods.

ee. Environmental impacts associated with deepening a channel are largely dependent on the specifics of the deepening project, and would be addressed by the Corps during its detailed investigations. Several general areas of concern with regard to channel deepening are:

- the impacts of aquatic and land disposal of dredge material;
- slower tidal velocities and other hydrologic effects;
- increased sedimentation; and
- salinity intrusion.

In addition to the impacts of any specific deepening project, the cumulative effect of many deepening projects may be significant, but is as yet unknown.

Ground Transportation

ff. Without improvements, certain key port access routes would become more congested--7th Street in Oakland and I-580 (The John T. Knox Freeway) in Richmond. Army Street and 3rd Street in San Francisco and Maritime Street in Oakland could approach their capacity.

gg. In the near future, port activity will not aggravate freeway congestion since the contribution of port traffic is generally small as compared with regional traffic movements. Therefore, congestion on the freeways is not, by itself, a significant reason to question the advisability of further marine terminal development at the existing Bay Area ports. In the more distant future, however, growth of port-related truck traffic will probably increase congestion on I-80 north of the East Bay approach to the Bay Bridge and on I-580. A large portion of this truck traffic is associated with the movement of containers to and from the three major railyards in the East Bay.

- hh. In the near future, the investment in ground transportation facilities necessary to alleviate traffic problems associated with the port development foreseen by this Plan is estimated to exceed \$15 million, exclusive of the John T. Knox Freeway. Port-related projects must compete with other proposed projects for local or regionwide transportation funds. Such funds are becoming increasingly scarce.
- ii. The sites recommended for marine terminal development represent those sites which can be developed with the minimum investment in new ground transportation facilities when land use policy and the environment are considered.
- jj. Rail service, and transcontinental rail service in particular, is critical to the movement of waterborne cargo through the Bay Area.
- kk. The region's existing major railyards may experience dramatic increases in the movement of waterborne cargo in the future. Energy and technology considerations could shift cargo from trucks to the rails, further increasing the demand for rail services. In addition, the region's highways and streets could be impacted by increased rail usage since all containerized cargo is trucked to or from one of the major rail-yards. The rail and highway impact of a shift to rail may be somewhat mitigated by the development of railcar loading/unloading facilities at container terminals.
- ll. Several types of actions may improve the efficiency of the ground transportation system:
 - the development of railcar loading/unloading facilities at container terminals;
 - the transportation of cargo to and from marine terminals during the night, if increased terminal operating costs are offset by reduced congestion costs; and
 - where port access roads are congested, the relocation of container freight stations to off-terminal sites where congestion is minimal.
 - provision of dedicated and separated roadways for drayage between marine terminals and rail yards.

POLICIES

In addition to satisfying the goals set forth in Chapter I, the policies are intended:

- o to encourage cooperation among the Bay Area ports with regard to their development;
- o to foster cooperation between the ports and their parent cities;
- o to provide increased predictability to the ports with regard to BCDC permits;

- o to steer port development to those sites with the least potential for adverse environmental impacts while still providing for reasonable terminal development;
- o to decrease the pressures for Bay fill resulting from actions by the ports and their parent cities;
- o to provide a regional context for evaluating the environmental impacts of individual port projects; and
- o to provide a clear statement of the actions that will be taken by BCDC and MTC in implementing this Plan.

The Final Technical Report for the MTC/BCDC port planning project, in addition to the Final Technical Report for the 1988 Seaport Plan update, should be used to provide further guidance in applying the policies; where there are differences in the text or maps between either the original Final Technical Report or the Final Report for the 1988 Update and this Plan, the Seaport Plan takes precedence.

Marine Terminal Policies

1. Major marine terminal developments are conversions of non-container marine terminals to container marine terminals, significant major additions to capacity of any marine terminal or port priority use area, or developments involving more than a small amount of Bay fill. The need for a major development shall be demonstrated in one of the following ways:
 - The development of new container terminal berths shall be consistent with the baseline demand estimates in Table 3 using a lead time of six years measured from the filing of a BCDC permit application. Demand estimates for the years not shown on Table 3 shall be computed by straight-line interpolation.
 - The need for development of other types of marine terminal berths shall be demonstrated by the project proponent, using the cargo forecasts, the demand estimates in Table 3, and other evidence as necessary. Lead time for such terminals shall be the time for project construction.

Major marine terminal development shall occur at those sites classified as near-term and active by this Plan (see Maps 1 to 8 at the end of this chapter). Except as provided in Policy 6, the near-term sites and those active, non-container terminals that can be converted to container terminals shall not be compared with one another.
2. Minor marine terminal developments are projects other than major developments. Minor developments, such as rehabilitations of existing facilities, shall not be subjected to a determination of need nor be confined to the active or near-term sites, because of the small increases in capacity and small amounts of Bay fill involved. When the Plan is revised, the added capacity from minor developments shall be counted in estimating the Bay Area demand for new marine terminals.

Table 3
DEMAND FOR NEW MARINE TERMINALS THROUGH 2020
(number of berths) 1, 3

Terminal (Pure and Combo) Forecast Level	Existing ²	Projected Demand for Additional Terminals			
		1990	2000	2010	2020
CONTAINER⁴					
Baseline	24	(2)	12	26	44
High		2	16	30	44
Low		-	12	26	42
BREAK BULK					
Baseline	14	(13)	(11)	(7)	(1)
High		(14)	(12)	(7)	0
Low		(14)	(11)	(7)	(1)
NEO-BULK					
Baseline	15	(9)	(8)	(5)	(2)
High		(9)	(9)	(6)	(3)
Low		-	(10)	(6)	(4)
DRY BULK					
Baseline	5	(2)	(1)	1	3
High		(2)	0	1	3
Low		-	-	1	3
LIQUID BULK⁵					
Baseline	5	1	3	4	6
High		1	3	5	7
Low		1	3	4	6

- 1 Parentheses indicate a surplus of terminal cargo handling capacity stated as an equivalent number of berths. The figures shown are cumulative; for example, using the baseline container forecast, the 26 new berths required by 2010 include the 12 required by 2000. Although the estimates are stated as a number of berths, they assume each berth is accompanied by the appropriate amount of backland and equipment.
- 2 Includes currently active, publicly-utilized terminals plus those terminals being modified or under construction and terminals to be constructed that have a BCDC permit. Proprietary sugar terminal at Crockett, scrap steel terminals at Oakland and Richmond, Leslie Salt facility at Redwood City, and petroleum terminals are not included above. Estimates of the number of existing berths are approximate (e.g., a container vessel generally requires up to 1000 feet of wharf; therefore, 2100 feet of wharf could be viewed as 2 berths).
- 3 Estimates may overstate demand; see text in Chapter IV.
- 4 Includes the demand for new roll-on/roll-off (RO/RO) terminals other than for automobiles. No new LASH facilities are forecast.
- 5 Demand estimates are for terminals to handle all liquid bulk except for crude oil, petroleum products and molasses handled at proprietary terminals.

3. Bay fill authorized for development of any marine terminal must be the minimum necessary to achieve an adequate terminal at the site and must minimize harmful effects to the Bay Area, as provided in Section 66605(c) and (d) of the McAteer-Petris Act.
4. Except as provided in Policy 19, the long-term development sites and sites not designated in this Plan shall be considered for development only after all the near-term sites have been permitted for use and those active, non-container terminals that can be converted to container terminals have been developed for container use.
5. The port priority use areas identified in the Maps section of this Plan shall be protected for marine terminals and directly-related ancillary activities (see definition in Finding r.). Within these areas, the shoreline lands classified as active, near-term, and long-term by this Plan shall be restricted to marine terminal use. Interim uses shall be permissible but must be readily displaceable when the area is needed for marine terminals or directly-related ancillary activities. Local governments and the ports should protect these areas, using land use controls if necessary; otherwise, there may be unnecessary pressures for Bay fill and other adverse environmental impacts. In determining whether the amount of Bay fill is the minimum necessary for a proposed marine terminal development, BCDC shall consider any actions of the responsible local government and port that may have reduced the amount of existing dry land available for such development.

The port priority use areas identified in the Maps section of this Plan which are also designated for water-related industry priority uses in the San Francisco Bay Plan shall be protected for marine terminals and directly-related ancillary activities or for water-related industry uses as defined in the Bay Plan. There shall be no priority given between port and water-related industry uses within areas designated for both uses.

6. To avoid unnecessary Bay fill and other adverse environmental effects, and to encourage prompt construction and full use of authorized facilities:
 - The Bay Area ports are encouraged to cooperate through GGPA or by other agreements among themselves to avoid facilities being proposed that duplicate needed capacity. If, however, two or more applications for marine terminals of the same type (i.e., container terminal compared to container terminal, auto terminal compared to auto terminal, etc.) are being considered at the same time, and the need for all of them cannot be demonstrated, only those projects with the least adverse environmental effect on the Bay and that are needed shall be authorized.
 - All permits for marine terminals shall contain a schedule that establishes (a) a date prior to the commencement of construction by which the project sponsor must demonstrate the ability to finance the project; and (b) a reasonable timetable for project construction, including specific milestones. Failure to comply with such schedules shall be grounds for termination of the authorization; nevertheless, the schedules may be amended for

good cause. If the authorization is terminated, the capacity assigned to the terminal will be subtracted from the region's capacity; however, if Bay fill has been placed, the capacity shall not be subtracted until BCDC takes legal action to see that any fill is removed.

- Whenever existing terminals remain unused or little used for a significant period of time following adoption of this Plan and whenever BCDC, in consultation with MTC, has determined that this indicates a reevaluation of the cargo forecasts and region's capacity is necessary, no major new terminal development of the same type shall be considered until the Seaport Plan has been promptly reviewed and, if necessary, revised in a timely manner to reflect the results of the reevaluation.
7. When and if the federal government decides that part or all of a military installation identified in this Plan is not needed for active military use, the federal government shall make such lands available for marine terminal development and directly-related ancillary activities as soon as possible, subject to such reasonable conditions as the federal government deems necessary to protect national security. Within these lands, the military sites identified in this Plan shall be restricted to marine terminal use, if and when the site is not needed for active military use. Once the federal government makes a military site available, the site shall be included among the near-term sites unless the conditions under which it has been made available make it unreasonable to do so.
 8. Marine terminal development at sites that are adjacent or near to environmentally sensitive areas shall be designed to protect those areas from any significant adverse effects of marine terminal construction and operation.
 9. To use existing terminals fully and to lessen the cost and adverse environmental effects associated with development to meet the growth of waterborne cargoes:
 - channels that otherwise would limit the productivity of marine terminals should be deepened when economically feasible and environmentally acceptable;
 - local governments should adopt and implement land use policies that facilitate terminal development on existing dry land;
 - ports and terminal operators should acquire property that permits necessary terminal development on existing dry land; and
 - terminal operators should, where economically feasible, increase terminal productivity.
 - ports and terminal operators should rehabilitate or modernize existing container terminals and convert those active, non-container terminals that can be converted to container use before developing new container terminals.

Deepwater Channels Policies

10. Deepening or widening of San Francisco Bay Channels, including the San Francisco Bar Channel, should proceed only if economically justified or if needed for national defense, and if such deepening or widening conforms to State and national environmental law and policies. The interior channels of San Francisco Bay should only be deepened as consistent with the depth of the San Francisco Bar Channel.
11. Dredging projects shall be performed consistent with BCDC's Bay Plan policies on dredging and dredge material disposal.

Ground Transportation Policies

12. Local, state and federal governments should not take actions, such as land use decisions, public works projects or rail abandonments, that would impede access to the marine terminal sites identified in the Seaport Plan. Funding for a transportation project shall be approved or endorsed only if the proposed development the project is intended to serve is consistent with the policies of the Seaport Plan.
13. The Bay Area ports, local governments and marine terminal operators should take steps to make the best possible use of existing ground transportation facilities, and shall employ measures to mitigate any significant adverse environmental effects of increased traffic from existing and proposed marine terminal facilities. If mitigation of traffic problems at marine terminal facilities is being considered as part of the environmental review process, the local government or port whichever has the principal responsibility for carrying out or approving the project shall make a realistic estimate of the available resources to fund such mitigation and the likelihood that such measures can be implemented.
14. Local and regional transportation planning and funding priorities shall facilitate the efficient movement of goods by rail and truck to and from the Bay Area ports.
15. Ground transportation improvements needed to serve a proposed marine terminal development shall be included in transportation funding priorities only if such improvements and the development they serve are consistent with the policies of the Seaport Plan. Ground transportation improvements needed to serve an existing marine terminal shall be included in transportation funding priorities only if such improvements are consistent with the Seaport Plan policies.
16. If funding agencies require a choice among or ranking of marine terminal-related ground transportation projects, highest priority shall be given to projects:
 - that best use existing port and transportation facilities; and
 - that best enhance the movement of Bay Area waterborne cargo.

Plan Revision Policies

17. The Seaport Plan forecasts and terminal capacity shall be reviewed and the Plan should be possibly revised when one or more of the following occurs:
- five years has elapsed since the last major review;
 - three consecutive years of waterborne cargo statistics indicate the forecasts do not represent current trends, or other evidence points to emerging trends or unforeseen major world events which were not considered;
 - the sites in the near-term development category have all been permitted for use and all those active, non-container terminals that can be converted to container terminals have been converted (in practice, the review would occur in advance of using or converting all of these sites);
 - there is a proposal to delete a near-term or active site from this Plan; or
 - a marine terminal at a site included in this Plan has been unused or little used for a significant period of time.

The Seaport Plan forecasts and terminal capacity should be reviewed annually if information is available to determine whether emerging trends or unforeseen major world events indicate that the cargo forecasts and terminal capacity need revisions. When necessary, the Seaport Planning Advisory Committee should be convened to advise the commissions whether it is advisable to undertake a revision of the Seaport Plan's forecasts or terminal capacity estimates. BCDC, MTC and Bay Area ports should cooperate to provide a yearly, detailed forecast and terminal capacity update that is useful and available to the ports and the two commissions.

18. A revision to the Seaport Plan undertaken pursuant to Policy 17 shall include, but not be limited to:
- a review of the forecasts;
 - an update of the capacity estimates to reflect major and minor marine terminal developments authorized since the last revision to this Plan;
 - a review of all factors used to derive the estimates of demand for new marine terminals in Table 3;
 - an update to the estimates of demand for new marine terminals in Table 3 to reflect any changes to the forecasts or capacity estimates;
 - a review of the land requirements of marine terminals for port-related and ancillary activities to determine more specifically how much area is needed for port support facilities and how near these areas should be to the marine terminal they support;
 - an assessment of the regionwide environmental impacts of the revision; and

- an assessment of the extent to which the actions of Policy 9 have been pursued.

If this Plan is to be revised because all the near-term sites have been permitted for use and all those active, non-container terminals that can be converted to container terminals have been converted, the revision shall also include an assessment of alternatives to the use of the long-term sites including a review of the availability of other sites which would involve less adverse environmental effects--including less Bay filling.

19. A revision to the appropriate section of the Seaport Plan shall be considered if:
 - there is reason to believe marine terminal development at a long-term site or site not designated by this Plan can be accomplished with environmental impacts equal to or less than those of the near-term sites or those active, non-container terminals that can be converted to container use; or
 - deepening the San Francisco Bar Channel is found to be economically feasible and environmentally acceptable by the U.S. Army Corps of Engineers the United States Environmental Protection Agency, the California Coastal Commission, and the California Regional Water Quality Control Board.
20. The designations of marine terminal sites in this plan are subject to review and/or revision by the Commissions in the future based on information, such as economic, physical, environmental and other factors, about the suitability of the sites for those designations.
21. Revisions may be necessary for other reasons; such revisions shall not require a reevaluation of this Plan as provided in Policy 18 unless MTC or BCDC first determines that a reevaluation is required.

RECOMMENDATIONS

In addition to the policies, this plan provides the following recommendations to MTC, BCDC, and other concerned agencies:

- o The ports should coordinate their development of marine terminals to avoid duplication which could result in some terminals being unused or little used. Such coordination should take place by strengthening their existing associations or by other agreements among the ports.
- o MTC and BCDC should develop procedures for coordinating the review of port-related projects. These procedures should be consistent with the findings and policies of the Seaport Plan, and should be reviewed by the Seaport Planning Advisory Committee prior to implementation by MTC and BCDC.
- o Local governments which have not given land use control to port authorities should actively protect areas designated for port priority uses and marine terminal sites by developing special zoning for port facilities which restrict these areas to port-related uses and limited interim uses because: 1) BCDC does not have full control over uses more

than 100-feet inland from the Bay, 2) there is no regional port management in the Bay Area to assist in reserving port priority use areas and marine terminal sites, 3) there is pressure to use these areas for non-port purposes, and 4) the loss of port priority use areas and marine terminal sites could result either in fill in the Bay at less suitable locations to meet the demand for port facilities in the future or loss of trade that otherwise might contribute to the regional economy.

- o The Seaport Planning Advisory Committee should be made a permanent advisory committee to MTC and BCDC, but should meet only to review forecast and capacity changes as necessary and at the call of MTC or BCDC.
- o Mitigation policy in the region should be coordinated among the responsible federal, state and local agencies.
- o A statement indicating the constraint the San Francisco Bar Channel places on the interior channels of the Bay should replace the channel depths currently shown in the Bay Plan. The statement should also indicate that any deepening must undergo an extensive investigation. At present, the Corps of Engineers has this responsibility.
- o The U.S. Army Corps of Engineers should be authorized to undertake studies as necessary to determine the long-term environmental effects of further channel deepening and spoils disposal in the San Francisco Bay Area. Such studies should consider the channels as a system.
- o A central Bay supertanker terminal should not be developed unless the San Francisco Bar Channel is deepened to accommodate supertankers and unless environmental concerns can be resolved. A detailed study should be undertaken to determine the desirability of a supertanker terminal.
- o Bay Area waterborne cargo statistics should be compiled annually and uniformly by a single agency. The Corps of Engineers should be authorized to develop a reporting procedure that distinguishes containerized cargo from other cargoes. Whenever the forecasts are revised, both the container forecast and the container terminal capacity estimates should be prepared in units that best reflect demand for container terminal facilities. (It was discovered that short ton measures may not accurately represent the demand for container terminal capacity; see pages 39 to 42 of the Final Technical Report for an explanation.)
- o For purposes of revisions to the Seaport Plan, such revisions should, as appropriate, use a technical approach similar to the approach used in the initial Seaport Plan development.

MAPS

Maps 1 to 8 display the location of the near-term development sites, the long-term development sites, the active terminal sites, the military sites, and the port priority use areas. Table 4 provides a listing of the site names and a key to their location on the maps. The result of these designations is to create port priority use areas that are composed of:

- o locations most suitable for development or expansion--near-term development sites and active terminals;

- o long-term development sites;
- o directly-related ancillary activities; and
- o military lands

In addition to the sites shown on the maps, two sites were evaluated but eliminated from consideration for marine terminal development at this time. The two sites are the North Harbor site at the Port of Oakland (the water area north of the East Bay approach to the Bay Bridge), and the Bair Island site in Redwood City (the Port of Redwood City refers to this site as its deepwater slough property; it is on the west side of Redwood Creek). Since these sites are within port jurisdictions, the following is noted:

Oakland North Harbor Area. The Oakland North Harbor has not been included on the Seaport Plan maps as a port priority use area because need for it has not been substantiated and it has been found to be less desirable for port development than other sites based on environmental, land use, and access considerations. In addition, other uses having public benefits, such as conservation and recreation, have been proposed for this site. Future studies will be necessary to determine the use of this area.

Deepwater Slough. The Port of Redwood City's Deepwater Slough Property (Bair Island site) has not been included on the Seaport Plan maps as a port priority use area because need for it has not been substantiated and it has been found to be less desirable for port development than other sites based on environmental, land use, and access considerations. In addition, other uses having public benefits, such as conservation and recreation, have been proposed for this site. Future studies will be necessary to determine the use of this area.

The port priority use areas and marine terminal designations where some change was made by the last major review of this Plan and to the old boundaries in the San Francisco Bay Plan are described below:

Richmond (See Map 1, Bay Plan Map 3)

1. Richmond Terminal #1 at Point Richmond--this formerly active terminal was deleted from the Seaport Plan (see Map 1, Bay Plan Map 3). The port priority use area extended from the Bay north to Brickyard Cove Road and from the westerly boundary of the Brickyard Cove Marina west to South Garrard Boulevard.
2. Richmond Shipyard #3 at Point Potrero--this now includes a two-berth, active and a two-berth near-term marine terminal (see Map 1, Bay Plan Map 3). The port priority use area was modified at the request of the Port of Richmond to delete a small portion of land at the western end of the former shipyard site.
3. Santa Fe Channel (Northwest)--this site was formerly designated as a two-berth, near-term marine terminal in the Seaport Plan. Because one of the berths is presently an active terminal, the site was redesignated as a one-berth active, non-container marine terminal, which can be converted to container use, and a one-berth, near-term marine terminal suitable for container use.
4. Area south of Richmond Terminal #3 at the Ford Peninsula--a portion of this site has been deleted as a near-term marine terminal berth and from port priority use, leaving a one-berth, near-term marine terminal site suitable for container use.

5. Richmond Terminal #2 at the Ford Peninsula--this active marine terminal was designated as a one-berth, near-term marine terminal. It has been redesignated as a one-berth, non-container, active marine terminal site that can be converted to container use.
6. Area northwest of Richmond Terminal #2 at the Ford Peninsula--this area within the existing port priority use area has been designated as a one-berth, near-term marine terminal suitable for container use.
7. Area immediately east of Richmond Terminals #2 and 3--this area has largely been deleted from port priority use designation, leaving a potential 87-acre, four-berth marine terminal suitable for container use along the Harbor Channel (see Map 1, Bay Plan Map 3).
8. Santa Fe Channel (West) -- a one-berth, near-term, non-container marine terminal site has been added to this existing port priority use area at the Unitank facility (See Map 1, Bay Plan Map 3).
9. Area west of Canal Boulevard -- this 16.5 acre area, which is currently being used for port purposes, has been designated as part of the port priority use area.

Alameda

Former Todd Shipyard site in Alameda--this privately-owned property was designated in the original Seaport Plan for port priority use and incorrectly as a potential marine terminal under military control. In 1984, BCDC deleted the military/marine terminal designation from the site, but retained the port priority use designation (see Map 2, Bay Plan Map 4).

Oakland

Schnitzer Steel site--this active, dry bulk marine terminal was designated as a two-berth, near-term marine terminal in the original Seaport Plan. The Seaport Plan now designates the site as an active, two-berth, non-container marine terminal that could be converted to container use (see Map 2, Bay Plan Map 4).

Selby

Selby, Contra Costa County--this entire area is designated for both water-related industry and port priority use (see Map 5, Bay Plan Map 15).

The Seaport Plan formerly designated only a portion of the site as available for port use. The Seaport Plan now shows the entire site as available for both water-related industry and port uses.

Benicia

Benicia Waterfront and Port of Benicia (see Maps 6 and 7, Bay Plan Map 16). Parts of this area are designated for both port and water-related industry priority use. The water-related industry priority use areas are unchanged by this Plan. West of the Benicia Bridge,

the original Seaport Plan designated the area with active, near-term, and long-term container marine terminals. The Plan now designates the area as an active, non-container marine terminal that could be converted to three container berths, and one long-term marine terminal suitable for two container berths.

Redwood City

1. Wharf 4 (see Map 3, Bay Plan Map 8). This area is no longer a near-term site, but is now designated as an active one-berth, noncontainer marine terminal site.
2. Leslie Salt (see Map 3, Bay Plan Map 8). The Leslie Salt Terminal, an active salt loading and shipping facility, has been redesignated from a near-term, one-berth marine terminal, to an active one-berth, non-container marine terminal site.
3. Ideal Cement site in Redwood City (Map 3, Bay Plan Map 8). This site was formerly used for handling cement, but is no longer using ships to transport products. It retains its designation as a one-berth, near-term, non-container marine terminal.

San Francisco (see Map 4, Bay Plan Map 10)

1. Pier 80 (see Map 4, Bay Plan Map 10). This area contains two active marine terminal designations totalling four berths suitable for container use. The Seaport Plan has added a one-berth, near-term marine terminal designation at the southwest corner of the pier, which would be suitable for container use if sufficient backland to the north of Pier 80 is available.
2. Area north of Pier 80—this area is currently inactive and was formerly designated as a one-berth, near term marine terminal suitable for container use (includes the former Western Pacific Ferry Slip). The Seaport Plan enlarged the designated site to include the waterfront adjacent to the Pacific Gas and Electric Company's plant and designates the area as a two-berth, near-term marine terminal that would be suitable for container use if sufficient backland to the west is available.
3. Pier 70—this active, neo-bulk terminal was originally designated as one-berth, active marine terminal and a one-berth, near-term marine terminal in the Seaport Plan. The Plan now designates it as a two-berth, active marine terminal that can be converted to container use (see Map 4, Bay Plan Map 10).
4. Piers 52-64—this inactive terminal site was formerly designated in the Seaport Plan as a two-berth, near-term marine terminal suitable for container use. This designation should be retained. However, both it and the associated port priority use designation should be deleted without having to undertake a full update of the Seaport Plan when both of the following occur: (1) all of the former Western Pacific property at Marm Water Cove is transferred from the Santa Fe Pacific Realty Corporation to the Port; and (2) the Port and the City develop a strategy, to be reviewed and approved by or on behalf of the BCDC, to ensure that port priority use areas are reserved for port purposes consistent with the Seaport Plan, and the non-port-owned areas needed for marine terminal uses at the Piers 70 to 80 area are available to the Port.

There are various ways such a strategy could achieve these objectives, such as: (1) commitment to acquire key parcels; (2) adoption and implementation of a Port Commission policy to limit development within port boundaries to that consistent with the Seaport Plan; (3) adoption and implementation of the Port Commission and City Planning Commission procedures to coordinate decisions to ensure that development in areas outside port boundaries but within the Seaport Plan's port priority use areas is consistent with the Seaport Plan; and/or (4) changes in current City land use controls to ensure that future development and uses within port priority use areas are fully consistent with the port policies of the San Francisco Bay Plan, San Francisco Waterfront Special Area Plan, and the Seaport Plan. The port priority use area between Third Street and Illinois Street from Mission Rock Street to Mariposa Street should be deleted, provided, however, that the deletion should not become effective unless and until BCDC approves the strategy.

The following areas should remain designated for port priority use under all circumstances: (1) an approximately 6.5, but not less than 6, acre area adjacent to Piers 48 and 50 to support existing and future marine terminal and ancillary port uses at those piers; (2) the immediate shoreline at site 44A bayward of China Basin Street currently used or developable for port-related purposes, such as ship repair and commercial fishing, or public access; and (3) an area along China Basin Street to accommodate vehicular and rail traffic necessary for continued port-related activities at Piers 48 and 50 along the northern waterfront (see Map 4, Bay Plan Map 10).

Vallejo

Vallejo Waterfront--this site is presently designated in the Bay Plan for port and water-related industrial priority uses. The Seaport Plan now also designates the area as a five-berth, near-term marine terminal that is suitable for container use. Water-related industrial uses may still be developed at the site (see Map 5, Bay Plan Map 15).

Pacheco Creek

Pacheco Creek site in Contra Costa County--this site is presently designated in the Bay Plan for port and water-related industrial priority uses. The Seaport Plan now shows this dual designation and that it is available for port uses. The site has not been designated for marine terminal development at this time (see Map 7, Bay Plan Map 17).

Collinsville

Collinsville site in Solano County--this site is presently designated in the Bay Plan for port and water-related industrial priority uses. The Seaport Plan now shows this dual designation and that it is available for port uses. The site has not been designated for marine terminal development at this time (see Map 8, Bay Plan Map 19).

Table 4

SITE NAMES AND KEY TO THEIR LOCATION

This table lists the sites by name and provides a key to their location on the maps—using the site numbers employed during the technical studies.

RICHMOND

Near-Term Development

29A/D Richmond Shipyard #3
 30A(N) Unitank Facility
 31A(N) Santa Fe Channel-Northwest
 33A(S) Richmond Terminal #3-South
 33A(NW) Northwest of Richmond
 Terminal #2

Active

25B Richmond Terminal #4
 29A/D Richmond Shipyard #3
 29B Richmond Terminals #5, 6 & 7
 29C ARCO Tanker Dock
 30A Unocal Tanker Dock
 31A(N) Santa Fe Channel - Northwest
 32B Texaco Wharf
 32C Parr Bulk Commodity Wharf
 32D Time Oil Wharf
 33A Richmond Terminal #3
 33A(N) Richmond Terminal #2

OAKLAND/ALAMEDA

Near-Term Development

50C/51A Carnation/Kaiser Yard
 52A(E) Western Pacific Mole-East
 53C Ship Repair Area
 55D(W) Encinal Terminals, Berth 5

Active

49C Berth 10
 49D Sea Land Terminal, Berths 20 & 21
 49E Outer Harbor Public Container
 Terminal, Berths 22 & 23
 50A Maersk Terminal, Berth 24
 50B Oakland Transbay Container Terminal
 Berth 25 & 26
 50D Matson Terminal, Berths 32, 33 & 34
 50E, 50F Seventh St. Public Container
 Terminal, Berths 35-38, 40
 52B, 52C American President Lines
 Terminal, Berths 60, 61, 62 & 63
 52D Schnitzer Steel
 52E/F Howard Container Terminal, Berths
 67, 68, & 69
 53D Ninth Avenue Terminal, Berths 82,
 83 & 84
 55D(E) Encinal Terminals, Berths 1 to 4
 55D(W) Encinal Terminals, Berth 5

Long-Term Development

64A Bay Bridge Site

Military

49A, 49B Oakland Army Terminal
 51B, 51C Naval Supply Center
 57B Naval Pacific Overseas Depot
 58A, 58B, 58C, 58D, 59A & 60A
 Alameda Naval Air Station

REDWOOD CITY

Near-Term Development

62F Ideal Cement

Active

62A Leslie Salt Terminal
 62C Wharf 5
 62D Wharf 3
 62D(W) Wharf 4
 62E Wharves 1 and 2

Table 4 (Continued)

SAN FRANCISCO

Near-Term Development

44A Piers 52 to 64
46A(W) Pier 80
46D WP Ferry Slip
47B(N) Pier 94 North

Active

43A Pier 48
43B Mission Rock Terminal, Pier 50
45A Pier 7D
45A, 46B & 46C Army Street Terminal
46A(W) Islais Creek Channel
47A Piers 90 & 92
47B Pier 94
47C Pier 95

Military

48A to 48E Hunters Point

CARQUINEZ STRAITS

Near-Term Development and Water-Related Industry

12D/E Selby

Military

22A, 22B, 23A & 24A Mare Island
Naval Shipyard

BENICIA

Active

14A Port of Benicia

Long-Term Development

67 Benicia Waterfront

SUISUN BAY

Military

7A, 7B & 7C Concord Naval Weapons
Station (Port Chicago)

VALLEJO

Near-Term Development and Water-Related Industry

21A Vallejo Waterfront

PACHECO CREEK

Port and Water-Related Industry

Pacheco Creek Site

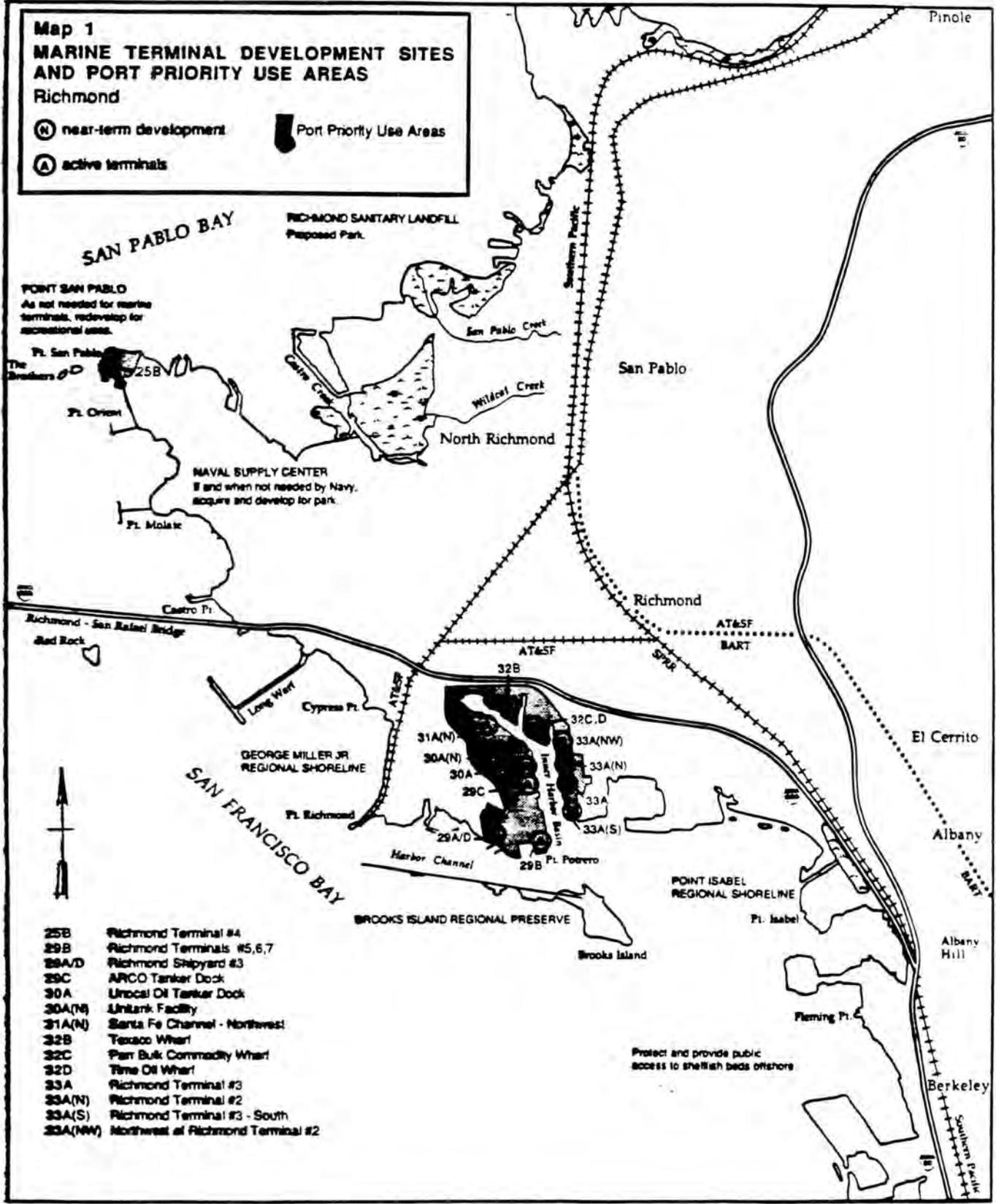
COLLINSVILLE

Port and Water-Related Industry

Collinsville Site

**Map 1
MARINE TERMINAL DEVELOPMENT SITES
AND PORT PRIORITY USE AREAS
Richmond**

(N) near-term development Port Priority Use Areas
(A) active terminals



POINT SAN PABLO
As not needed for marine terminals, redevelop for recreational uses.

RICHMOND SANITARY LANDFILL
Proposed Park.

NAVAL SUPPLY CENTER
If and when not needed by Navy, acquire and develop for park.

GEORGE MILLER JR REGIONAL SHORELINE

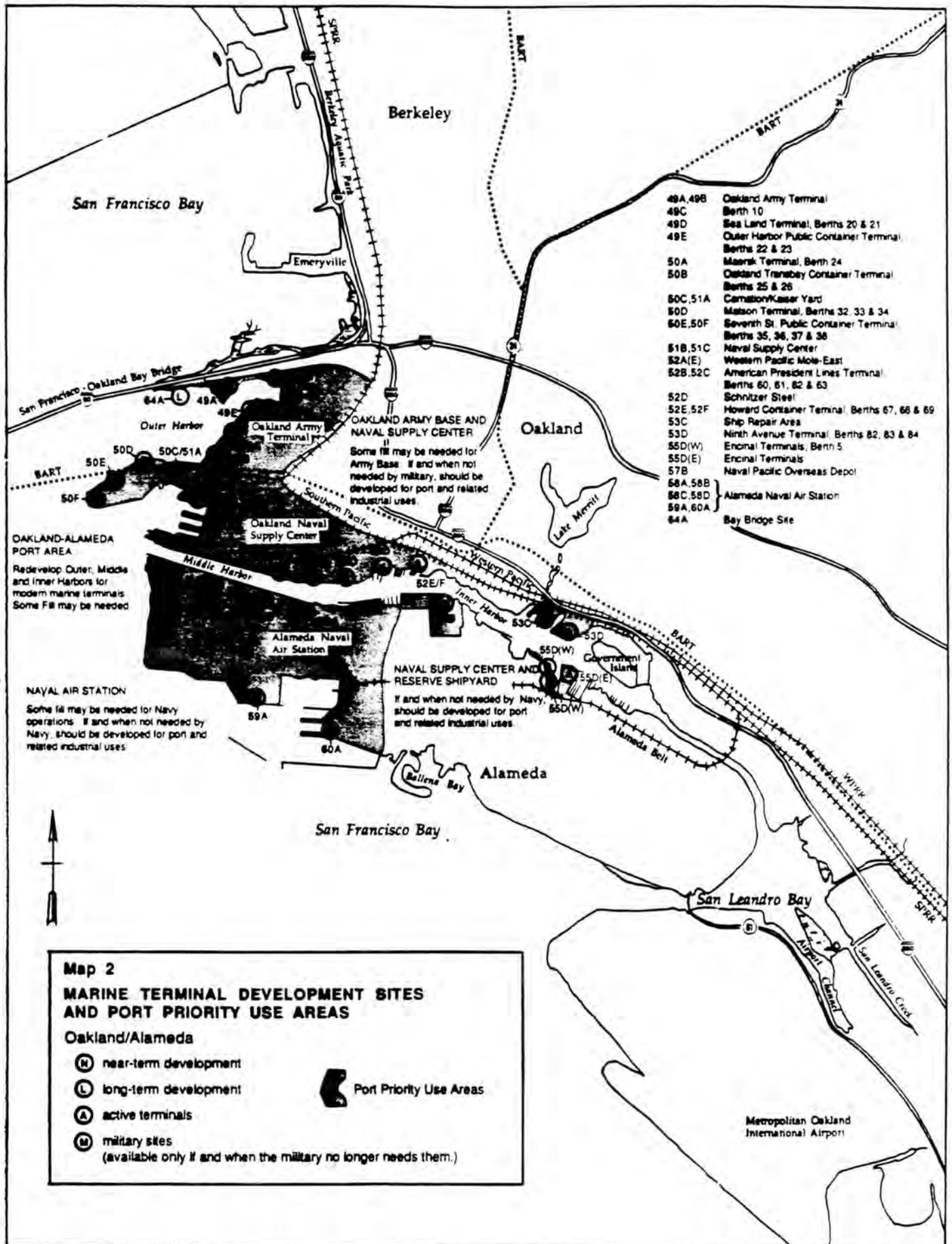
POINT ISABEL REGIONAL SHORELINE

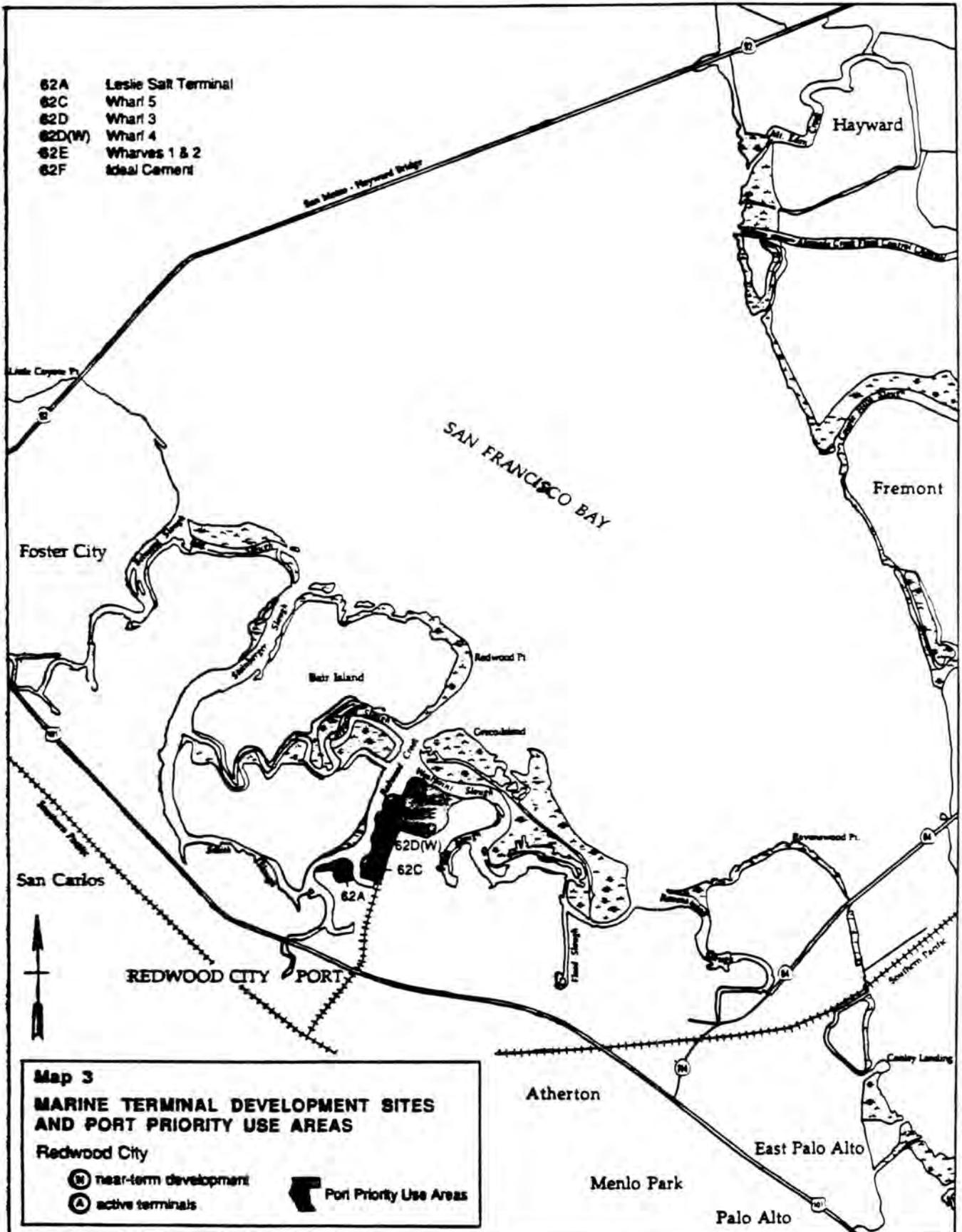
- 25B Richmond Terminal #4
- 29B Richmond Terminals #5,6,7
- 29A/D Richmond Shipyard #3
- 29C ARCO Tanker Dock
- 30A Unocal Oil Tanker Dock
- 30A(N) Unilark Facility
- 31A(N) Santa Fe Channel - Northwest
- 32B Texaco Wharf
- 32C Penn Bulk Commodity Wharf
- 32D Time Oil Wharf
- 33A Richmond Terminal #3
- 33A(N) Richmond Terminal #2
- 33A(S) Richmond Terminal #3 - South
- 33A(NW) Northwest of Richmond Terminal #2

Protect and provide public access to shellfish beds offshore

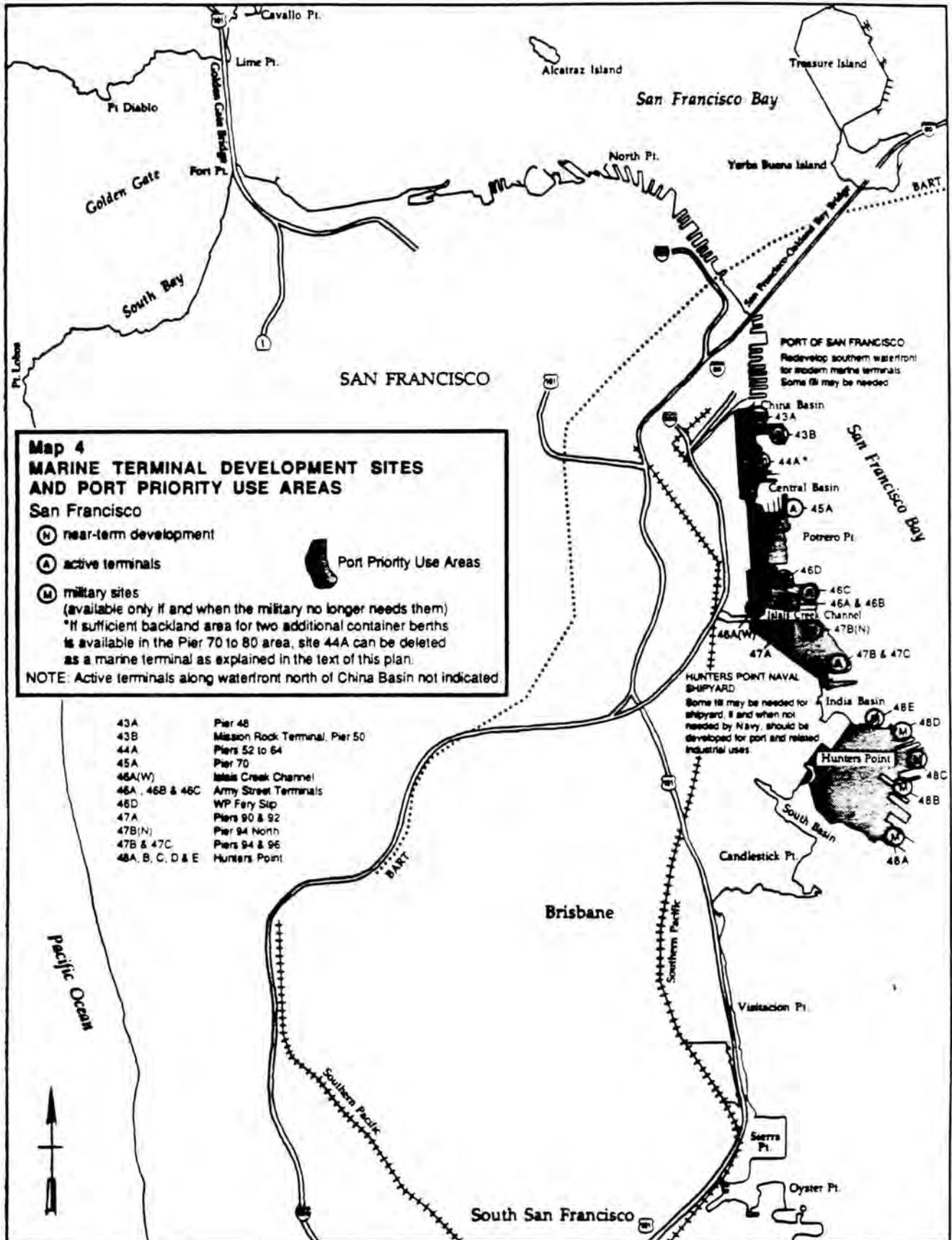


MTC 12/88

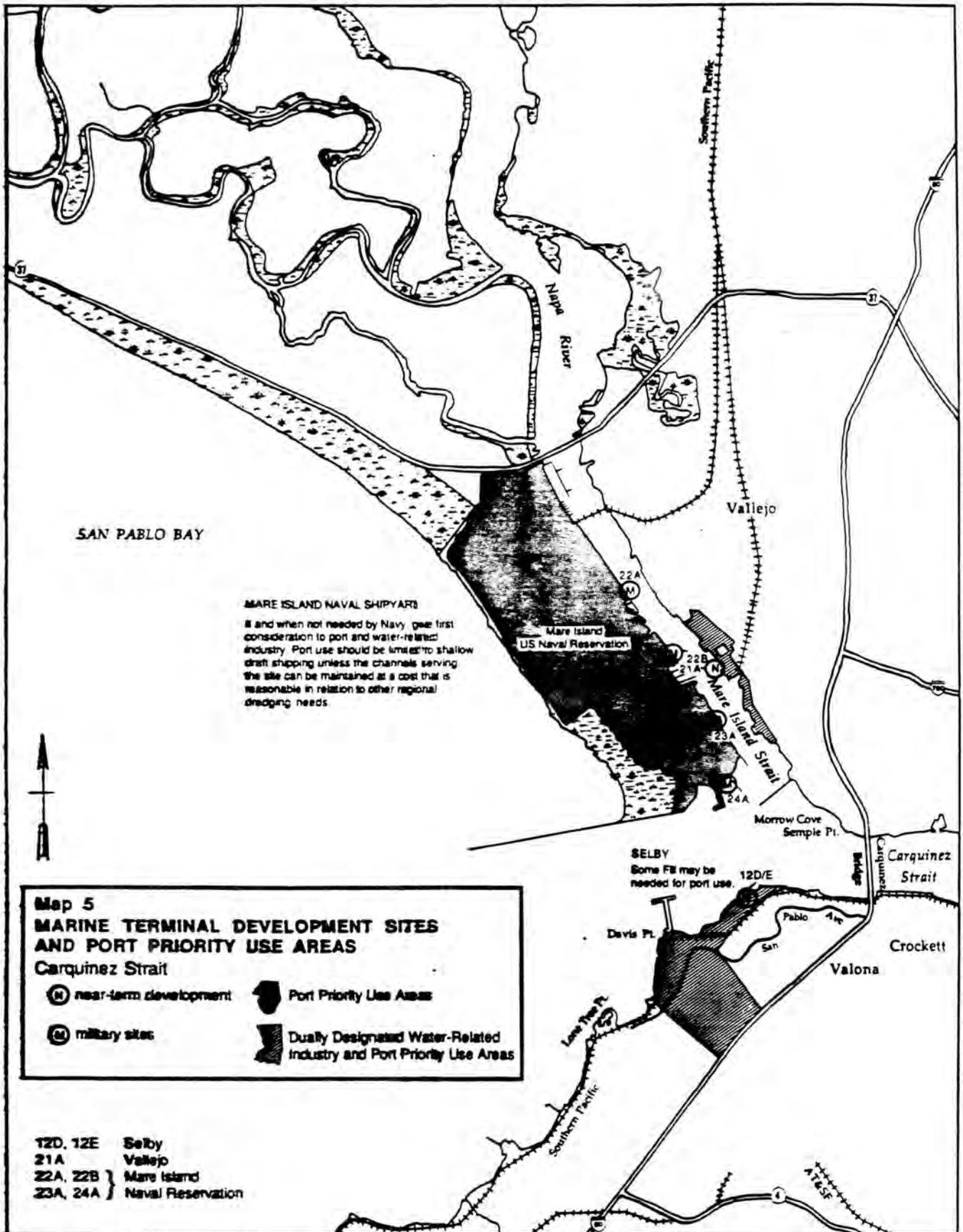




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Miles

MTC 10/88

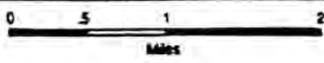
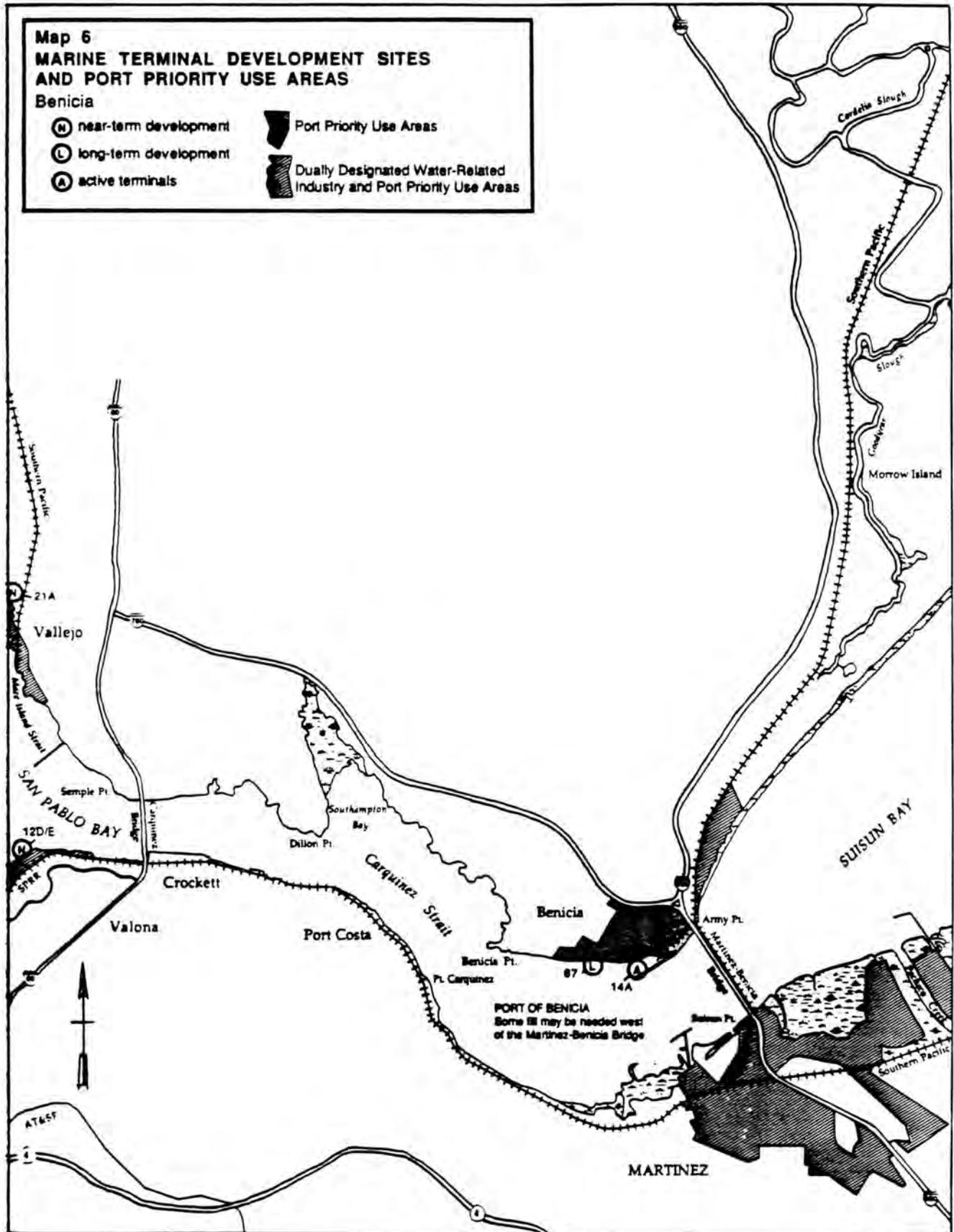
**Map 6
MARINE TERMINAL DEVELOPMENT SITES
AND PORT PRIORITY USE AREAS**

Benicia

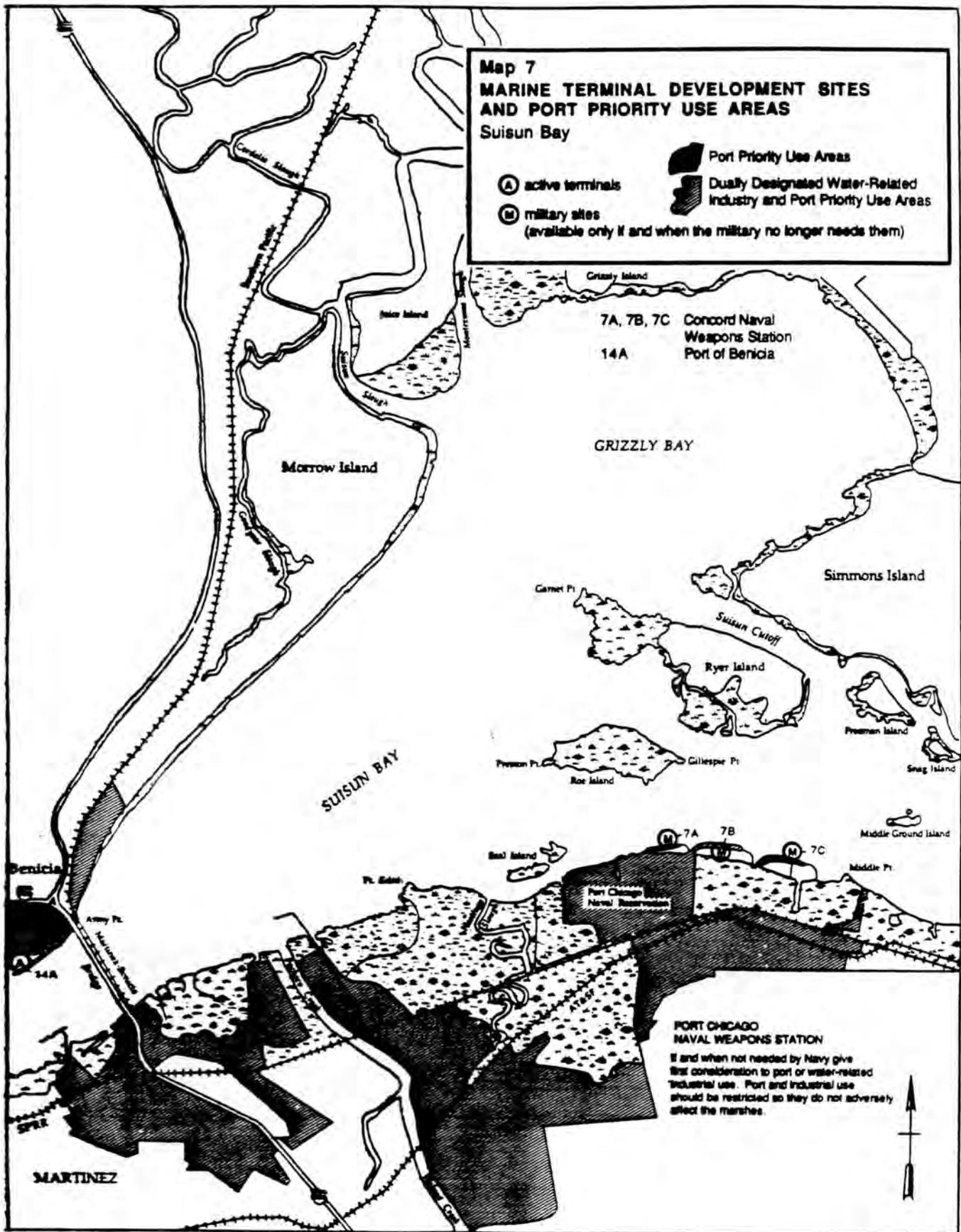
- (N) near-term development
- (L) long-term development
- (A) active terminals

 Port Priority Use Areas

 Dually Designated Water-Related Industry and Port Priority Use Areas



MTC 10/88



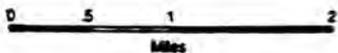
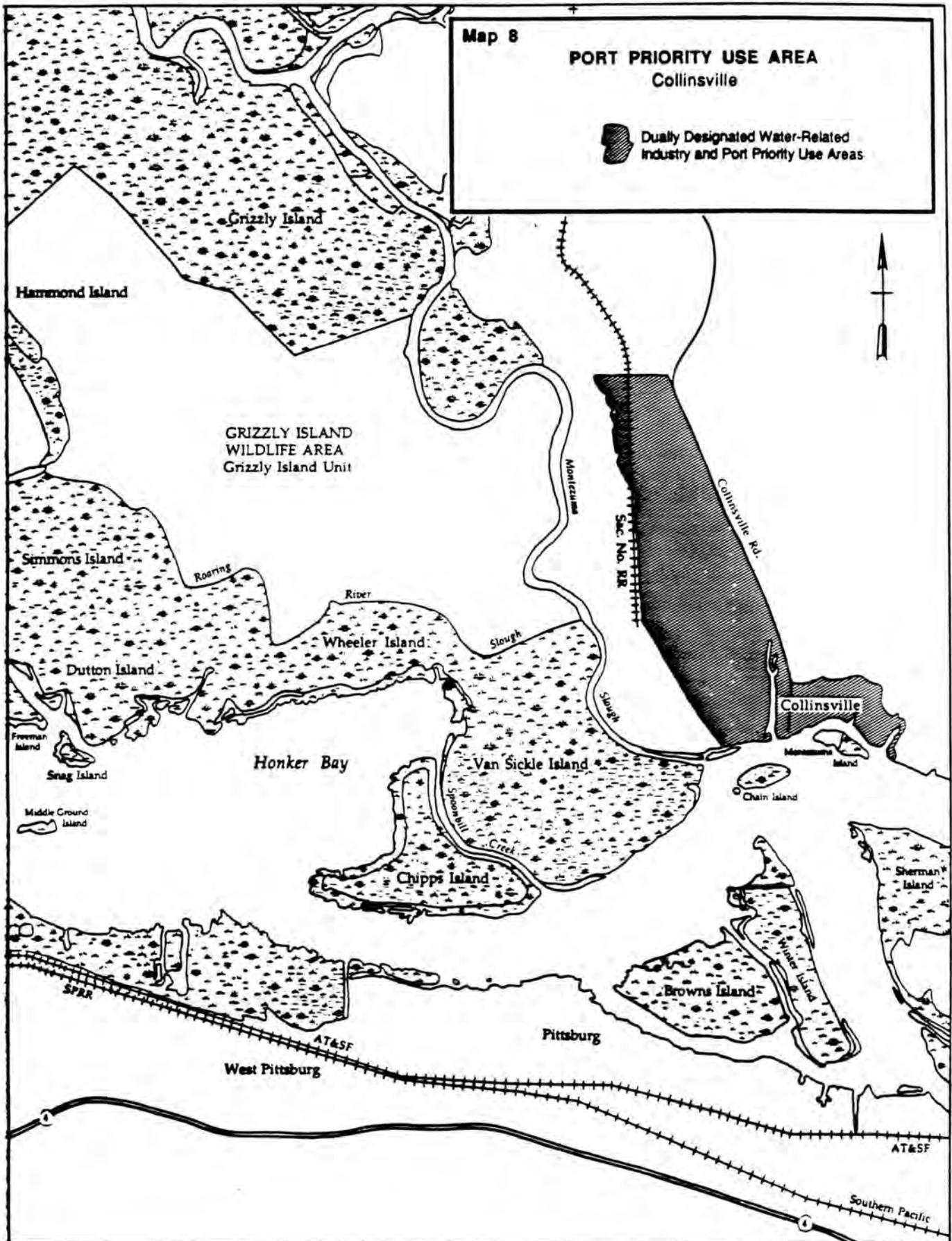
Map 7
MARINE TERMINAL DEVELOPMENT SITES
AND PORT PRIORITY USE AREAS
Suisun Bay

- (A) active terminals
- (M) military sites
 (available only if and when the military no longer needs them)

Port Priority Use Areas
Dually Designated Water-Related Industry and Port Priority Use Areas

7A, 7B, 7C Concord Naval Weapons Station
 14A Port of Benicia

PORT CHICAGO NAVAL WEAPONS STATION
 If and when not needed by Navy give first consideration to port or water-related industrial use. Port and industrial use should be restricted so they do not adversely affect the marshes.



IV. FACILITY IMPROVEMENTS

MARINE TERMINALS

Development requirements for marine terminals are stated as the regionwide demand for new terminals. No attempt is made to be project or port specific. Table 3 displays the estimates of demand for new marine terminals through the year 2020. The estimated number of new berths is in addition to those currently in operation. These estimates are a function of the three forecast levels, the capacity of existing marine terminals, and various assumptions with regard to future actions by government and the marine terminal operators. Specifically, the estimates in this table assume:

- o the backland area (i.e., the storage and processing area that constitutes the terminal) of existing marine terminals will not increase;
- o container terminal productivity¹ increases by 1% per year in the baseline and low forecasts due to operator induced improvements; and
- o annual container terminal productivity increases of 1.25% are assumed in the high forecast.

While certain channels may be deepened or container handling productivity may increase at specific terminals prior to 1990, such changes in the assumptions are not expected to significantly alter the 1990 estimates of demand. As a result, the estimates for these two years are believed to be the best estimates of short-range demand for new dry cargo terminals. In the more distant future, it is reasonable to expect that many of the channels may be deepened or that productivity may increase at a rate higher than assumed for the estimates in Table 3. Therefore, the estimates in Table 3 probably overstate the demand.

The demand for a central Bay supertanker terminal was not assessed in detail. The findings in the previous chapter outline the conclusions with regard to this topic.

CHANNELS

Without adequate deepwater channels, marine terminal facilities cannot function efficiently. The economic feasibility of deepening Bay Area shipping channels was analyzed, and relied heavily on the results of completed and ongoing work by the Corps of Engineers. This analysis was not intended to substitute for the detailed analyses done by the Corps in its General Investigations of individual deepening projects.

Major deepwater channels investigated within the Bay are:

- o Suisun Bay Channel
- o Pinole Shoal Channel
- o Richmond Inner Harbor Channel
- o Southampton Shoal Channel and Long Wharf Turning Basin

¹ For this plan, productivity is defined as marine terminal capacity per berth.

- o Oakland Outer Harbor Channel
- o Oakland Inner Harbor Channel (west of the Alameda Tubes)
- o Oakland Bar Channel (Entrance Channel)
- o Redwood City Channel
- o San Bruno Shoal Channel

The channel along the San Francisco waterfront (largely a natural channel) was not investigated since any required deepening involves insignificant costs relative to the channels noted above. See Figure 5 for location of these channels.

Analysis concluded that channel deepening up to 45 feet is economically feasible for the following channels: Oakland Outer Harbor, Oakland Inner Harbor (west of the Alameda Tubes), Oakland Bar (Entrance Channel), Richmond Inner Harbor, Southampton Shoal, and Pinole Shoal. This does not imply that these channels should be deepened to 45 feet immediately. The most cost-effective depth for any specific channel would be determined by the Corps depending on the prevailing operating and market conditions at the time of the evaluation. In addition, the westerly portion of the Suisun Bay Channel (west of Pt. Edith) serves refinery operations, and has been authorized by the federal government for deepening to 45 feet. Comparisons were not developed for the deepening costs and benefits for San Bruno Shoal, Redwood City, and Suisun Bay Channels because of the difficulty of quantifying benefits.

GROUND TRANSPORTATION FACILITIES

Just as deepwater channels are crucial, the availability of adequate ground transportation facilities is vital to the efficient functioning of marine terminals. The ground transportation analysis focused on highway and street improvements, since MTC has responsibility in their funding. Rail access requirements were also addressed, but rail improvements are largely a private sector responsibility. Specific ground transportation improvements are only identified to 1990.

The evaluation of needed improvements was based partly on traffic studies and partly on interviews with representatives from the ports, marine terminal operators, trucking companies, shippers, railroads, and Caltrans. The potential improvements were reviewed with the affected cities to help refine the proposals and to evaluate possible land use changes in the port area which might alter the proposals.

Figure 5
SAN FRANCISCO BAY DEEPWATER CHANNELS

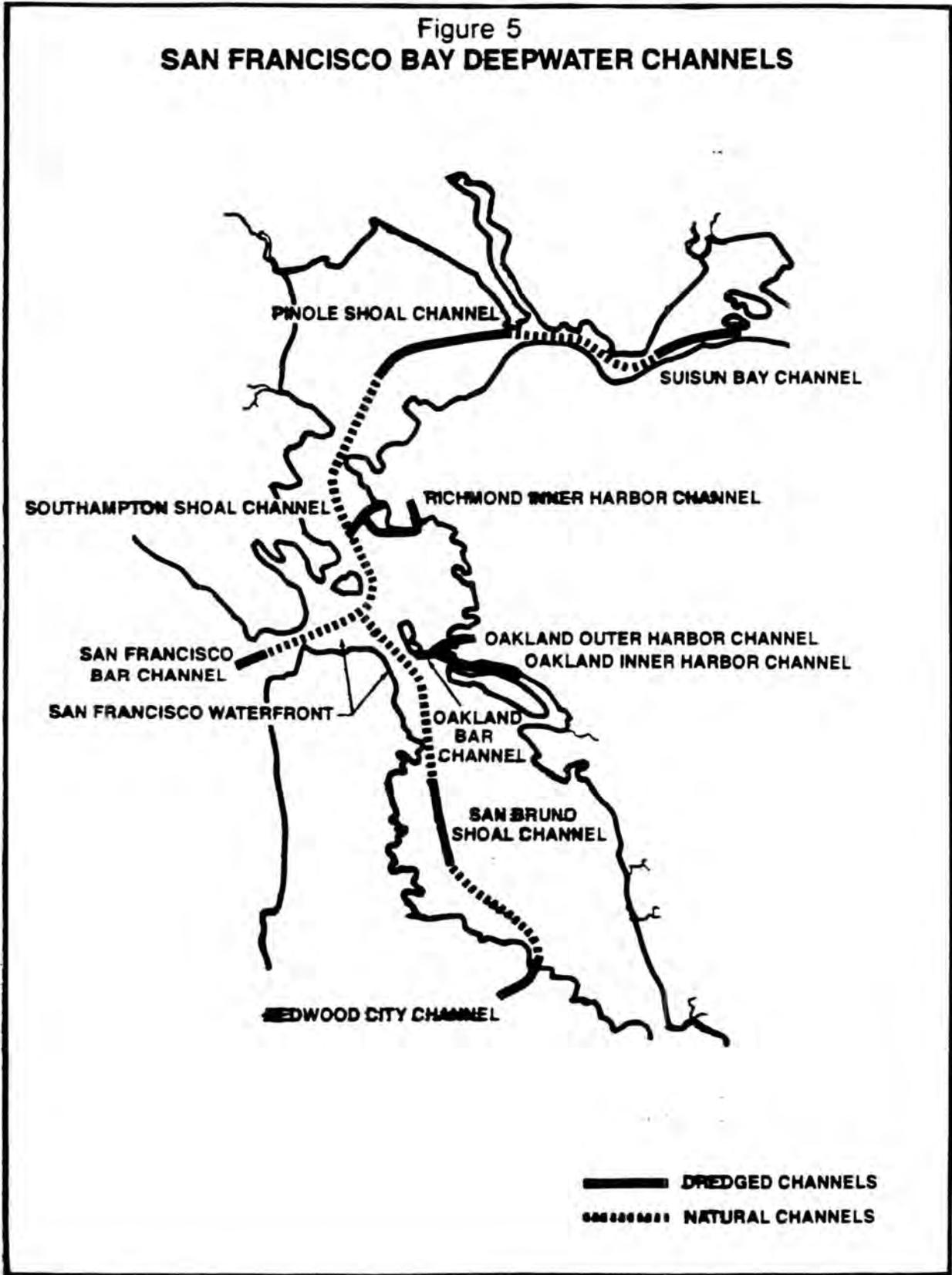


Table 5 displays the ground transportation projects which address some regional interest in marine terminal accessibility. Each of the projects was assigned a priority by the Seaport Planning Advisory Committee using the following criteria:

- Most Desirable - projects that mitigate the growth of port-related traffic; or projects where congestion materially reduces accessibility to a port and, from a regional perspective, significantly impedes the flow of goods.
- Desirable - projects that may improve traffic flow but are not necessary to alleviate congestion; or projects where congestion materially reduces accessibility to a port but, from a regional perspective, does not significantly impede the flow of goods.
- More Desirable - project falling between the criteria outlined above.

The time frame--short or medium--is an expression of the urgency of a project. A short-range designation indicates funding should be developed for a project or that action should be taken within the next five years. A medium-range designation indicates funding should be developed or action occur beyond the next five year period.

Table 5

TRANSPORTATION ACTIONS OF REGIONAL CONCERN

Area	Project	Lead Agency	Time Frame ¹	Seaport Committee Priority ²
San Francisco	1. Monitor land use development and traffic growth in area surrounding Piers 94/96; undertake study as necessary.	City of S.F.	S	M
	2. Improve geometrics of rail access to Piers 94/96.	Port of S.F.	S	H
Oakland/Alameda	1. Study traffic on Seventh St., Maritime St., and Southern Pacific Rd. to develop solutions to projected congestion caused by Bay Area port growth.	Port & City of Oakland	Study Results Under Evaluation	H
	2. Improve intersection at Harrison & 7th Sts.	City of Oakland	C	L
	3. Construct segments of Patton Way & Atlantic Ave. extension, Alameda, that would serve Encinal Terminals.	City of Alameda	UC	L
	4. Maintain truck route designation for Buena Vista Avenue.	City of Alameda	C	M
	5. Provide right lane (over West Grand) & toll booth for trucks at Bay Bridge Toll Plaza.	Caltrans	S	M
Richmond	1. Develop rail capability at Richmond Terminals 2 and 3.	Port of Richmond	S	H
	2. Improve rail access at Meeker Ave.	Railroads/Caltrans	UC	H
	3. Improve Harbour Way.	City of Richmond	C	L
	4. Construct John T. Knox Freeway.	Caltrans	UC	H
	5. Provide temporary solution for westbound, left-turning port traffic at I-580 (John T. Knox Freeway) & Harbour Way.	Caltrans/ City of Richmond	UC	H
Redwood City	1. Improve Seaport Blvd.	Port & City of Redwood City	UC	L
Benicia	none			
Regionwide	1. Coordinate development of ground transportation system with proposed port development.	MTC	Annual Review	H
	2. Encourage port operators, trucking companies, marine terminal operators, and railroads to participate in MTC's Commute Alternatives Program.	MTC	S	H
	3. Develop & distribute Bay Area port access maps, and study freeway signing to ports.	MTC	S	M

¹ S - short range; M - medium range; UC - under construction; C - completed
² L - desirable; H - more desirable; H - most desirable

GLOSSARY

San Francisco Bay (Bay)	For this plan, San Francisco Bay is defined as the four interconnected bays of South San Francisco Bay, Central San Francisco Bay, San Pablo Bay, and Suisun Bay; all areas subject to tidal action from the south end of South San Francisco Bay to the Golden Gate to the eastern end of Suisun Bay (Grizzly Bay and Honker Bay). In practice, the eastern boundary of the study area is defined to include the Contra Costa County shoreline to the Antioch Bridge and the Solano County shoreline to the extent of the BCDC jurisdiction near Collinsville.
San Francisco Bay Area	The City and County of San Francisco and the Counties of Alameda, Contra Costa, Marin, Napa, San Mateo, Santa Clara, Solano and Sonoma.
Shoreline Sites	Shoreline lands or uplands bordering the Bay.
Marine Terminal	Any public, private, proprietary or military waterfront facility utilized for the receipt or shipment of waterborne cargo. Marine terminals serving an industrial function where the product transferred over the wharf is processed (e.g., crude oil refinery) are not included in this plan. For purposes of this plan, a marine terminal includes the wharf, storage area, offices, rail and truck facilities, container freight stations, intermodal container transfer facilities, areas for maintenance of containers or container-handling equipment, and other functions necessary to the efficient operation of a terminal; it does not include employee parking.
Marine Terminal Berth	A marine terminal berth includes a wharf and other marine terminal facilities necessary to support a single ship berth.
Port Priority Use Areas	Port priority use areas include within their premises marine terminals and directly-related ancillary activities such as container freight stations, transit sheds and other temporary storage, ship repairing, support transportation uses including trucking and railroad yards, freight forwarders, government offices related to the port activity, chandlers and marine services. Other uses, especially public access and public commercial recreational development, are permissible uses provided they do not significantly impair the efficient utilization of the port area.
Regional Transportation System	The network of railroads, highways, pipelines, airways, and waterways and related facilities and services, and terminal areas, public or private, serving the San Francisco Bay Area.
Waterborne Cargo	Receipts and shipments of foreign and domestic waterborne cargoes.

Marine Terminal Capacity	The maximum practical capability of a marine terminal to handle cargo--measured in metric tonnes per year.
Capacity Estimates or Region's Capacity	The estimated cumulative capacity of the Bay Area's then existing marine terminals. Table 3 of the 1988 Seaport Plan Revision Future Demand for Marine Cargo Terminal report displays the estimate of capacity used in this Plan.
Productivity	For this plan, productivity is defined as the per berth capacity of marine terminals.
Cargo Forecast	The projected flow of waterborne cargo through Bay Area ports (measured in metric tonnes).
Demand Estimates	The projected need for future marine terminal development (measured as a number of berths).
Near-Term Sites	Those shoreline sites considered to be the best for marine terminal development.
Long-Term Sites	Those shoreline sites that could be considered for development after the near-term sites have been used.
Active Terminal Sites	Existing marine terminal facilities that are expected to remain active for the foreseeable future.
Military Sites	Shoreline sites within military installations that have potential for marine terminal use, if and when the military no longer needs them.

INSTITUTIONS/LEGISLATION

Bay Area Ports	Encinal Terminals and the ports of Benicia, Oakland, Redwood City, Richmond, and San Francisco.
Association of Bay Area Governments (ABAG)	Created in January 1961 as a Bay Area regional land-use planning agency; primary function is to provide a framework for dealing with regional problems on a cooperative and coordinated basis. Not a governmental body; formal organization provided by contractual agreement between member cities and counties.
California Department of Transportation (Caltrans)	Created in July 1973 by the state Legislature as an agency responsible for the statewide coordination of multi-modal comprehensive transportation planning and development.
Golden Gate Ports Association (GGPA)	See "Northern California Ports and Terminals Bureau."
Maritime Administration (MarAd)	A federal agency, within the Department of Transportation, responsible for promoting the U.S. merchant marine and the development of U.S. ports and marine terminal facilities.

INSTITUTIONS/LEGISLATION (cont.)

Metropolitan Transportation Commission (MTC)	Created by the State Legislature to provide multi-modal, comprehensive regional transportation planning and financial programming for the nine county San Francisco Bay Area. Has responsibilities for reviewing any applications for federal or state funds, if such application has a transportation element.
Northern California Ports and Terminals Bureau (NORCAL)	Created in 1952 for rate making purposes; renamed as Golden Gate Ports Association to advocate the views of the Bay Area and Delta port industry with respect to regional port planning. Membership includes the ports of Redwood City, Oakland, San Francisco, Richmond, Stockton, and Sacramento.
San Francisco Bay Conservation and Development Commission (BCDC)	Created by the State Legislature in 1965; has responsibilities for regulating the use of the Bay shoreline, and has the power to grant or deny permits for all Bay filling and dredging.
U.S. Army Corps of Engineers	A Federal agency under the Department of Defense responsible for maintaining the navigable waters of the United States.
McAteer-Petris Act (1965) (Sections 66600-66658, Title 7.2, California Government Code)	Created BCDC and set criteria for evaluating proposed Bay fill and dredging projects. Used in conjunction with the BCDC San Francisco Bay Plan to evaluate all permit applications for Bay port development and related fill or dredging.

REGIONAL PLANS

Regional Transportation Plan (RTP)	First adopted by the Metropolitan Transportation Commission in June 1973, to guide development of a safe, efficient and environmentally responsive regional transportation system at a reasonable cost for the movement of people and goods. Revisions are incorporated annually.
San Francisco Bay Plan	Adopted in 1969, by BCDC as a plan to guide future uses of San Francisco Bay and its shoreline area. Used in conjunction with the McAteer-Petris Act to evaluate all permit applications for Bay port development and related fill or dredging.

COMMODITY CATEGORIES/MEANS OF CARRIAGE

Break Bulk Cargo	Cargo handled in individually packaged units.
Containerized Cargo	General cargo packed in standard size weather-tight boxes. Cargo remains in container from origin to destination.

COMMODITY CATEGORIES/MEANS OF CARRIAGE (cont.)

Neo-Bulk Cargo	Cargoes generally shipped in large quantities and having some characteristics of bulk commodities. Neo-bulk cargoes in the Bay Area are generally autos, steel products, and newsprint.
Dry Bulk Cargo	Cargoes loaded or unloaded in conveyor belts, spouts or scoops, and not placed individually; flowable cargoes; rice, grain, various ores, etc.; stored loose.
Dry Cargo	All break bulk, containerized, neo-bulk, and dry bulk cargoes.
Liquid Bulk Cargo	Liquid cargoes, such as petroleum or vegetable oil, that are shipped in tanks rather than small individual units.
Roll-on/Roll-off (RO/RO)	A method of ocean transport which permits wheeled vehicles (e.g., autos, trucks, forklifts) to drive on and off the vessel under their own power.
Lighter Aboard Ship (LASH)	A method of ocean transport which uses lighters (i.e., barges) capable of carrying smaller standard sized containers, general cargo or bulk cargo. LASH barges are taken aboard ship or discharged by shipboard cranes.

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THE SAN FRANCISCO BAY AREA SEAPORT PLAN

prepared for

The Metropolitan Transportation Commission

and

The San Francisco Bay Conservation & Development Commission

1982

Revised, 1988

**Approved by the Seaport Planning Advisory Committee
on January 4, 1989**

**Approved by the San Francisco Bay Conservation and
Development Commission on March 16, 1989**



(3077P)



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Lt. Col. Galen Yanagihara/Jake Harari	California Department of Transportation - District 4
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Steven McAdam	San Francisco Bay Conservation and Development Commission

¹ ABAG may designate two members to the Committee; these are currently vacant.



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I. INTRODUCTION

The Seaport Plan for the San Francisco Bay Area is the result of a cooperative effort sponsored by the Metropolitan Transportation Commission (MTC) and the San Francisco Bay Conservation and Development Commission (BCDC). The Plan responds to state law requiring a maritime element to MTC's Regional Transportation Plan and to BCDC's original Bay Plan policy that called for a regional port development plan. MTC and BCDC set forth the following goals for the Seaport Plan:

- o Ensure the continuation of the San Francisco Bay Port system as a major world port and contributor to the economic vitality of the San Francisco Bay Region.
- o Maintain or improve the environmental quality of San Francisco Bay and its environs.
- o Provide for the efficient use of finite physical and fiscal resources consumed in developing and operating marine terminals.
- o Provide for integrated and improved surface transportation facilities between San Francisco Bay Ports and terminals and other regional transportation systems.

To assist in developing the Seaport Plan, MTC and BCDC created the Seaport Planning Advisory Committee (SPAC). The Committee consists of representatives from various local, state and federal agencies, from the six Bay Area ports, and from environmental and development interest groups. It met over a period of several years and oversaw the preparation of extensive technical studies which are summarized in the Final Technical Report for the planning project. This Plan is the result of extensive deliberations by the Committee.

The Seaport Plan focuses on marine terminals, and more specifically on marine terminals where the transfer of cargo is the primary activity of the business entity operating on the shore. Bay Area marine terminal facilities that serve a manufacturing activity were not analyzed. At present, all marine terminal facilities of concern to this Plan are located within or near six Bay Area ports: Benicia, Oakland, Redwood City, Richmond, San Francisco, and Encinal Terminals in Alameda; and the City of Vallejo. The Plan also addresses the need for privately owned crude oil terminals, due to the large volume of crude oil shipped into the Bay Area. It does not, however, address the development of the Ports of Stockton and Sacramento, which are beyond the jurisdiction of both MTC and BCDC.

On October 27, 1982, MTC adopted revisions to the Regional Transportation Plan including a maritime element based on this Plan. Most important of the policies in the maritime element is Policy 5.1 which states that the Seaport Plan "shall guide MTC in its decisions on seaport development and related proposals for transportation and land use development." MTC also certified the environmental impact report for the Seaport Plan on this date. On December 2, 1982, BCDC adopted the Seaport Plan as part of the Bay Plan. This was accomplished by adopting summary policies which incorporated the Seaport Plan into the Bay Plan by reference, by adopting the findings, policies, recommendations and maps section of the Seaport Plan, and by making other revisions to the text and maps of the Bay Plan and Special Area Plan No. 1.

As a result of public hearings and discussions held by both commissions, changes were made to the original recommendation of the Seaport Planning Advisory Committee. These changes were incorporated in the Plan on which the two commissions acted and have been included in this document. The changes were also endorsed by the Committee.

Under the policies of this Seaport Plan, BCDC and MTC, with the assistance of the Seaport Planning Advisory Committee, must periodically update the Seaport Plan to reflect new information obtained since the last major review. In 1988, revisions were drafted by the Seaport Planning Advisory Committee and referred to both commissions for review and adoption. After public hearings, both commissions adopted the proposed revisions and they have been incorporated into this document.

BAY AREA PORTS

There are six publicly-used ports in the San Francisco Bay Area (see Figure 1). Each of these ports was developed to provide a needed service.

With the advent of the gold rush in 1850, the city of San Francisco rapidly developed, becoming the only major port on the West Coast. Virtually all of the other Bay Area ports were started by an operator offering service to and from San Francisco. San Francisco continued as the major Bay Area port until consolidation of cargo into containers revolutionized shipping in the 1960s. It is still the major break bulk port in the region and provides container handling facilities at two terminals.

Oakland established a separate port authority in the 1920s, but it developed slowly until the advent of containerization. Good rail connections and the large amount of available land contributed to Oakland's rapid development of container terminals and emergence as the major Bay Area port.

Alameda shares the Oakland Estuary with Oakland, and port activity began by offering service to San Francisco. Encinal Terminals in Alameda was formed in 1924, and was a major steel importing point.

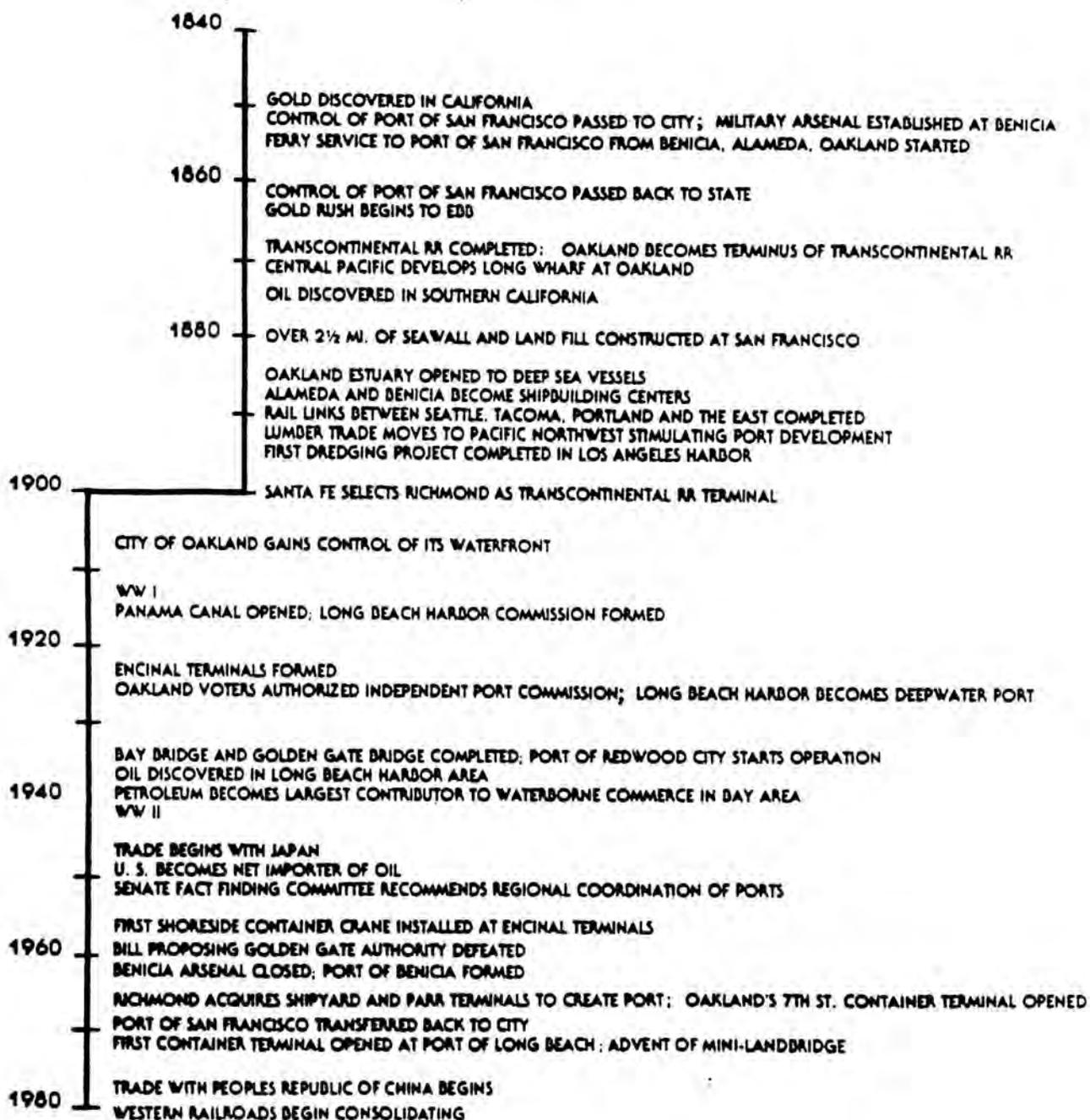
After Sante Fe Railroad established its transcontinental rail terminus in Richmond, many industries began to locate there. By 1940, the petroleum industry had become the largest contributor to Bay Area waterborne cargo, and the bulk of the shipments moved through Richmond. The Port of Richmond has container handling capability.

In the South Bay, Redwood City's harbor began as a lumber port serving San Francisco in the mid-1800s. It has remained a relatively small port handling specialized commodities such as scrap and limestone. In the North Bay, Benicia was the site of a military arsenal from the 1850s to 1964 and also the center of considerable shipbuilding. After the arsenal closed, the Port of Benicia was established and has become a center for auto imports.

Figure 2 provides a chronology of major events affecting West Coast port development. Development of ground transportation, particularly rail, has had a major impact on port development. For example, the location of the transcontinental rail terminus in Oakland stimulated harbor development. Also, the development of rail links to the east from the Pacific Northwest caused the lumber trade to shift from San Francisco to Puget Sound. Neither of the world

Figure 2

WEST COAST PORT DEVELOPMENT CHRONOLOGY



wars seems to have had a long-term major impact on port development even though the federal government did take over the ports during World War II. Since World War II, the emergence of Japan as a major United States trading partner has stimulated considerable port development on the West Coast.

STEAMSHIP LINES

The steamship lines are the users of the region's port facilities. These ocean carriers of many nations compete for the cargo moving through the Bay Area to and from points all over the world. Their desire for efficient marine terminals creates the demand for new facilities the ports must provide. This demand, of course, also creates competition among the Bay Area and West Coast ports for their business. The steamship industry is currently experiencing a period of change including rationalization of services which may affect the demand for new marine terminal facilities.

ISSUES

Of the many issues pertaining to the development of the port system in the Bay Area, the following are the most relevant to the concerns of MTC and BCDC and have been addressed by this Plan:

- o What is the projected growth in waterborne cargo for the San Francisco Bay Area and what factors will affect this growth? How can the need for new facilities be assessed?
- o What is the capacity of existing Bay Area terminals and what factors can be expected to affect marine terminal capacity?
- o How many new marine terminals will be required to serve the projected cargo?
- o Where can the new marine terminals be developed with minimum adverse environmental impacts? How much shoreline must be reserved?
- o What improvements are necessary to the channels, roads, and rails?
- o What are the environmental impacts and costs of the new facilities? Can the adverse environmental impacts be minimized or mitigated? If so, what methods exist to mitigate these impacts? What methods exist to reduce the overall cost of port system development in the Bay Area?

II. PLAN IMPLEMENTATION

RESPONSIBLE ORGANIZATIONS

Improvements to the channels, marine terminals or ground transportation facilities are the responsibility of:

- o the Corps of Engineers and the ports or private sector in the case of the channels;
- o the ports or private sector for the marine terminals;
- o the cities, counties and/or Caltrans for the roadways and highways; and
- o the railroads and/or ports for rail facilities.

The development decisions of these entities are influenced by state and federal laws requiring that projects be reviewed at various stages by a number of agencies. Among these agencies are:

- | | | |
|----------|----|--|
| Federal | -- | Environmental Protection Agency, U.S. Fish and Wildlife Service, National Marine Fisheries Service, Coast Guard, Army Corps of Engineers, Office of Coastal Zone Management, Maritime Administration, Department of Transportation and others; |
| State | -- | Department of Fish & Game, California Transportation Commission, and others; |
| Regional | -- | Regional Water Quality Control Board, Air Quality Management District, Association of Bay Area Governments, MTC, BCDC, and others; and |
| Local | -- | City or county governments. |

The purpose of this Plan is to provide MTC with policies for reviewing draft environmental assessments and funding applications, and to provide BCDC with policies for reviewing applications for a permit, draft environmental assessments, and federal actions affecting the Bay. In addition, the Plan calls for city and county governments to institute land use protections for the port areas and for the ports to cooperate through their voluntary organization, the Golden Gate Ports Association (GGPA), or through other agreements among themselves. The primary responsibility for implementing the policies of the Seaport Plan is therefore a shared responsibility of MTC, BCDC, local governments, and the ports.

AGENCY BACKGROUND

MTC is the Regional Transportation Planning Agency (RTPA) for the Bay Area. It is responsible for comprehensive transportation planning and financial programming. The Metropolitan Transportation Commission Act of 1970, which created MTC, provides that:

Any application to the federal or state government for any grant of money, whether an outright or matching grant, by any county, city and county, city, or transportation district within the region shall, if it contains a

transportation element, first be submitted to the Commission for review as to its compatibility with the regional transportation plan. The Commission shall approve and forward only those applications that are compatible with the plan.

The Act also required MTC to study harbor accessibility in the region and report to the Legislature. In subsequent legislation (AB 69 and AB 402, Government Code 65080), all RTPAs in California were required to prepare:

...a regional transportation plan and a regional transportation improvement program directed at the achievement of a coordinated and balanced regional transportation system, including, but not limited to, mass transportation, highway, railroad, maritime, and aviation facilities and services.

MTC also receives environmental documents for review and comment if the project includes a transportation element.

BCDC is the state agency designated to manage the waters of San Francisco Bay and the development of its shoreline. The Legislature created BCDC in 1965 and charged it with preparing a comprehensive plan for the Bay. In 1969, through the McAteer-Petris Act, the Legislature expressly recognized the San Francisco Bay Plan prepared by BCDC and gave BCDC the authority to implement the Plan. Under the McAteer-Petris Act, approval must be obtained from BCDC for all filling and dredging in the Bay and for all development, including changes in uses, within 100 feet of the shoreline. In addition, BCDC's Bay Plan is an integral part of the federally approved coastal zone management program for San Francisco Bay, and BCDC is the agency responsible for administration of that program.

One of the major objectives of BCDC is to ensure that all filling of the Bay is limited to the six high-priority, water-oriented uses identified in the McAteer-Petris Act—one of which is ports. In order to provide sufficient shoreline sites to accommodate these high-priority uses with the minimum fill necessary, the Bay Plan provides that shoreline sites especially well-suited for these priority uses be reserved for such uses. In the case of ports, BCDC has designated numerous sites around the Bay for port priority use.

Although a proposed fill may be for a priority use and is proposed to be located within a designated priority use area, the BCDC law still requires that the fill proposed be "the minimum fill necessary." Together with other sections of the McAteer-Petris Act, this means two tests must be met: (1) the total Bay fill for all port development in the region must be the minimum necessary; and (2) each project must be designed and constructed so that it avoids unnecessary fill. The former issue is answered by this Plan; the latter issue can usually be addressed in a permit proceeding.

PROJECT REVIEW COORDINATION

To avoid potentially conflicting comments on a maritime development project, a procedure for coordination between MTC and BCDC will be required. Four points exist where MTC and/or BCDC would be asked to comment or take action on a project pertaining to the port system in the Bay Area:

- o review of draft environmental documents - both MTC and BCDC receive such documents through federal and state clearinghouses; it is very likely this will be the first opportunity to comment on any proposed maritime project.
- o review of applications for federal or state funding - MTC receives funding applications for review if they contain a transportation component and BCDC reviews such applications when the proposed project would affect the Bay or its shoreline; such applications may include street and highway projects, rail assistance, and federal or state grants for economic development; a notice of intent to apply for funding may precede review of environmental documents; MTC will only approve a funding application if the environmental assessment has been certified.
- o review of federal actions affecting the coastal zone - BCDC must determine whether federal actions affecting the coastal zone are consistent with its federally approved management program; such actions include, but are not limited to, funding (as described above), surplusings or leasing of federal land, and Corps of Engineers permits.
- o review of applications for a BCDC permit - projects having an effect on the Bay or its shoreline must obtain a BCDC permit; BCDC will only accept an application for a permit if an environmental assessment has been certified; while MTC has no responsibility in BCDC's permit process, MTC may be reviewing the same project at the same time under its responsibilities.

III. FINDINGS, POLICIES AND RECOMMENDATIONS

The policies and recommendations are intended to achieve the goals set forth for the Seaport Plan, and to reflect MTC's and BCDC's shared purpose to enhance economic activity while protecting the environment, making efficient use of all resources, and coordinating development. Maritime development must also be consistent with the Regional Transportation Plan, the McAteer-Petris Act and the San Francisco Bay Plan.

FINDINGS

Forecasts of Waterborne Cargo

- a. Figure 3 provides a graphic representation of the forecasts for all commodities except petroleum and liquid bulk petroleum products. Tables 1 and 2 show the baseline, high and low forecasts of waterborne cargo for the Bay Area. The baseline cargo forecast is considered to be the most likely projection while the high and low variations represent possible alternative levels of trade. These forecasts do not include the movement of cargo through the ports of Sacramento and Stockton.
- b. The baseline forecast indicates that waterborne dry cargo for the San Francisco Bay Area will more than double by the year 2000. Containerized cargo movements, automobiles, iron and steel scrap, and grain exports are all expected to increase, with containerized cargo representing the majority of the growth. In fact, containerized cargo is forecast to increase to four times its present volume by the year 2010.
- c. While detailed forecasts suggest increased movements of liquid cargoes, such as petroleum, these are mostly handled at proprietary terminals (such as Chevron USA's Long Wharf at Richmond) that are outside the purview of this Plan.
- d. A basic precept of the Seaport Plan is that, in order not to limit economic activity, improvements should be made to the Bay Area port system to handle forecast waterborne cargo. However, the ports of the Bay Area compete with each other and with other West Coast ports for cargo and the ocean carriers that transport this cargo. This competition is generally in the public interest because it helps keep shipping costs down, may generate new shipping business for the Bay Area, and keeps the ports sensitive to changes in shipping technology and the needs of shippers. Nevertheless, such competition may have undesirable side effects in the form of investment in facilities that go unused or little used, which in turn may result in unnecessary expenditures of public funds and unnecessary Bay fill. Therefore, another precept of the Seaport Plan is that proposed marine terminal development should be more closely linked to projected regional need for new facilities based upon reasonable forecasts of waterborne cargo.

Figure 3. BASELINE FORECAST

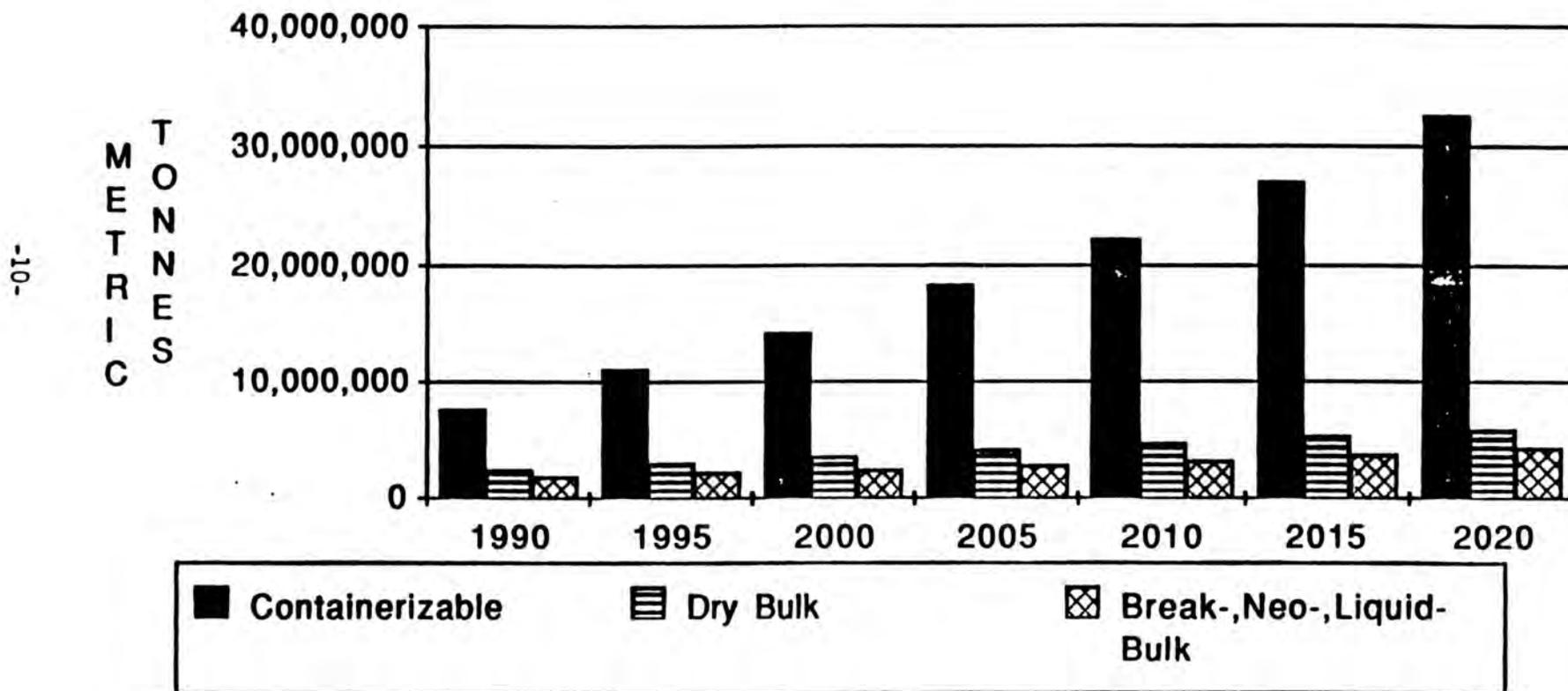


Table 1
SAN FRANCISCO BAY AREA CARGO FORECAST

BASELINE FORECAST

(1,000's of metric tonnes)

	1978	1985	FORECAST		
			1990	2000	2020
CONTAINER ¹	4,295	5,033	7,773	14,334	32,567
Foreign Container	3,292	4,086	6,657	12,844	29,888
Domestic Container	1,003	967	1,116	1,490	2,679
BREAK BULK	406	295	291	498	1,146
Foreign Breakbulk	397	287	281	480	1,083
Domestic Breakbulk	9	8	10	18	63
NEO-BULK	1,260	1,465	1,136	1,290	2,217
Autos - Imports	173	333	321	337	454
- Exports	21	3	6	10	23
- Domestic	46	49	59	87	193
Iron & Steel-Imports	648	802	444	438	693
-Other	62	15	28	26	40
Newsprint - Imports	309	263	277	391	811
- Other	1	0	1	1	1
DRY BULK	2,775	2,680	3,676	5,058	7,410
Grain - Exports	514	120	174	279	418
- Other	1	36	81	112	164
Iron & Steel Scrap	523	525	621	795	914
Petroleum Coke	258	365	605	696	607
Sugar	835	672	641	586	508
Other Bulk ²	644	962	1,554	2,590	4,799
DRY CARGO	8,736	9,493	12,876	21,180	43,340
TOTAL BASELINE					
LIQUID BULK	31,312	31,953	37,600	44,560	47,485

¹ Includes the majority of RO/RO cargoes; RO/RO cargoes other than those included in the container forecast are included in the other cargo categories. For example, automobile RO/RO cargo is included in the neo-bulk forecast.

² Includes salt.

SOURCE: San Francisco Bay Area Cargo Forecast, prepared by Manalytics, Inc. and The WEFA Group, April 1988.

Table 2
SAN FRANCISCO BAY AREA CARGO FORECAST

HIGH AND LOW FORECASTS

(1,000's of metric tonnes)

	1978	1985	FORECAST		
			1990	2000	2020
HIGH FORECAST					
CONTAINER ¹	4,295	5,053	9,484	16,254	38,340
Foreign Container	3,292	4,086	8,357	14,734	32,667
Domestic Container	1,003	967	1,127	1,520	2,773
BREAK BULK	406	295	293	807	1,186
Foreign Breakbulk	397	287	283	489	1,121
Domestic Breakbulk	9	8	10	18	65
MED-BULK	1,260	1,465	1,148	1,316	2,297
Autos - Imports	173	333	324	344	470
- Exports	21	3	6	10	24
- Domestic	46	49	60	89	202
Iron & Steel-Imports	648	802	448	447	718
- Other	62	15	29	27	42
Newsprint-Imports	309	263	280	398	840
- Other	1	0	1	1	1
DRY BULK	2,775	2,680	3,711	5,152	7,656
Grain - Exports	514	120	176	284	433
- Other	1	36	82	114	169
Iron & Steel Scrap	523	525	628	811	946
Coke	258	365	811	710	628
Sugar	835	672	647	898	830
Other Bulk ²	644	962	1,567	2,635	4,950
TOTAL BASELINE DRY CARGO	8,736	9,493	14,636	23,229	46,479
LIQUID BULK	31,312	31,953	37,976	45,451	49,148
LOW FORECAST					
CONTAINER ¹	4,295	5,053	7,695	14,047	31,427
Foreign Container	3,292	4,086	6,590	12,587	28,842
Domestic Container	1,003	967	1,105	1,460	2,585
BREAK BULK	406	295	288	488	1,106
Foreign Breakbulk	397	287	278	470	1,045
Domestic Breakbulk	9	8	10	18	61
MED-BULK	1,260	1,465	1,119	1,265	2,141
Autos - Imports	173	333	312	330	438
- Exports	21	3	6	10	23
- Domestic	46	49	58	85	188
Iron & Steel-Imports	648	802	439	430	669
- Other	62	15	28	26	39
Newsprint-Imports	309	263	275	383	783
- Other	1	0	1	1	1
DRY BULK	2,775	2,680	3,654	5,001	7,301
Grain - Exports	514	120	173	273	404
- Other	1	36	81	110	158
Iron & Steel Scrap	523	525	615	779	882
Coke	258	365	999	682	886
Sugar	835	672	635	875	894
Other Bulk ²	644	962	1,851	2,582	4,777
TOTAL BASELINE DRY CARGO	8,736	9,493	12,756	20,801	41,975
LIQUID BULK	31,312	31,953	37,225	43,668	46,822

¹ Includes the majority of RO/RO cargoes.

² Includes salt.

SOURCE: San Francisco Bay Area Cargo Forecast, prepared by Manalytics, Inc. The WFA Group, April, 1988

- e. The forecasts will have to be revised from time to time. Three years of waterborne cargo statistics are considered the minimum necessary to show evidence of long-term variations from the forecasts, because a review of past data shows that economic events, such as recessions, tend to have an effect for two years but, by the third year, growth rates have returned to the long-term trends.

Marine Terminals

- f. There are two basic ways of accommodating future waterborne cargo-- constructing new terminals and increasing terminal productivity.
- g. Measuring the demand for new terminals as a number of marine terminal berths is a practical means of assessing the need for new construction. The demand for new terminals was computed by subtracting the estimates of existing marine terminal capacity from the forecasts and dividing the remainder by an average capacity per berth (in metric tonnes/berth) for each type of terminal. For container terminals, average capacity figures were adjusted for projected changes in the character of containerized cargo and possible increases in productivity. The various factors used to derive the demand for new terminals will have to be updated from time to time.
- h. To accommodate the forecast increase in dry cargo, new marine terminals will be required. The demand for new container terminals will be the greatest by far; however, there will also be a smaller but significant demand for newsprint and dry-bulk terminals. Some of the increased demand for container handling capacity may be accommodated by combination terminals (container/ break bulk). Development of new break bulk berths should not be necessary. Non-container terminals having potential for redevelopment to other marine terminal uses were evaluated by the technical analysis and have been designated for development by this Plan. Other terminals are assumed to remain in their current use; however, if redevelopment is proposed, it is assumed to occur with minimum adverse impacts. Expansion of dry- and liquid-bulk handling capacity may be required.
- i. There may be a demand for new crude oil tanker berths by the end of the century. These berths would probably be provided at existing privately-owned terminal facilities; demand may exist for new or expanded petroleum product terminals.
- j. Development of a central Bay supertanker terminal does not appear likely at this time for these reasons: the oil companies have expressed little interest due to the high cost; many environmental questions remain unanswered; and the San Francisco Bar Channel would need to be deepened to accommodate supertankers.
- k. BCDC permits for marine terminal construction must be issued several years before the terminal is needed. Therefore, information on lead time is as important as the forecasts in determining whether a new terminal is needed and when a permit should be issued. The lead time pertinent to this plan includes not only the construction time, but also the time it takes for the new terminal to reach capacity (see

Figure 4 for a graphic presentation of the importance of these two time spans). For a major container terminal project, the typical lead time from an application for a BCDC permit until the terminal reaches capacity appears to be:

	<u>Typical Lead Time (years)¹</u>
Established operator transfers to new terminal requiring major reconstruction	4-1/2
New single operator terminal	6-1/2
New Multi-user terminal	7-1/2

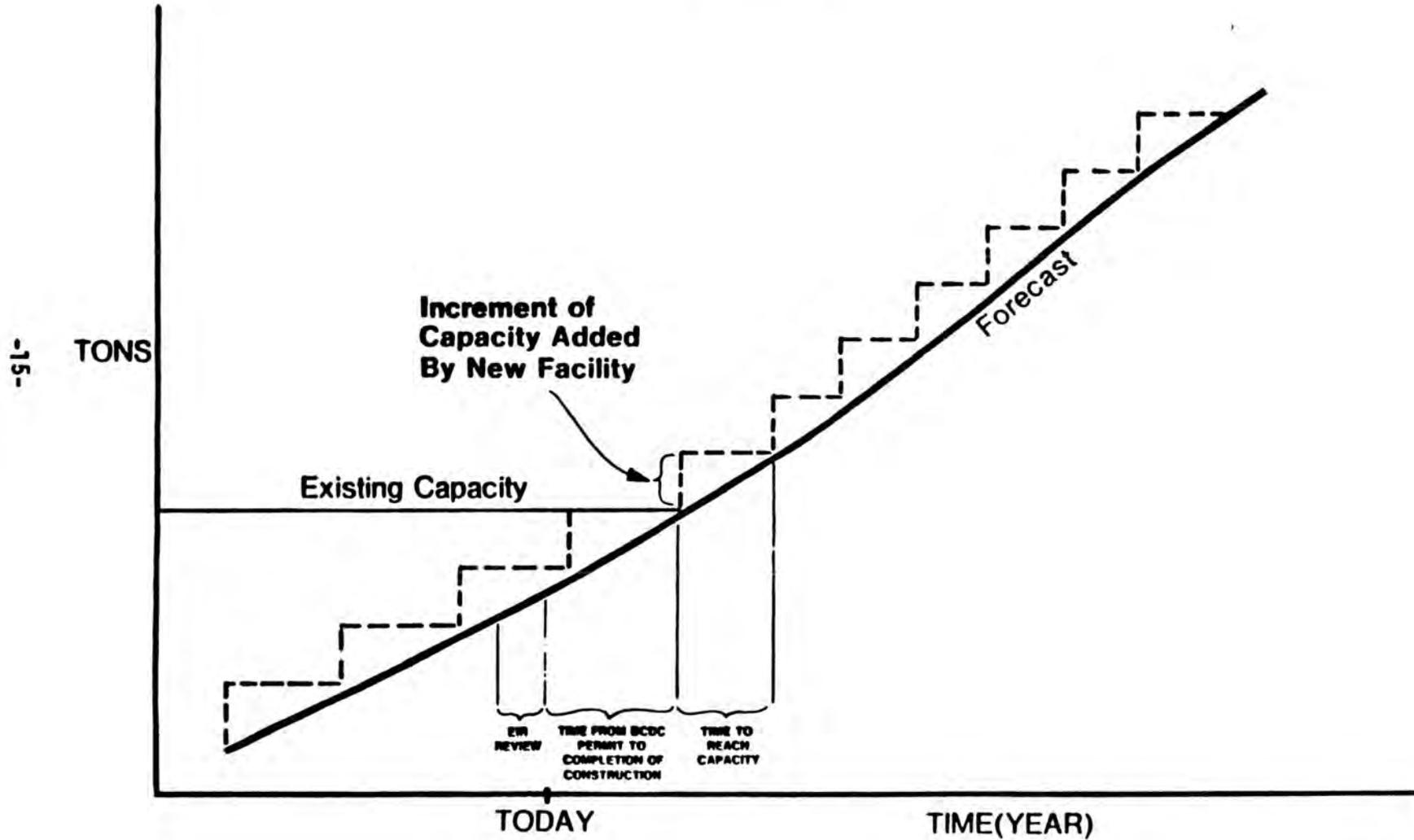
Relatively simple container terminal projects may have a shorter lead time. If construction or land acquisition is complex, lead time could be longer. The average of the above lead times is six years. In order to provide predictability, this average for container terminals can be considered the appropriate lead time for issuing a BCDC permit. No specific data has been developed for other types of terminals, but the anticipated construction period can be used as a reasonable lead time. Also important is the EIR review period which precedes the above lead time (see Figure 4). The EIR review time, by law, cannot exceed one year. This review must be complete, and the EIR certified, prior to filing a BCDC permit application. As soon as the EIR is certified and local approvals obtained, the BCDC application can be filed and the lead time begin.

- l. The demand for new marine terminals creates a demand for shoreline sites that can accommodate marine terminal development. To select suitable shoreline sites, an extensive screening process was undertaken for the MTC/BCDC port planning project (see text beginning on page 89 of Final Technical Report for details). The selected shoreline sites were classified as near-term, long-term, active or military.
- m. Marine terminal development at the active and near-term sites would result in the minimum potential adverse environmental, land use, and ground transportation impacts when compared with the long-term sites and sites studied but not included in this Plan. The amount of Bay fill will vary among the active and near-term sites, and some active and near-term sites may require considerably more Bay fill than others. However, reasonable development of any of these sites would result in roughly comparable environmental, land use, and ground transportation impacts to the region. Furthermore, if actual demand meets projections, development of the active and near-term sites will meet the demand with the minimum cumulative Bay fill. These sites should accommodate the demand for new terminals through at least the year 2010 and probably beyond.

¹ Of this time, processing of a BCDC permit application can be no longer than 90 days due to restrictions of California law.

Figure 4

LEAD TIME CONSIDERATION



- n. The amounts of fill used for the technical studies in developing this Plan are estimates only, and the actual amounts of fill required for any marine terminal development can only be determined at the time a permit is issued.
- o. Other development sites are classified as long-term due to the greater potential for adverse impacts, including greater amounts of Bay fill. Development of the long-term sites plus the near-term sites should accommodate the demand for terminal capacity beyond 2010 but not through 2020. If the potential adverse environmental impacts, including Bay fill, can be reduced by project design to levels equal to or below those of the near-term sites, a long-term site could be considered for reclassification as a near-term site.
- p. The selected military sites, if and when no longer needed by the military, could provide a reserve capacity for accommodating demand. Marine terminal development at these sites is expected to have less adverse impacts than at the long-term sites and these impacts are expected to be equal to or less than those of the near-term sites.
- q. The sites included in this Plan appear to be adequate to meet the projected long-range demand for marine terminal development. There is, however, considerable competition for these sites from uses not necessarily needing a waterfront location, and this could lead to the sites being preempted for uses other than marine terminals. If this occurs and actual demand for marine terminals meets projections, the result will be additional pressure to fill the Bay to create new sites for marine terminals and higher costs for their development, or possible loss of Bay Area shipping activity to other West Coast ports. To protect these sites, this Plan designates shoreline areas for port use. These areas, called "port priority use areas," include the marine terminal sites as well as additional land areas for directly-related ancillary activities. Protection of these port priority use areas is a shared responsibility of MTC, BCDC, local governments and the ports. In fact, these areas cannot be fully protected without the cooperation of local governments and the ports.
- r. Port priority use areas include within their premises marine terminals and directly-related ancillary activities such as container freight stations, transit sheds and other temporary storage, ship repairing, support transportation uses including trucking and railroad yards, freight forwarders, government offices related to the port activity, chandlers and marine services. Other uses, especially public access and public and commercial recreational development, are permissible uses provided they do not significantly impair the efficient utilization of the port area.
- s. The regional economic benefit of marine terminal activity is provided for by reserving sufficient sites that could be developed to accommodate the forecast cargo movements. However, the economic advantage (jobs and income), if any, to the region of one site over another site was not considered in selecting among sites because:
- this type of data can be developed only when the details of a proposed terminal are known;

- provided the terminal is in productive use, the location of a marine terminal has little effect on its economic advantage to the Bay region; and
 - it is difficult to objectively weigh economic advantage against adverse environmental impacts on a site-specific basis.
- t. If all near-term and long-term development sites are used, the following impacts could be experienced by 2020 (these impacts are based on planning assumptions, and the associated adverse effects on the physical environment probably can be reduced by careful design):
- nearly 1000 acres of new marine terminal development--this would double the amount of shoreside land and more than double the length of shoreline which is devoted to the marine terminal facilities;
 - over 300 acres of potential Bay fill, of which approximately 150 acres is associated with the long-term development sites;
 - approximately 4.0 million cubic yards of initial channel dredging from the main ship channels to the sites--all of this dredging is associated with the long-term development sites (this does not include the dredging quantities for the maintained ship channels); and
 - displacement of industrial activities on the shoreline.

Some sites are currently occupied by industrial activities; however, only those sites where it is reasonably likely the involved industry can be displaced are included in this Plan.

- u. At today's cost (1988 dollars) of about \$40 million to develop a single container terminal berth, the long-range investment in new marine terminal facilities could exceed \$1 billion.
- v. If some ports in the regional system do not have the funds necessary to complete facilities needed by the region, a regional agency may be required to finance or develop them. Otherwise, there will be tremendous pressure to allow the ports with the strongest finances to provide all of the regional facilities, even though this might result in pressures to fill the Bay unnecessarily.
- w. Considering the substantial impact and cost of new marine terminals, the following actions (all of which provide additional terminal capacity without the need for new terminals) become important:
- deepening the channels to the ports of Oakland, Richmond and Benicia, or increasing terminal backland area where it constrains capacity; and
 - increasing the capacity of marine terminals through operator-induced improvements that do not involve new berths or land area.

These actions can increase the productivity of marine terminals as it was measured for this Plan--marine terminal capacity per berth. While channel deepening would, of course, incur a cost, it appears to be substantially less costly than the investment in new marine terminals. Furthermore, increasing terminal productivity can likely provide capacity with the minimum adverse environmental impacts.

- x. Channel deepening and land-use policies which would permit backland expansion on existing dry land are currently the responsibility of federal and local government, respectively. Other productivity increases are a function of terminal operator practices. Thus, if the productivity of terminals is to be increased and the pressure for new terminals to be reduced, both government and the terminal operators must share the responsibility.
- y. Project-by-project mitigation will probably be necessary to achieve the goal of maintaining or improving environmental quality. Furthermore, attaining this goal will depend in large part on the mitigation policies developed by the concerned agencies.

Deepwater Channels

- z. Some improvements to the deepwater channel system in the Bay Area will be required to economically accommodate the vessels of the future.
 - aa. The San Francisco Bar Channel limits the size of vessels that can enter San Francisco Bay; therefore, deepening the interior channels to handle vessels that cannot transit the Bar Channel is generally unnecessary. Using Corps of Engineers' design criteria, at present, this places a practical limit on the depth of the interior channels of 50 feet or less at mean lower low water. Since no planning is underway to deepen the Bar Channel, it is unlikely it will be deepened before the end of this century.
 - bb. Generally, the most significant economic benefits of channel deepening are derived from the movement of containerized cargoes and crude petroleum in larger vessels.
 - cc. Channels leading to some portions of the Port of San Francisco are naturally deep and do not require any significant dredging, although the areas in which container terminals are being developed will likely require channel and berth deepening to accommodate major containership activity. At present, the Oakland Inner Harbor Channel east of the Alameda Tubes is at its maximum depth of 35 feet because it is constrained by these tunnels.
 - dd. The U.S. Army Corps of Engineers is now the only entity that can undertake a federally authorized channel deepening project, and will undertake such a project only if: (1) the deepening is physically possible; (2) navigation and transportation operational benefits exceed capital and maintenance costs of the deepening; and (3) the deepening is environmentally acceptable. If, however, the channels

Listed below are deepened to the depths indicated, the following dredging amounts and costs (1988 dollars) could be involved:

	New Depth (ft)	Initial Dredging	
		Quantity CuYd (000)	Cost Range \$(000)*
Oakland Channels	42	7,000	\$30-72 mil.
Richmond Channel	38	1,500	5.3-15 mil.
John F. Baldwin Project	45	8,000	28-80 mil.

* 1988 dollars; mil. = million

Actual project depths may vary from those shown in the table. This table is not intended to suggest that such deepening should be undertaken; it is only intended to indicate the possible effects of increased Bay Area port activity. These data were prepared for this Plan by using Corps of Engineers methods.

ee. Environmental impacts associated with deepening a channel are largely dependent on the specifics of the deepening project, and would be addressed by the Corps during its detailed investigations. Several general areas of concern with regard to channel deepening are:

- the impacts of aquatic and land disposal of dredge material;
- slower tidal velocities and other hydrologic effects;
- increased sedimentation; and
- salinity intrusion.

In addition to the impacts of any specific deepening project, the cumulative effect of many deepening projects may be significant, but is as yet unknown.

Ground Transportation

ff. Without improvements, certain key port access routes would become more congested--7th Street in Oakland and I-580 (The John T. Knox Freeway) in Richmond. Army Street and 3rd Street in San Francisco and Maritime Street in Oakland could approach their capacity.

gg. In the near future, port activity will not aggravate freeway congestion since the contribution of port traffic is generally small as compared with regional traffic movements. Therefore, congestion on the freeways is not, by itself, a significant reason to question the advisability of further marine terminal development at the existing Bay Area ports. In the more distant future, however, growth of port-related truck traffic will probably increase congestion on I-80 north of the East Bay approach to the Bay Bridge and on I-580. A large portion of this truck traffic is associated with the movement of containers to and from the three major railyards in the East Bay.

- hh. In the near future, the investment in ground transportation facilities necessary to alleviate traffic problems associated with the port development foreseen by this Plan is estimated to exceed \$15 million, exclusive of the John T. Knox Freeway. Port-related projects must compete with other proposed projects for local or regionwide transportation funds. Such funds are becoming increasingly scarce.
- ii. The sites recommended for marine terminal development represent those sites which can be developed with the minimum investment in new ground transportation facilities when land use policy and the environment are considered.
- jj. Rail service, and transcontinental rail service in particular, is critical to the movement of waterborne cargo through the Bay Area.
- kk. The region's existing major railyards may experience dramatic increases in the movement of waterborne cargo in the future. Energy and technology considerations could shift cargo from trucks to the rails, further increasing the demand for rail services. In addition, the region's highways and streets could be impacted by increased rail usage since all containerized cargo is trucked to or from one of the major rail-yards. The rail and highway impact of a shift to rail may be somewhat mitigated by the development of railcar loading/unloading facilities at container terminals.
- ll. Several types of actions may improve the efficiency of the ground transportation system:
 - the development of railcar loading/unloading facilities at container terminals;
 - the transportation of cargo to and from marine terminals during the night, if increased terminal operating costs are offset by reduced congestion costs; and
 - where port access roads are congested, the relocation of container freight stations to off-terminal sites where congestion is minimal.
 - provision of dedicated and separated roadways for drayage between marine terminals and rail yards.

POLICIES

In addition to satisfying the goals set forth in Chapter I, the policies are intended:

- o to encourage cooperation among the Bay Area ports with regard to their development;
- o to foster cooperation between the ports and their parent cities;
- o to provide increased predictability to the ports with regard to BCDC permits;

- o to steer port development to those sites with the least potential for adverse environmental impacts while still providing for reasonable terminal development;
- o to decrease the pressures for Bay fill resulting from actions by the ports and their parent cities;
- o to provide a regional context for evaluating the environmental impacts of individual port projects; and
- o to provide a clear statement of the actions that will be taken by BCDC and MTC in implementing this Plan.

The Final Technical Report for the MTC/BCDC port planning project, in addition to the Final Technical Report for the 1988 Seaport Plan update, should be used to provide further guidance in applying the policies; where there are differences in the text or maps between either the original Final Technical Report or the Final Report for the 1988 Update and this Plan, the Seaport Plan takes precedence.

Marine Terminal Policies

1. Major marine terminal developments are conversions of non-container marine terminals to container marine terminals, significant major additions to capacity of any marine terminal or port priority use area, or developments involving more than a small amount of Bay fill. The need for a major development shall be demonstrated in one of the following ways:
 - The development of new container terminal berths shall be consistent with the baseline demand estimates in Table 3 using a lead time of six years measured from the filing of a BCDC permit application. Demand estimates for the years not shown on Table 3 shall be computed by straight-line interpolation.
 - The need for development of other types of marine terminal berths shall be demonstrated by the project proponent, using the cargo forecasts, the demand estimates in Table 3, and other evidence as necessary. Lead time for such terminals shall be the time for project construction.

Major marine terminal development shall occur at those sites classified as near-term and active by this Plan (see Maps 1 to 8 at the end of this chapter). Except as provided in Policy 6, the near-term sites and those active, non-container terminals that can be converted to container terminals shall not be compared with one another.

2. Minor marine terminal developments are projects other than major developments. Minor developments, such as rehabilitations of existing facilities, shall not be subjected to a determination of need nor be confined to the active or near-term sites, because of the small increases in capacity and small amounts of Bay fill involved. When the Plan is revised, the added capacity from minor developments shall be counted in estimating the Bay Area demand for new marine terminals.

Table 3
DEMAND FOR NEW MARINE TERMINALS THROUGH 2020
(number of berths) ^{1, 3}

Terminal (Pure and Combo) Forecast Level	Existing ²	Projected Demand for Additional Terminals			
		1990	2000	2010	2020
CONTAINER⁴					
Baseline	24	(2)	12	26	44
High		2	16	30	44
Low		-	12	26	42
BREAK BULK					
Baseline	14	(13)	(11)	(7)	(1)
High		(14)	(12)	(7)	0
Low		(14)	(11)	(7)	(1)
NEO-BULK					
Baseline	15	(9)	(8)	(5)	(2)
High		(9)	(9)	(6)	(3)
Low		-	(10)	(6)	(4)
DRY BULK					
Baseline	5	(2)	(1)	1	3
High		(2)	0	1	3
Low		-	-	1	3
LIQUID BULK⁵					
Baseline	5	1	3	4	6
High		1	3	5	7
Low		1	3	4	6

- 1 Parentheses indicate a surplus of terminal cargo handling capacity stated as an equivalent number of berths. The figures shown are cumulative; for example, using the baseline container forecast, the 26 new berths required by 2010 include the 12 required by 2000. Although the estimates are stated as a number of berths, they assume each berth is accompanied by the appropriate amount of backland and equipment.
- 2 Includes currently active, publicly-utilized terminals plus those terminals being modified or under construction and terminals to be constructed that have a BCDC permit. Proprietary sugar terminal at Crockett, scrap steel terminals at Oakland and Richmond, Leslie Salt facility at Redwood City, and petroleum terminals are not included above. Estimates of the number of existing berths are approximate (e.g., a container vessel generally requires up to 1000 feet of wharf; therefore, 2100 feet of wharf could be viewed as 2 berths).
- 3 Estimates may overstate demand; see text in Chapter IV.
- 4 Includes the demand for new roll-on/roll-off (RO/RO) terminals other than for automobiles. No new LASH facilities are forecast.
- 5 Demand estimates are for terminals to handle all liquid bulk except for crude oil, petroleum products and molasses handled at proprietary terminals.

3. Bay fill authorized for development of any marine terminal must be the minimum necessary to achieve an adequate terminal at the site and must minimize harmful effects to the Bay Area, as provided in Section 66605(c) and (d) of the McAteer-Petris Act.
4. Except as provided in Policy 19, the long-term development sites and sites not designated in this Plan shall be considered for development only after all the near-term sites have been permitted for use and those active, non-container terminals that can be converted to container terminals have been developed for container use.
5. The port priority use areas identified in the Maps section of this Plan shall be protected for marine terminals and directly-related ancillary activities (see definition in Finding r.). Within these areas, the shoreline lands classified as active, near-term, and long-term by this Plan shall be restricted to marine terminal use. Interim uses shall be permissible but must be readily displaceable when the area is needed for marine terminals or directly-related ancillary activities. Local governments and the ports should protect these areas, using land use controls if necessary; otherwise, there may be unnecessary pressures for Bay fill and other adverse environmental impacts. In determining whether the amount of Bay fill is the minimum necessary for a proposed marine terminal development, BCDC shall consider any actions of the responsible local government and port that may have reduced the amount of existing dry land available for such development.

The port priority use areas identified in the Maps section of this Plan which are also designated for water-related industry priority uses in the San Francisco Bay Plan shall be protected for marine terminals and directly-related ancillary activities or for water-related industry uses as defined in the Bay Plan. There shall be no priority given between port and water-related industry uses within areas designated for both uses.

6. To avoid unnecessary Bay fill and other adverse environmental effects, and to encourage prompt construction and full use of authorized facilities:
 - The Bay Area ports are encouraged to cooperate through GGPA or by other agreements among themselves to avoid facilities being proposed that duplicate needed capacity. If, however, two or more applications for marine terminals of the same type (i.e., container terminal compared to container terminal, auto terminal compared to auto terminal, etc.) are being considered at the same time, and the need for all of them cannot be demonstrated, only those projects with the least adverse environmental effect on the Bay and that are needed shall be authorized.
 - All permits for marine terminals shall contain a schedule that establishes (a) a date prior to the commencement of construction by which the project sponsor must demonstrate the ability to finance the project; and (b) a reasonable timetable for project construction, including specific milestones. Failure to comply with such schedules shall be grounds for termination of the authorization; nevertheless, the schedules may be amended for

good cause. If the authorization is terminated, the capacity assigned to the terminal will be subtracted from the region's capacity; however, if Bay fill has been placed, the capacity shall not be subtracted until BCDC takes legal action to see that any fill is removed.

- Whenever existing terminals remain unused or little used for a significant period of time following adoption of this Plan and whenever BCDC, in consultation with MTC, has determined that this indicates a reevaluation of the cargo forecasts and region's capacity is necessary, no major new terminal development of the same type shall be considered until the Seaport Plan has been promptly reviewed and, if necessary, revised in a timely manner to reflect the results of the reevaluation.
- 7. When and if the federal government decides that part or all of a military installation identified in this Plan is not needed for active military use, the federal government shall make such lands available for marine terminal development and directly-related ancillary activities as soon as possible, subject to such reasonable conditions as the federal government deems necessary to protect national security. Within these lands, the military sites identified in this Plan shall be restricted to marine terminal use, if and when the site is not needed for active military use. Once the federal government makes a military site available, the site shall be included among the near-term sites unless the conditions under which it has been made available make it unreasonable to do so.
- 8. Marine terminal development at sites that are adjacent or near to environmentally sensitive areas shall be designed to protect those areas from any significant adverse effects of marine terminal construction and operation.
- 9. To use existing terminals fully and to lessen the cost and adverse environmental effects associated with development to meet the growth of waterborne cargoes:
 - channels that otherwise would limit the productivity of marine terminals should be deepened when economically feasible and environmentally acceptable;
 - local governments should adopt and implement land use policies that facilitate terminal development on existing dry land;
 - ports and terminal operators should acquire property that permits necessary terminal development on existing dry land; and
 - terminal operators should, where economically feasible, increase terminal productivity.
 - ports and terminal operators should rehabilitate or modernize existing container terminals and convert those active, non-container terminals that can be converted to container use before developing new container terminals.

Deepwater Channels Policies

10. Deepening or widening of San Francisco Bay Channels, including the San Francisco Bar Channel, should proceed only if economically justified or if needed for national defense, and if such deepening or widening conforms to State and national environmental law and policies. The interior channels of San Francisco Bay should only be deepened as consistent with the depth of the San Francisco Bar Channel.
11. Dredging projects shall be performed consistent with BCDC's Bay Plan policies on dredging and dredge material disposal.

Ground Transportation Policies

12. Local, state and federal governments should not take actions, such as land use decisions, public works projects or rail abandonments, that would impede access to the marine terminal sites identified in the Seaport Plan. Funding for a transportation project shall be approved or endorsed only if the proposed development the project is intended to serve is consistent with the policies of the Seaport Plan.
13. The Bay Area ports, local governments and marine terminal operators should take steps to make the best possible use of existing ground transportation facilities, and shall employ measures to mitigate any significant adverse environmental effects of increased traffic from existing and proposed marine terminal facilities. If mitigation of traffic problems at marine terminal facilities is being considered as part of the environmental review process, the local government or port whichever has the principal responsibility for carrying out or approving the project shall make a realistic estimate of the available resources to fund such mitigation and the likelihood that such measures can be implemented.
14. Local and regional transportation planning and funding priorities shall facilitate the efficient movement of goods by rail and truck to and from the Bay Area ports.
15. Ground transportation improvements needed to serve a proposed marine terminal development shall be included in transportation funding priorities only if such improvements and the development they serve are consistent with the policies of the Seaport Plan. Ground transportation improvements needed to serve an existing marine terminal shall be included in transportation funding priorities only if such improvements are consistent with the Seaport Plan policies.
16. If funding agencies require a choice among or ranking of marine terminal-related ground transportation projects, highest priority shall be given to projects:
 - that best use existing port and transportation facilities; and
 - that best enhance the movement of Bay Area waterborne cargo.

Plan Revision Policies

17. The Seaport Plan forecasts and terminal capacity shall be reviewed and the Plan should be possibly revised when one or more of the following occurs:

- five years has elapsed since the last major review;
- three consecutive years of waterborne cargo statistics indicate the forecasts do not represent current trends, or other evidence points to emerging trends or unforeseen major world events which were not considered;
- the sites in the near-term development category have all been permitted for use and all those active, non-container terminals that can be converted to container terminals have been converted (in practice, the review would occur in advance of using or converting all of these sites);
- there is a proposal to delete a near-term or active site from this Plan; or
- a marine terminal at a site included in this Plan has been unused or little used for a significant period of time.

The Seaport Plan forecasts and terminal capacity should be reviewed annually if information is available to determine whether emerging trends or unforeseen major world events indicate that the cargo forecasts and terminal capacity need revisions. When necessary, the Seaport Planning Advisory Committee should be convened to advise the commissions whether it is advisable to undertake a revision of the Seaport Plan's forecasts or terminal capacity estimates. BCDC, MTC and Bay Area ports should cooperate to provide a yearly, detailed forecast and terminal capacity update that is useful and available to the ports and the two commissions.

18. A revision to the Seaport Plan undertaken pursuant to Policy 17 shall include, but not be limited to:

- a review of the forecasts;
- an update of the capacity estimates to reflect major and minor marine terminal developments authorized since the last revision to this Plan;
- a review of all factors used to derive the estimates of demand for new marine terminals in Table 3;
- an update to the estimates of demand for new marine terminals in Table 3 to reflect any changes to the forecasts or capacity estimates;
- a review of the land requirements of marine terminals for port-related and ancillary activities to determine more specifically how much area is needed for port support facilities and how near these areas should be to the marine terminal they support;
- an assessment of the regionwide environmental impacts of the revision; and

- an assessment of the extent to which the actions of Policy 9 have been pursued.

If this Plan is to be revised because all the near-term sites have been permitted for use and all those active, non-container terminals that can be converted to container terminals have been converted, the revision shall also include an assessment of alternatives to the use of the long-term sites including a review of the availability of other sites which would involve less adverse environmental effects—including less Bay filling.

19. A revision to the appropriate section of the Seaport Plan shall be considered if:
 - there is reason to believe marine terminal development at a long-term site or site not designated by this Plan can be accomplished with environmental impacts equal to or less than those of the near-term sites or those active, non-container terminals that can be converted to container use; or
 - deepening the San Francisco Bar Channel is found to be economically feasible and environmentally acceptable by the U.S. Army Corps of Engineers the United States Environmental Protection Agency, the California Coastal Commission, and the California Regional Water Quality Control Board.
20. The designations of marine terminal sites in this plan are subject to review and/or revision by the Commissions in the future based on information, such as economic, physical, environmental and other factors, about the suitability of the sites for those designations.
21. Revisions may be necessary for other reasons; such revisions shall not require a reevaluation of this Plan as provided in Policy 18 unless MTC or BCDC first determines that a reevaluation is required.

RECOMMENDATIONS

In addition to the policies, this plan provides the following recommendations to MTC, BCDC, and other concerned agencies:

- o The ports should coordinate their development of marine terminals to avoid duplication which could result in some terminals being unused or little used. Such coordination should take place by strengthening their existing associations or by other agreements among the ports.
- o MTC and BCDC should develop procedures for coordinating the review of port-related projects. These procedures should be consistent with the findings and policies of the Seaport Plan, and should be reviewed by the Seaport Planning Advisory Committee prior to implementation by MTC and BCDC.
- o Local governments which have not given land use control to port authorities should actively protect areas designated for port priority uses and marine terminal sites by developing special zoning for port facilities which restrict these areas to port-related uses and limited interim uses because: 1) BCDC does not have full control over uses more

than 100-feet inland from the Bay, 2) there is no regional port management in the Bay Area to assist in reserving port priority use areas and marine terminal sites, 3) there is pressure to use these areas for non-port purposes, and 4) the loss of port priority use areas and marine terminal sites could result either in fill in the Bay at less suitable locations to meet the demand for port facilities in the future or loss of trade that otherwise might contribute to the regional economy.

- o The Seaport Planning Advisory Committee should be made a permanent advisory committee to MTC and BCDC, but should meet only to review forecast and capacity changes as necessary and at the call of MTC or BCDC.
- o Mitigation policy in the region should be coordinated among the responsible federal, state and local agencies.
- o A statement indicating the constraint the San Francisco Bar Channel places on the interior channels of the Bay should replace the channel depths currently shown in the Bay Plan. The statement should also indicate that any deepening must undergo an extensive investigation. At present, the Corps of Engineers has this responsibility.
- o The U.S. Army Corps of Engineers should be authorized to undertake studies as necessary to determine the long-term environmental effects of further channel deepening and spoils disposal in the San Francisco Bay Area. Such studies should consider the channels as a system.
- o A central Bay supertanker terminal should not be developed unless the San Francisco Bar Channel is deepened to accommodate supertankers and unless environmental concerns can be resolved. A detailed study should be undertaken to determine the desirability of a supertanker terminal.
- o Bay Area waterborne cargo statistics should be compiled annually and uniformly by a single agency. The Corps of Engineers should be authorized to develop a reporting procedure that distinguishes containerized cargo from other cargoes. Whenever the forecasts are revised, both the container forecast and the container terminal capacity estimates should be prepared in units that best reflect demand for container terminal facilities. (It was discovered that short ton measures may not accurately represent the demand for container terminal capacity; see pages 39 to 42 of the Final Technical Report for an explanation.)
- o For purposes of revisions to the Seaport Plan, such revisions should, as appropriate, use a technical approach similar to the approach used in the initial Seaport Plan development.

MAPS

Maps 1 to 8 display the location of the near-term development sites, the long-term development sites, the active terminal sites, the military sites, and the port priority use areas. Table 4 provides a listing of the site names and a key to their location on the maps. The result of these designations is to create port priority use areas that are composed of:

- o locations most suitable for development or expansion--near-term development sites and active terminals;

- o long-term development sites;
- o directly-related ancillary activities; and
- o military lands

In addition to the sites shown on the maps, two sites were evaluated but eliminated from consideration for marine terminal development at this time. The two sites are the North Harbor site at the Port of Oakland (the water area north of the East Bay approach to the Bay Bridge), and the Bair Island site in Redwood City (the Port of Redwood City refers to this site as its deepwater slough property; it is on the west side of Redwood Creek). Since these sites are within port jurisdictions, the following is noted:

Oakland North Harbor Area. The Oakland North Harbor has not been included on the Seaport Plan maps as a port priority use area because need for it has not been substantiated and it has been found to be less desirable for port development than other sites based on environmental, land use, and access considerations. In addition, other uses having public benefits, such as conservation and recreation, have been proposed for this site. Future studies will be necessary to determine the use of this area.

Deepwater Slough. The Port of Redwood City's Deepwater Slough Property (Bair Island site) has not been included on the Seaport Plan maps as a port priority use area because need for it has not been substantiated and it has been found to be less desirable for port development than other sites based on environmental, land use, and access considerations. In addition, other uses having public benefits, such as conservation and recreation, have been proposed for this site. Future studies will be necessary to determine the use of this area.

The port priority use areas and marine terminal designations where some change was made by the last major review of this Plan and to the old boundaries in the San Francisco Bay Plan are described below:

Richmond (See Map 1, Bay Plan Map 3)

1. Richmond Terminal #1 at Point Richmond--this formerly active terminal was deleted from the Seaport Plan (see Map 1, Bay Plan Map 3). The port priority use area extended from the Bay north to Brickyard Cove Road and from the westerly boundary of the Brickyard Cove Marina west to South Garrard Boulevard.
2. Richmond Shipyard #3 at Point Potrero--this now includes a two-berth, active and a two-berth near-term marine terminal (see Map 1, Bay Plan Map 3). The port priority use area was modified at the request of the Port of Richmond to delete a small portion of land at the western end of the former shipyard site.
3. Santa Fe Channel (Northwest)--this site was formerly designated as a two-berth, near-term marine terminal in the Seaport Plan. Because one of the berths is presently an active terminal, the site was redesignated as a one-berth active, non-container marine terminal, which can be converted to container use, and a one-berth, near-term marine terminal suitable for container use.
4. Area south of Richmond Terminal #3 at the Ford Peninsula--a portion of this site has been deleted as a near-term marine terminal berth and from port priority use, leaving a one-berth, near-term marine terminal site suitable for container use.

5. Richmond Terminal #2 at the Ford Peninsula--this active marine terminal was designated as a one-berth, near-term marine terminal. It has been redesignated as a one-berth, non-container, active marine terminal site that can be converted to container use.
6. Area northwest of Richmond Terminal #2 at the Ford Peninsula--this area within the existing port priority use area has been designated as a one-berth, near-term marine terminal suitable for container use.
7. Area immediately east of Richmond Terminals #2 and 3--this area has largely been deleted from port priority use designation, leaving a potential 87-acre, four-berth marine terminal suitable for container use along the Harbor Channel (see Map 1, Bay Plan Map 3).
8. Santa Fe Channel (West) -- a one-berth, near-term, non-container marine terminal site has been added to this existing port priority use area at the Unitank facility (See Map 1, Bay Plan Map 3).
9. Area west of Canal Boulevard -- this 16.5 acre area, which is currently being used for port purposes, has been designated as part of the port priority use area.

Alameda

Former Todd Shipyard site in Alameda--this privately-owned property was designated in the original Seaport Plan for port priority use and incorrectly as a potential marine terminal under military control. In 1984, BCDC deleted the military/marine terminal designation from the site, but retained the port priority use designation (see Map 2, Bay Plan Map 4).

Oakland

Schnitzer Steel site--this active, dry bulk marine terminal was designated as a two-berth, near-term marine terminal in the original Seaport Plan. The Seaport Plan now designates the site as an active, two-berth, non-container marine terminal that could be converted to container use (see Map 2, Bay Plan Map 4).

Selby

Selby, Contra Costa County--this entire area is designated for both water-related industry and port priority use (see Map 5, Bay Plan Map 15).

The Seaport Plan formerly designated only a portion of the site as available for port use. The Seaport Plan now shows the entire site as available for both water-related industry and port uses.

Benicia

Benicia Waterfront and Port of Benicia (see Maps 6 and 7, Bay Plan Map 16). Parts of this area are designated for both port and water-related industry priority use. The water-related industry priority use areas are unchanged by this Plan. West of the Benicia Bridge,

the original Seaport Plan designated the area with active, near-term, and long-term container marine terminals. The Plan now designates the area as an active, non-container marine terminal that could be converted to three container berths, and one long-term marine terminal suitable for two container berths.

Redwood City

1. Wharf 4 (see Map 3, Bay Plan Map 8). This area is no longer a near-term site, but is now designated as an active one-berth, noncontainer marine terminal site.
2. Leslie Salt (see Map 3, Bay Plan Map 8). The Leslie Salt Terminal, an active salt loading and shipping facility, has been redesignated from a near-term, one-berth marine terminal, to an active one-berth, non-container marine terminal site.
3. Ideal Cement site in Redwood City (Map 3, Bay Plan Map 8). This site was formerly used for handling cement, but is no longer using ships to transport products. It retains its designation as a one-berth, near-term, non-container marine terminal.

San Francisco (see Map 4, Bay Plan Map 10)

1. Pier 80 (see Map 4, Bay Plan Map 10). This area contains two active marine terminal designations totalling four berths suitable for container use. The Seaport Plan has added a one-berth, near-term marine terminal designation at the southwest corner of the pier, which would be suitable for container use if sufficient backland to the north of Pier 80 is available.
2. Area north of Pier 80—this area is currently inactive and was formerly designated as a one-berth, near term marine terminal suitable for container use (includes the former Western Pacific Ferry Slip). The Seaport Plan enlarged the designated site to include the waterfront adjacent to the Pacific Gas and Electric Company's plant and designates the area as a two-berth, near-term marine terminal that would be suitable for container use if sufficient backland to the west is available.
3. Pier 70—this active, neo-bulk terminal was originally designated as one-berth, active marine terminal and a one-berth, near-term marine terminal in the Seaport Plan. The Plan now designates it as a two-berth, active marine terminal that can be converted to container use (see Map 4, Bay Plan Map 10).
4. Piers 52-64—this inactive terminal site was formerly designated in the Seaport Plan as a two-berth, near-term marine terminal suitable for container use. This designation should be retained. However, both it and the associated port priority use designation should be deleted without having to undertake a full update of the Seaport Plan when both of the following occur: (1) all of the former Western Pacific property at Warm Water Cove is transferred from the Santa Fe Pacific Realty Corporation to the Port; and (2) the Port and the City develop a strategy, to be reviewed and approved by or on behalf of the BCDC, to ensure that port priority use areas are reserved for port purposes consistent with the Seaport Plan, and the non-port-owned areas needed for marine terminal uses at the Piers 70 to 80 area are available to the Port.

There are various ways such a strategy could achieve these objectives, such as: (1) commitment to acquire key parcels; (2) adoption and implementation of a Port Commission policy to limit development within port boundaries to that consistent with the Seaport Plan; (3) adoption and implementation of the Port Commission and City Planning Commission procedures to coordinate decisions to ensure that development in areas outside port boundaries but within the Seaport Plan's port priority use areas is consistent with the Seaport Plan; and/or (4) changes in current City land use controls to ensure that future development and uses within port priority use areas are fully consistent with the port policies of the San Francisco Bay Plan, San Francisco Waterfront Special Area Plan, and the Seaport Plan. The port priority use area between Third Street and Illinois Street from Mission Rock Street to Mariposa Street should be deleted, provided, however, that the deletion should not become effective unless and until BCDC approves the strategy.

The following areas should remain designated for port priority use under all circumstances: (1) an approximately 6.5, but not less than 6, acre area adjacent to Piers 48 and 50 to support existing and future marine terminal and ancillary port uses at those piers; (2) the immediate shoreline at site 44A bayward of China Basin Street currently used or developable for port-related purposes, such as ship repair and commercial fishing, or public access; and (3) an area along China Basin Street to accommodate vehicular and rail traffic necessary for continued port-related activities at Piers 48 and 50 along the northern waterfront (see Map 4, Bay Plan Map 10).

Vallejo

Vallejo Waterfront--this site is presently designated in the Bay Plan for port and water-related industrial priority uses. The Seaport Plan now also designates the area as a five-berth, near-term marine terminal that is suitable for container use. Water-related industrial uses may still be developed at the site (see Map 5, Bay Plan Map 15).

Pacheco Creek

Pacheco Creek site in Contra Costa County--this site is presently designated in the Bay Plan for port and water-related industrial priority uses. The Seaport Plan now shows this dual designation and that it is available for port uses. The site has not been designated for marine terminal development at this time (see Map 7, Bay Plan Map 17).

Collinsville

Collinsville site in Solano County--this site is presently designated in the Bay Plan for port and water-related industrial priority uses. The Seaport Plan now shows this dual designation and that it is available for port uses. The site has not been designated for marine terminal development at this time (see Map 8, Bay Plan Map 19).

Table 4

SITE NAMES AND KEY TO THEIR LOCATION

This table lists the sites by name and provides a key to their location on the maps—using the site numbers employed during the technical studies.

RICHMOND

Near-Term Development

29A/D Richmond Shipyard #3
 30A(N) Unitank Facility
 31A(N) Santa Fe Channel-Northwest
 33A(S) Richmond Terminal #3-South
 33A(NW) Northwest of Richmond Terminal #2

Active

25B Richmond Terminal #4
 29A/D Richmond Shipyard #3
 29B Richmond Terminals #5, 6 & 7
 29C ARCO Tanker Dock
 30A Unocal Tanker Dock
 31A(N) Santa Fe Channel - Northwest
 32B Texaco Wharf
 32C Parr Bulk Commodity Wharf
 32D Time Oil Wharf
 33A Richmond Terminal #3
 33A(N) Richmond Terminal #2

OAKLAND/ALAMEDA

Near-Term Development

50C/51A Carnation/Kaiser Yard
 52A(E) Western Pacific Mole-East
 53C Ship Repair Area
 55D(W) Encinal Terminals, Berth 5

Active

49C Berth 10
 49D Sea Land Terminal, Berths 20 & 21
 49E Outer Harbor Public Container Terminal, Berths 22 & 23
 50A Maersk Terminal, Berth 24
 50B Oakland Transbay Container Terminal Berth 25 & 26
 50D Matson Terminal, Berths 32, 33 & 34
 50E, 50F Seventh St. Public Container Terminal, Berths 35-38, 40
 52B, 52C American President Lines Terminal, Berths 60, 61, 62 & 63
 52D Schnitzer Steel
 52E/F Howard Container Terminal, Berths 67, 68, & 69
 53D Ninth Avenue Terminal, Berths 82, 83 & 84
 55D(E) Encinal Terminals, Berths 1 to 4
 55D(W) Encinal Terminals, Berth 5

Long-Term Development

64A Bay Bridge Site

Military

49A, 49B Oakland Army Terminal
 51B, 51C Naval Supply Center
 57B Naval Pacific Overseas Depot
 58A, 58B, 58C, 58D, 59A & 60A Alameda Naval Air Station

REDWOOD CITY

Near-Term Development

62F Ideal Cement

Active

62A Leslie Salt Terminal
 62C Wharf 5
 62D Wharf 3
 62D(W) Wharf 4
 62E Wharves 1 and 2

Table 4 (Continued)

SAN FRANCISCO

Near-Term Development

44A Piers 52 to 64
 46A(W) Pier 80
 46D WP Ferry Slip
 47B(N) Pier 94 North

Active

43A Pier 48
 43B Mission Rock Terminal, Pier 50
 45A Pier 70
 46A, 46B & 46C Army Street Terminal
 46A(W) Islais Creek Channel
 47A Piers 90 & 92
 47B Pier 94
 47C Pier 95

Military

48A to 48E Hunters Point

CARQUINEZ STRAITS

Near-Term Development and Water-Related Industry

12D/E Selby

Military

22A, 22B, 23A & 24A Mare Island Naval Shipyard

BENICIA

Active

14A Port of Benicia

Long-Term Development

67 Benicia Waterfront

SUISUN BAY

Military

7A, 7B & 7C Concord Naval Weapons Station (Port Chicago)

VALLEJO

Near-Term Development and Water-Related Industry

21A Vallejo Waterfront

PACHECO CREEK

Port and Water-Related Industry

Pacheco Creek Site

COLLINSVILLE

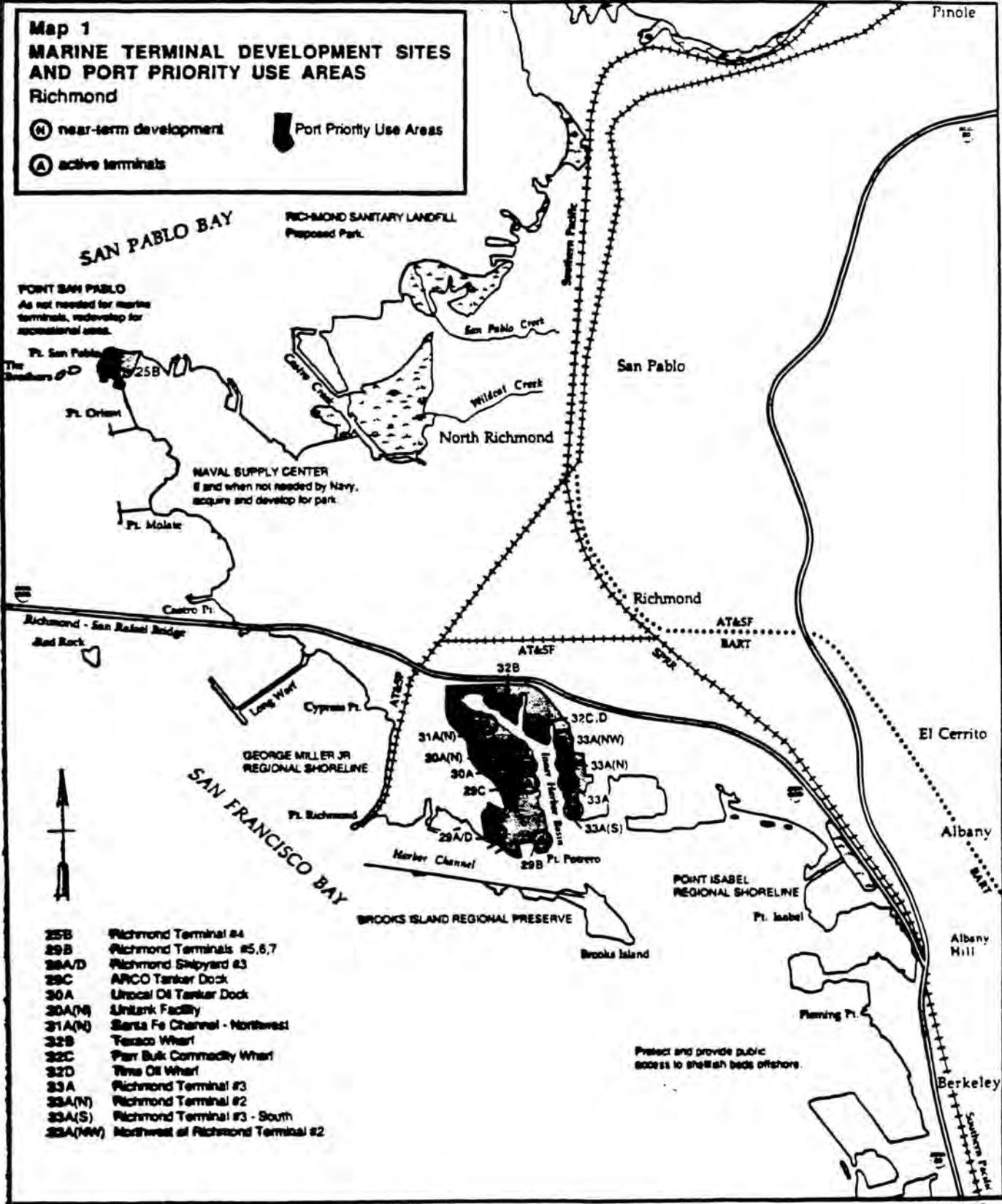
Port and Water-Related Industry

Collinsville Site

**Map 1
MARINE TERMINAL DEVELOPMENT SITES
AND PORT PRIORITY USE AREAS
Richmond**

(N) near-term development
(A) active terminals

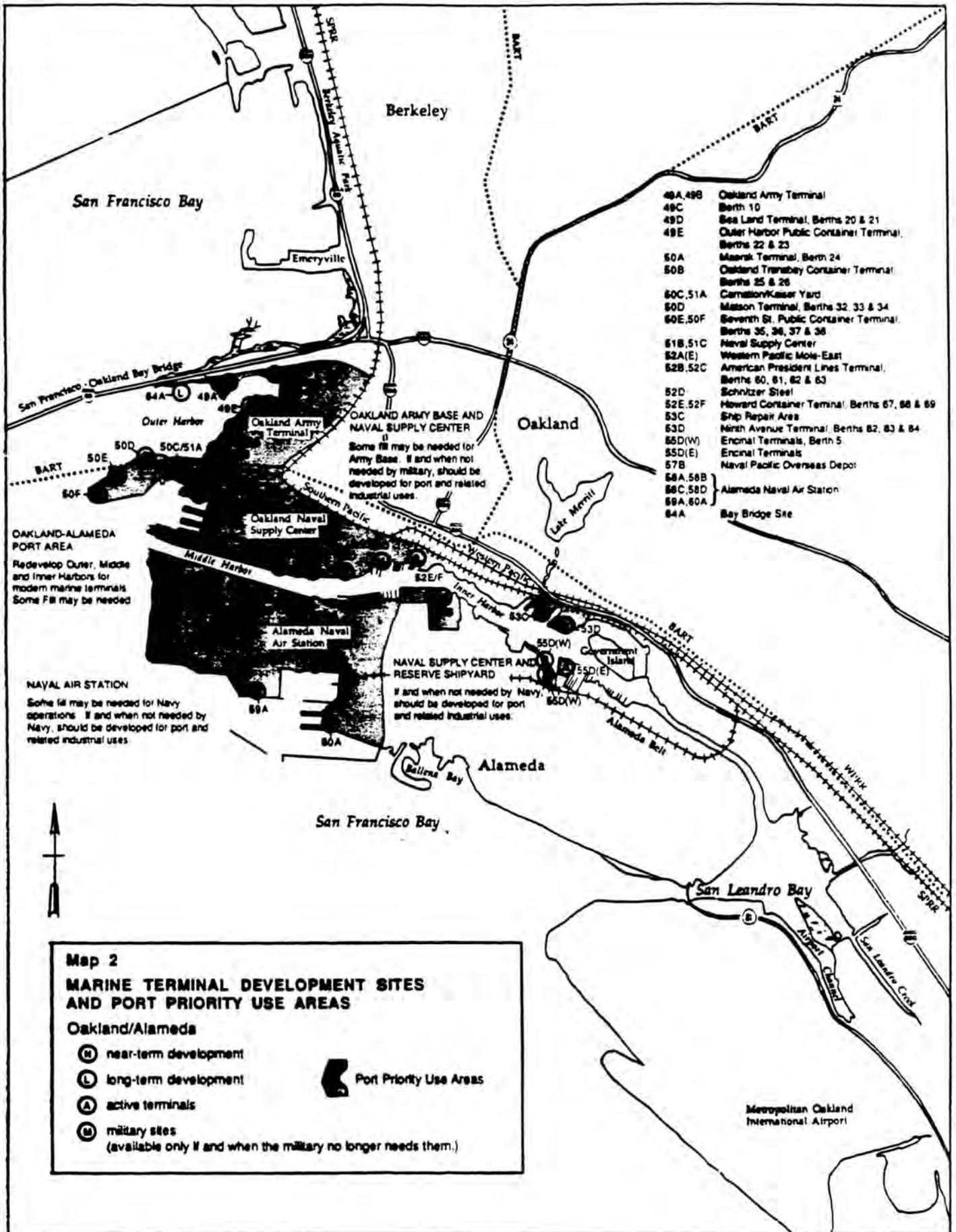
 Port Priority Use Areas



- 25B Richmond Terminal #4
- 29B Richmond Terminals #5,6,7
- 29A/D Richmond Shipyard #3
- 29C ARCO Tanker Dock
- 30A Unocal Oil Tanker Dock
- 30A(N) Unilink Facility
- 31A(N) Santa Fe Channel - Northwest
- 32B Texaco Wharf
- 32C Penn Bulk Commodity Wharf
- 32D Tera Oil Wharf
- 33A Richmond Terminal #3
- 33A(N) Richmond Terminal #2
- 33A(S) Richmond Terminal #3 - South
- 33A(NW) Northwest of Richmond Terminal #2

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Miles

MTC 12/88



- 49A, 49B Oakland Army Terminal
- 49C Berth 10
- 49D Sea Land Terminal, Berths 20 & 21
- 49E Outer Harbor Public Container Terminal, Berths 22 & 23
- 50A Maersk Terminal, Berth 24
- 50B Oakland Transfer Container Terminal, Berths 25 & 26
- 60C, 51A Carrison/Kaiser Yard
- 60D Matson Terminal, Berths 32, 33 & 34
- 60E, 50F Severth St. Public Container Terminal, Berths 35, 36, 37 & 38
- 61B, 51C Naval Supply Center
- 62A(E) Western Pacific Mole-East
- 62B, 52C American President Lines Terminal, Berths 60, 61, 62 & 63
- 62D Schmitzer Steel
- 62E, 52F Howard Container Terminal, Berths 67, 68 & 69
- 63C Ship Repair Area
- 63D Ninth Avenue Terminal, Berths 82, 83 & 84
- 65D(W) Encinal Terminals, Berth 5
- 65D(E) Encinal Terminals
- 67B Naval Pacific Overseas Depot
- 68A, 58B Alameda Naval Air Station
- 68C, 58D Alameda Naval Air Station
- 69A, 60A Bay Bridge Site
- 64A Bay Bridge Site

OAKLAND-ALAMEDA PORT AREA
 Redevelop Outer, Middle and Inner Harbors for modern marine terminals. Some fill may be needed.

NAVAL AIR STATION
 Some fill may be needed for Navy operations. If and when not needed by Navy, should be developed for port and related industrial uses.

OAKLAND ARMY BASE AND NAVAL SUPPLY CENTER
 Some fill may be needed for Army Base. If and when not needed by military, should be developed for port and related industrial uses.

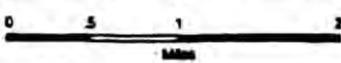
NAVAL SUPPLY CENTER AND RESERVE SHIPYARD
 If and when not needed by Navy, should be developed for port and related industrial uses.

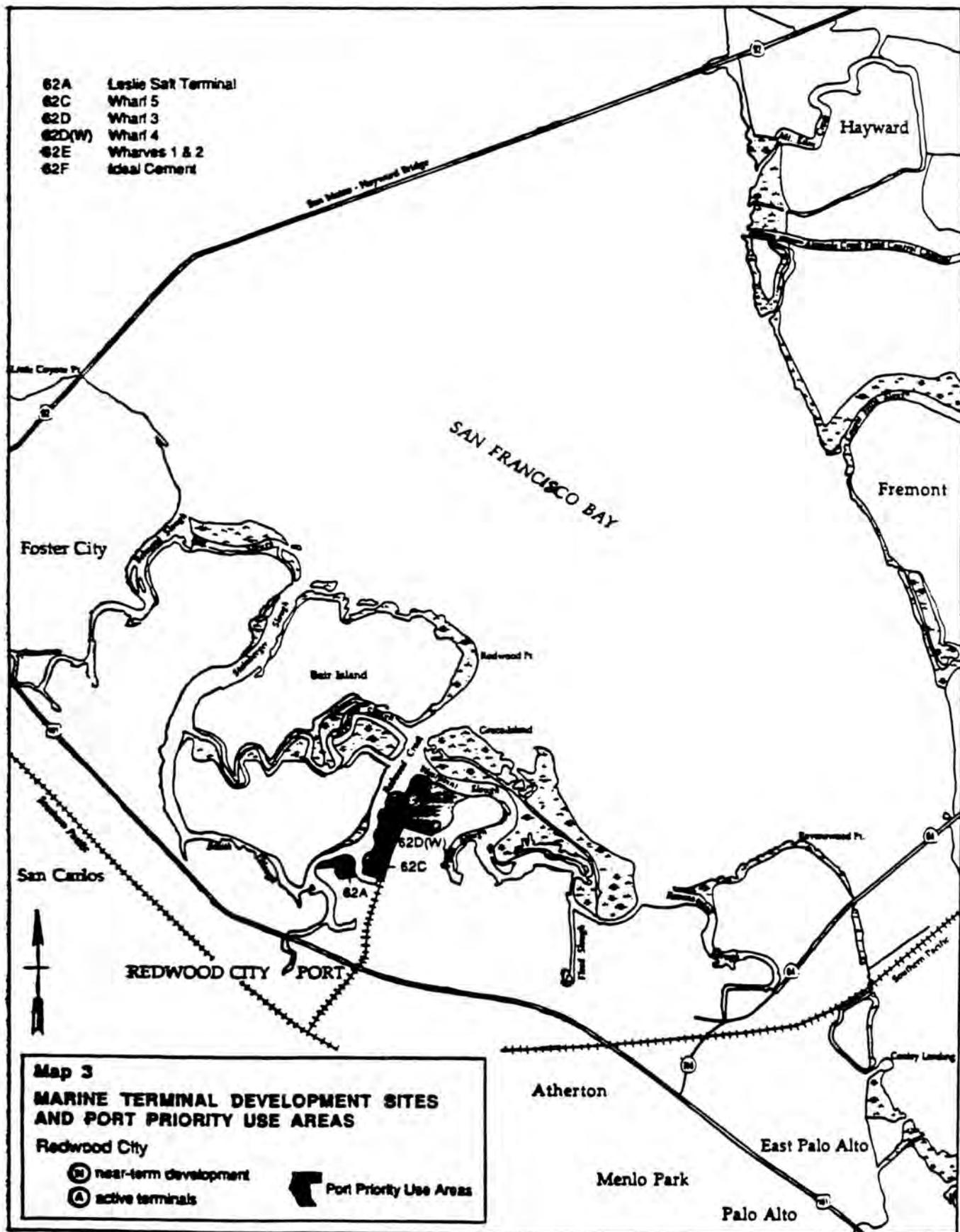
Map 2
MARINE TERMINAL DEVELOPMENT SITES AND PORT PRIORITY USE AREAS

Oakland/Alameda

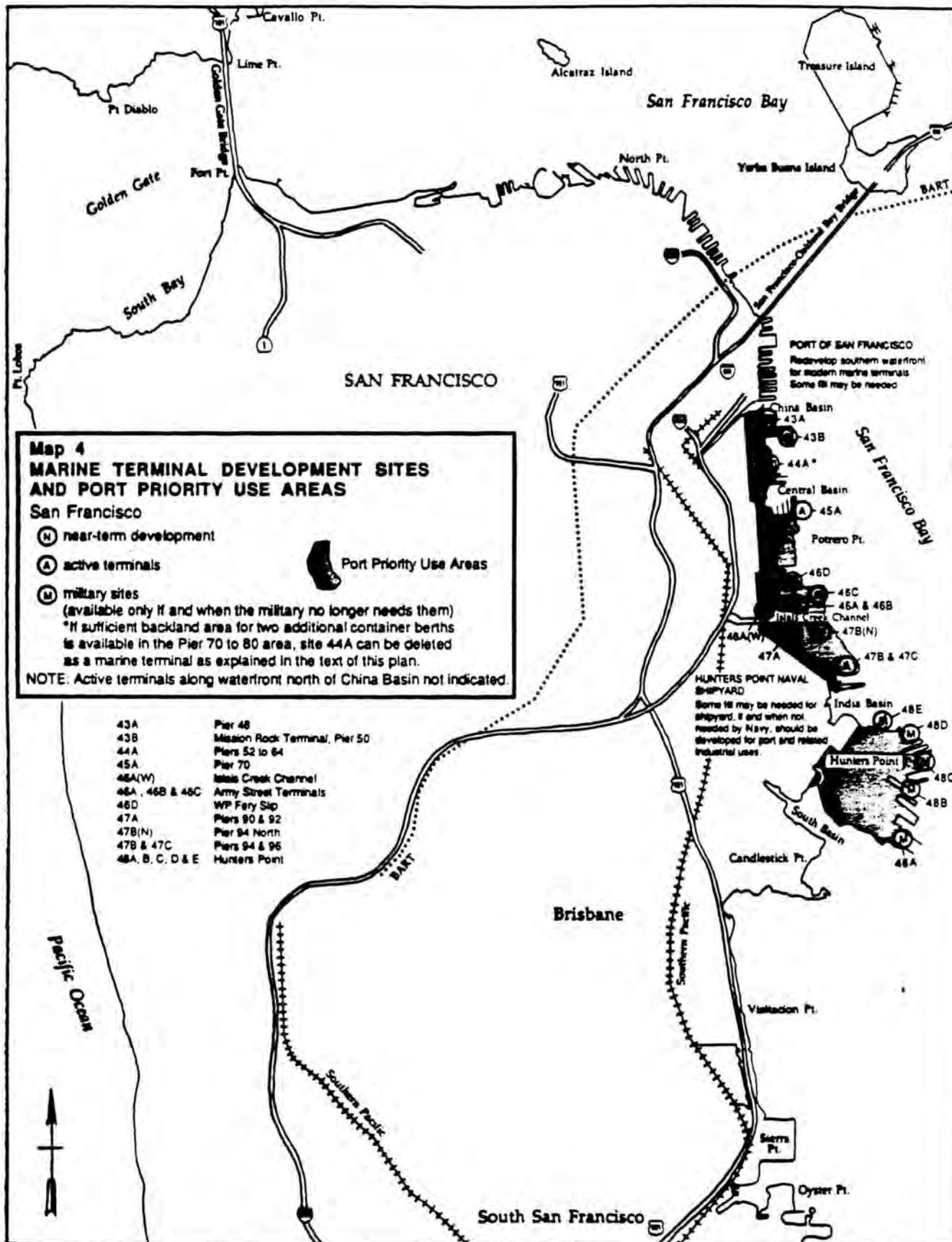
- (N) near-term development
- (L) long-term development
- (A) active terminals
- (M) military sites (available only if and when the military no longer needs them.)

Port Priority Use Areas

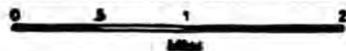
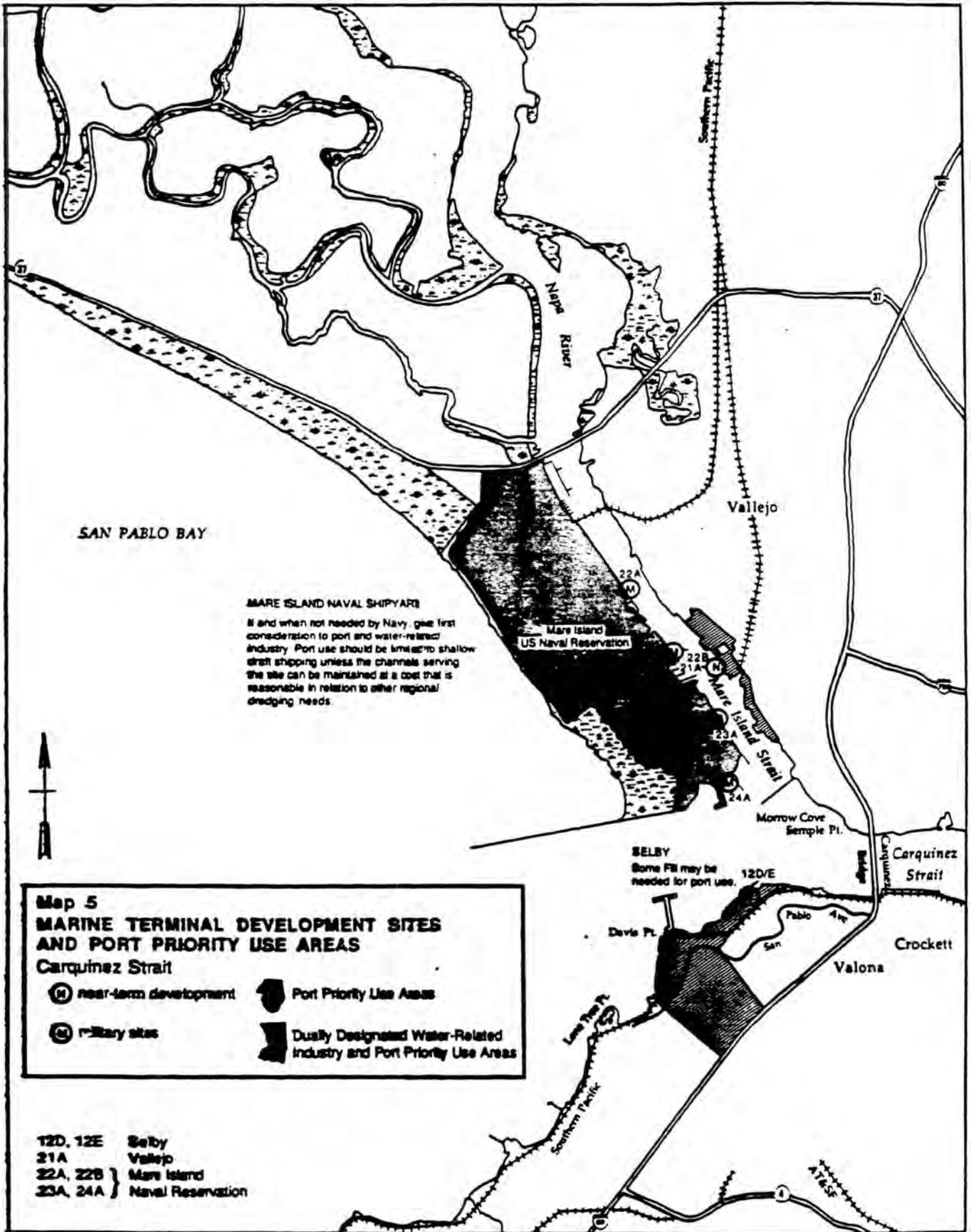




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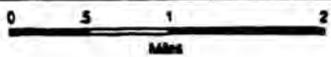
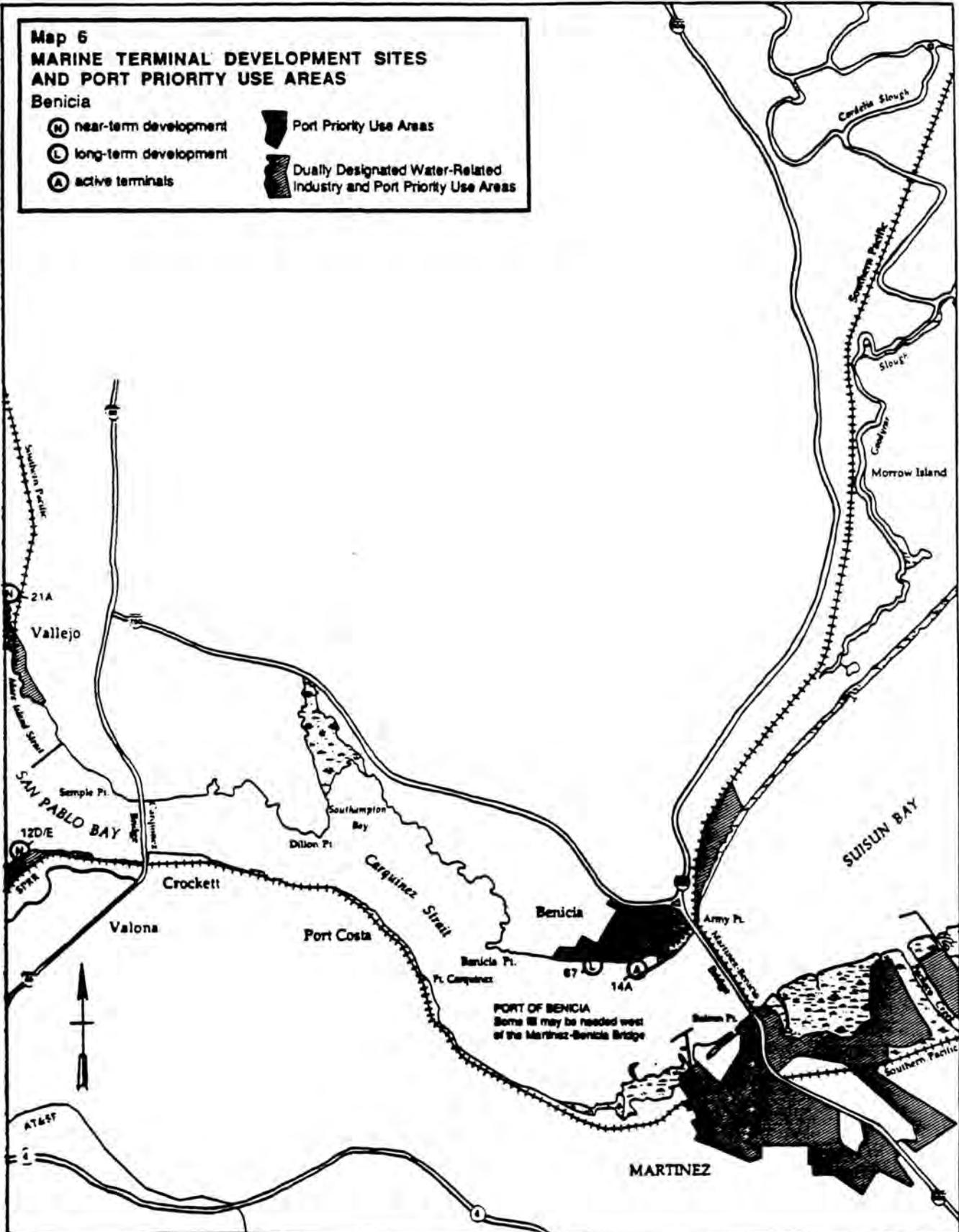
**Map 6
MARINE TERMINAL DEVELOPMENT SITES
AND PORT PRIORITY USE AREAS**

Benicia

- (N) near-term development
- (L) long-term development
- (A) active terminals

 Port Priority Use Areas

 Dually Designated Water-Related Industry and Port Priority Use Areas



MTC 10/88

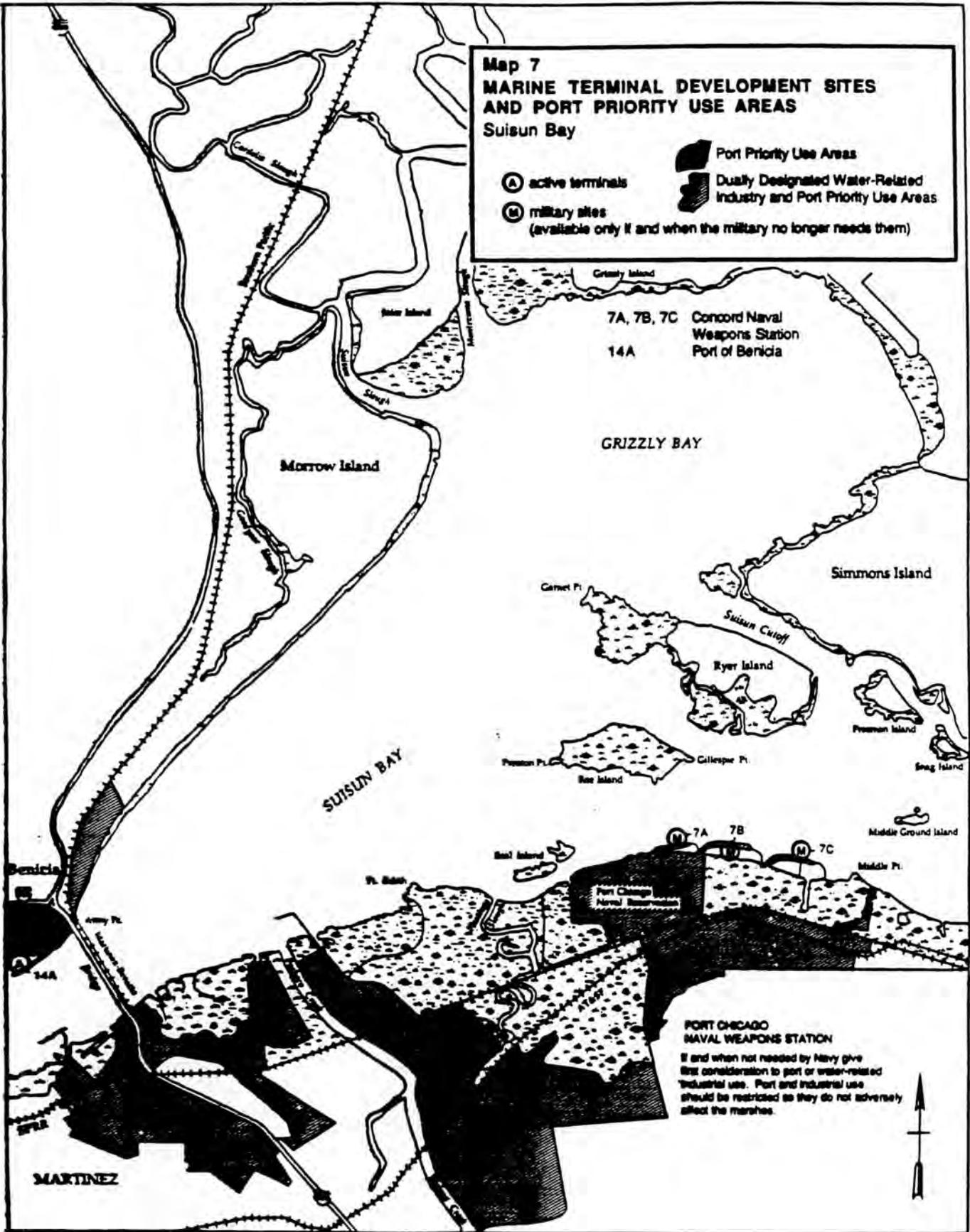
**Map 7
MARINE TERMINAL DEVELOPMENT SITES
AND PORT PRIORITY USE AREAS**

Suisun Bay

- (A) active terminals
- (M) military sites
(available only if and when the military no longer needs them)

- Port Priority Use Areas
- Dually Designated Water-Related Industry and Port Priority Use Areas

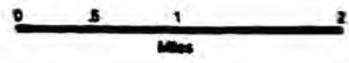
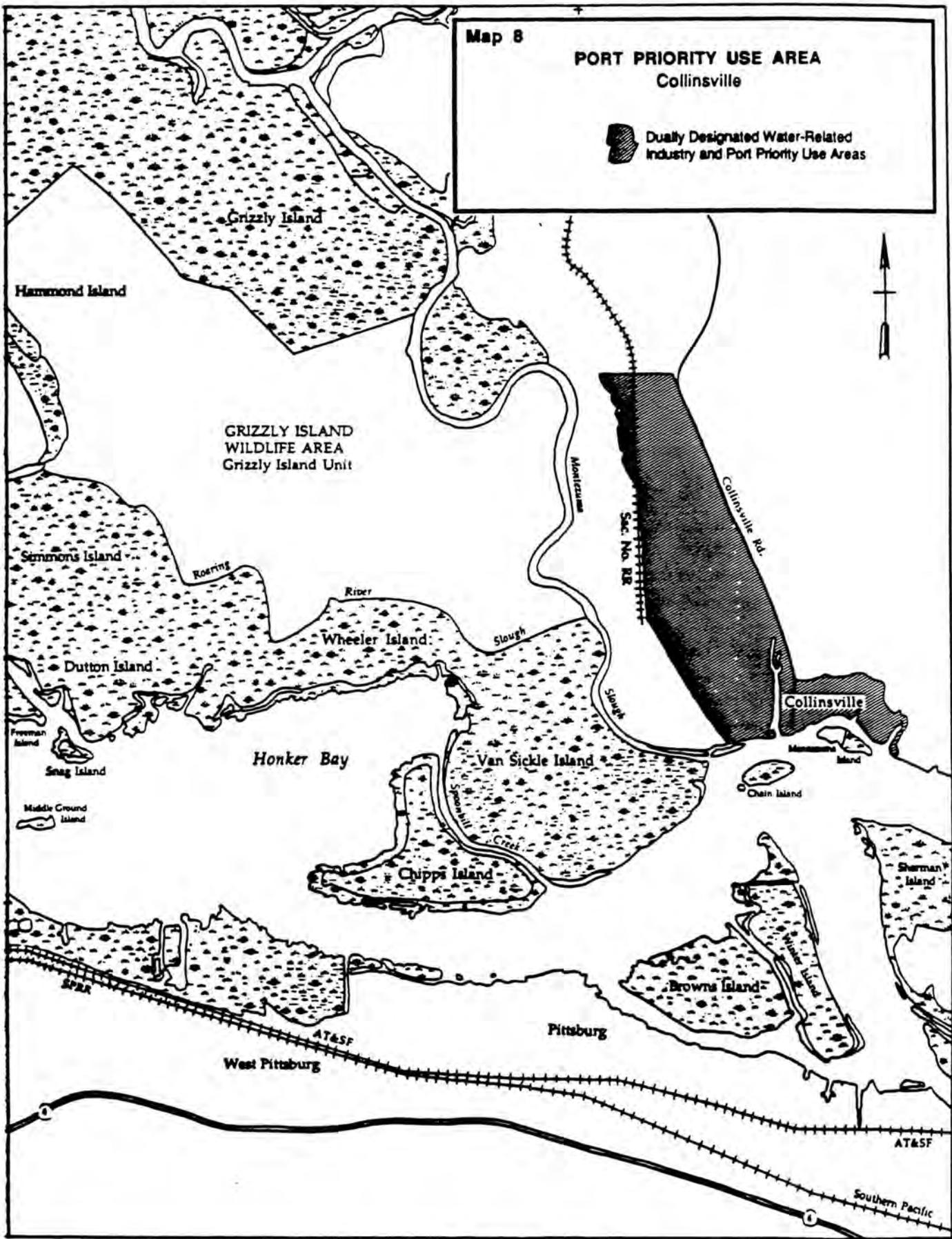
7A, 7B, 7C Concord Naval Weapons Station
14A Port of Benicia



PORT CHICAGO NAVAL WEAPONS STATION
If and when not needed by Navy give first consideration to port or water-related industrial use. Port and industrial use should be restricted so they do not adversely affect the marshes.

Map 8
PORT PRIORITY USE AREA
Collinsville

 Dually Designated Water-Related Industry and Port Priority Use Areas



IV. FACILITY IMPROVEMENTS

MARINE TERMINALS

Development requirements for marine terminals are stated as the regionwide demand for new terminals. No attempt is made to be project or port specific. Table 3 displays the estimates of demand for new marine terminals through the year 2020. The estimated number of new berths is in addition to those currently in operation. These estimates are a function of the three forecast levels, the capacity of existing marine terminals, and various assumptions with regard to future actions by government and the marine terminal operators. Specifically, the estimates in this table assume:

- o the backland area (i.e., the storage and processing area that constitutes the terminal) of existing marine terminals will not increase;
- o container terminal productivity¹ increases by 1% per year in the baseline and low forecasts due to operator induced improvements; and
- o annual container terminal productivity increases of 1.25% are assumed in the high forecast.

While certain channels may be deepened or container handling productivity may increase at specific terminals prior to 1990, such changes in the assumptions are not expected to significantly alter the 1990 estimates of demand. As a result, the estimates for these two years are believed to be the best estimates of short-range demand for new dry cargo terminals. In the more distant future, it is reasonable to expect that many of the channels may be deepened or that productivity may increase at a rate higher than assumed for the estimates in Table 3. Therefore, the estimates in Table 3 probably overstate the demand.

The demand for a central Bay supertanker terminal was not assessed in detail. The findings in the previous chapter outline the conclusions with regard to this topic.

CHANNELS

Without adequate deepwater channels, marine terminal facilities cannot function efficiently. The economic feasibility of deepening Bay Area shipping channels was analyzed, and relied heavily on the results of completed and ongoing work by the Corps of Engineers. This analysis was not intended to substitute for the detailed analyses done by the Corps in its General Investigations of individual deepening projects.

Major deepwater channels investigated within the Bay are:

- o Suisun Bay Channel
- o Pinole Shoal Channel
- o Richmond Inner Harbor Channel
- o Southampton Shoal Channel and Long Wharf Turning Basin

¹ For this plan, productivity is defined as marine terminal capacity per berth.

- o Oakland Outer Harbor Channel
- o Oakland Inner Harbor Channel (west of the Alameda Tubes)
- o Oakland Bar Channel (Entrance Channel)
- o Redwood City Channel
- o San Bruno Shoal Channel

The channel along the San Francisco waterfront (largely a natural channel) was not investigated since any required deepening involves insignificant costs relative to the channels noted above. See Figure 5 for location of these channels.

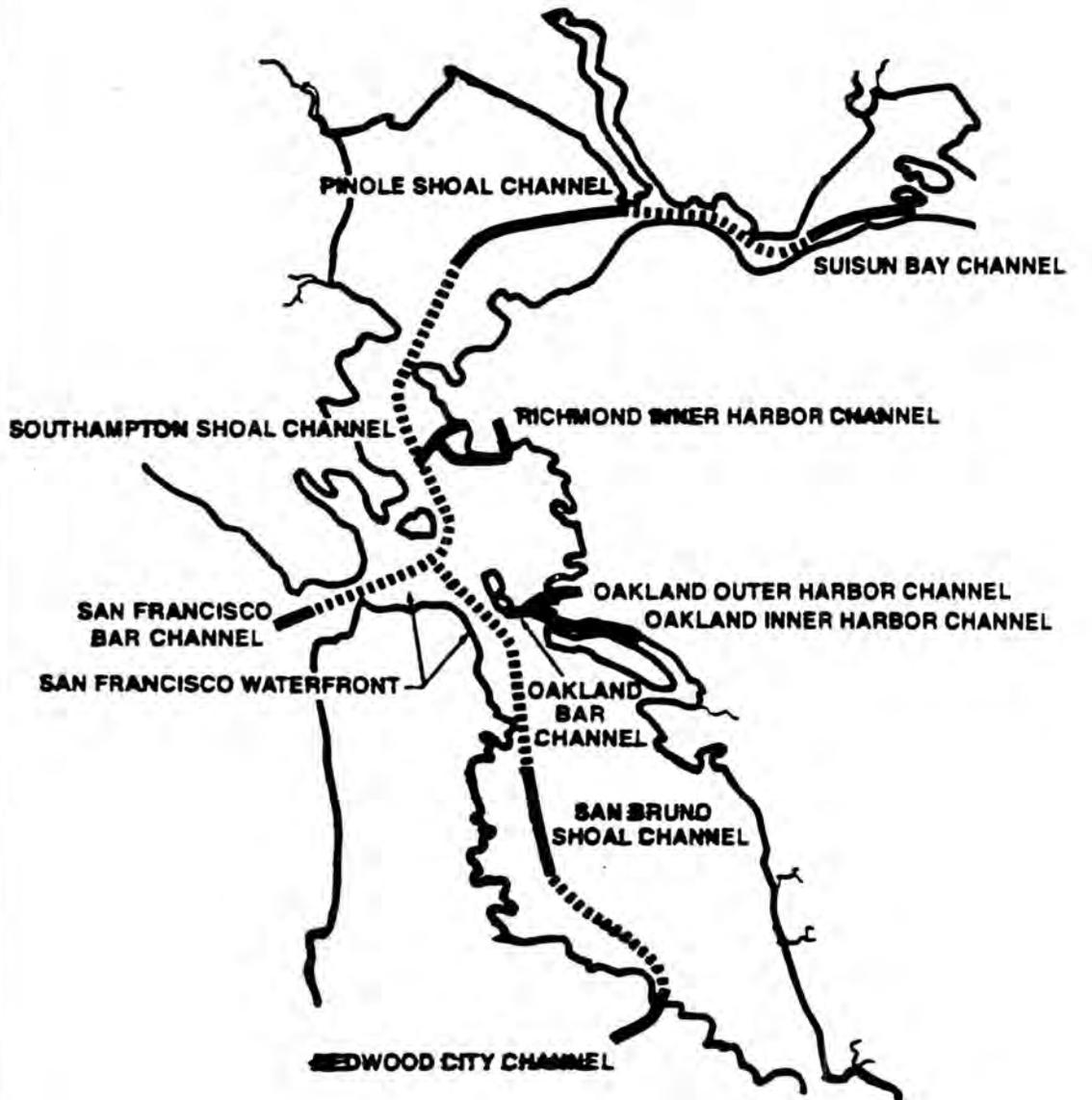
Analysis concluded that channel deepening up to 45 feet is economically feasible for the following channels: Oakland Outer Harbor, Oakland Inner Harbor (west of the Alameda Tubes), Oakland Bar (Entrance Channel), Richmond Inner Harbor, Southampton Shoal, and Pinole Shoal. This does not imply that these channels should be deepened to 45 feet immediately. The most cost-effective depth for any specific channel would be determined by the Corps depending on the prevailing operating and market conditions at the time of the evaluation. In addition, the westerly portion of the Suisun Bay Channel (west of Pt. Edith) serves refinery operations, and has been authorized by the federal government for deepening to 45 feet. Comparisons were not developed for the deepening costs and benefits for San Bruno Shoal, Redwood City, and Suisun Bay Channels because of the difficulty of quantifying benefits.

GROUND TRANSPORTATION FACILITIES

Just as deepwater channels are crucial, the availability of adequate ground transportation facilities is vital to the efficient functioning of marine terminals. The ground transportation analysis focused on highway and street improvements, since MTC has responsibility in their funding. Rail access requirements were also addressed, but rail improvements are largely a private sector responsibility. Specific ground transportation improvements are only identified to 1990.

The evaluation of needed improvements was based partly on traffic studies and partly on interviews with representatives from the ports, marine terminal operators, trucking companies, shippers, railroads, and Caltrans. The potential improvements were reviewed with the affected cities to help refine the proposals and to evaluate possible land use changes in the port area which might alter the proposals.

Figure 5
SAN FRANCISCO BAY DEEPWATER CHANNELS



———— DREDGED CHANNELS
- - - - - NATURAL CHANNELS

Table 5 displays the ground transportation projects which address some regional interest in marine terminal accessibility. Each of the projects was assigned a priority by the Seaport Planning Advisory Committee using the following criteria:

- Most Desirable - projects that mitigate the growth of port-related traffic; or projects where congestion materially reduces accessibility to a port and, from a regional perspective, significantly impedes the flow of goods.
- Desirable - projects that may improve traffic flow but are not necessary to alleviate congestion; or projects where congestion materially reduces accessibility to a port but, from a regional perspective, does not significantly impede the flow of goods.
- More Desirable - project falling between the criteria outlined above.

The time frame--short or medium--is an expression of the urgency of a project. A short-range designation indicates funding should be developed for a project or that action should be taken within the next five years. A medium-range designation indicates funding should be developed or action occur beyond the next five year period.

Table 5

TRANSPORTATION ACTIONS OF REGIONAL CONCERN

Area	Project	Lead Agency	Time Frame ¹	Seaport Committee Priority ²
San Francisco	1. Monitor land use development and traffic growth in area surrounding Piers 94/96; undertake study as necessary.	City of S.F.	S	M
	2. Improve geometrics of rail access to Piers 94/96.	Port of S.F.	S	H
Oakland/Alameda	1. Study traffic on Seventh St., Maritime St., and Southern Pacific Rd. to develop solutions to projected congestion caused by Bay Area port growth.	Port & City of Oakland	Study Results Under Evaluation	H
	2. Improve intersection at Harrison & 7th Sts.	City of Oakland	C	L
	3. Construct segments of Patton Way & Atlantic Ave. extension, Alameda, that would serve Encinal Terminals.	City of Alameda	UC	L
	4. Maintain truck route designation for Buena Vista Avenue.	City of Alameda	C	M
	5. Provide right lane (over West Grand) & toll booth for trucks at Bay Bridge Toll Plaza.	Caltrans	S	M
Richmond	1. Develop rail capability at Richmond Terminals 2 and 3.	Port of Richmond	S	H
	2. Improve rail access at Meeker Ave.	Railroads/Caltrans	UC	H
	3. Improve Harbour Way.	City of Richmond	C	L
	4. Construct John T. Knox Freeway.	Caltrans	UC	H
	5. Provide temporary solution for westbound, left-turning port traffic at I-580 (John T. Knox Freeway) & Harbour Way.	Caltrans/ City of Richmond	UC	H
Redwood City	1. Improve Seaport Blvd.	Port & City of Redwood City	UC	L
Benicia	none			
Regionwide	1. Coordinate development of ground transportation system with proposed port development.	MTC	Annual Review	H
	2. Encourage port operators, trucking companies, marine terminal operators, and railroads to participate in MTC's Commute Alternatives Program.	MTC	S	H
	3. Develop & distribute Bay Area port access maps, and study freeway signing to ports.	MTC	S	M

¹ S - short range; M - medium range; UC - under construction; C - completed
² L - desirable; M - more desirable; H - most desirable

GLOSSARY

San Francisco Bay (Bay)	For this plan, San Francisco Bay is defined as the four interconnected bays of South San Francisco Bay, Central San Francisco Bay, San Pablo Bay, and Suisun Bay; all areas subject to tidal action from the south end of South San Francisco Bay to the Golden Gate to the eastern end of Suisun Bay (Grizzly Bay and Honker Bay). In practice, the eastern boundary of the study area is defined to include the Contra Costa County shoreline to the Antioch Bridge and the Solano County shoreline to the extent of the BCDC jurisdiction near Collinsville.
San Francisco Bay Area	The City and County of San Francisco and the Counties of Alameda, Contra Costa, Marin, Napa, San Mateo, Santa Clara, Solano and Sonoma.
Shoreline Sites	Shoreline lands or uplands bordering the Bay.
Marine Terminal	Any public, private, proprietary or military waterfront facility utilized for the receipt or shipment of waterborne cargo. Marine terminals serving an industrial function where the product transferred over the wharf is processed (e.g., crude oil refinery) are not included in this plan. For purposes of this plan, a marine terminal includes the wharf, storage area, offices, rail and truck facilities, container freight stations, intermodal container transfer facilities, areas for maintenance of containers or container-handling equipment, and other functions necessary to the efficient operation of a terminal; it does not include employee parking.
Marine Terminal Berth	A marine terminal berth includes a wharf and other marine terminal facilities necessary to support a single ship berth.
Port Priority Use Areas	Port priority use areas include within their premises marine terminals and directly-related ancillary activities such as container freight stations, transit sheds and other temporary storage, ship repairing, support transportation uses including trucking and railroad yards, freight forwarders, government offices related to the port activity, chandlers and marine services. Other uses, especially public access and public commercial recreational development, are permissible uses provided they do not significantly impair the efficient utilization of the port area.
Regional Transportation System	The network of railroads, highways, pipelines, airways, and waterways and related facilities and services, and terminal areas, public or private, serving the San Francisco Bay Area.
Waterborne Cargo	Receipts and shipments of foreign and domestic waterborne cargoes.

Marine Terminal Capacity	The maximum practical capability of a marine terminal to handle cargo—measured in metric tonnes per year.
Capacity Estimates or Region's Capacity	The estimated cumulative capacity of the Bay Area's then existing marine terminals. Table 3 of the 1988 Seaport Plan Revision Future Demand for Marine Cargo Terminal report displays the estimate of capacity used in this Plan.
Productivity	For this plan, productivity is defined as the per berth capacity of marine terminals.
Cargo Forecast	The projected flow of waterborne cargo through Bay Area ports (measured in metric tonnes).
Demand Estimates	The projected need for future marine terminal development (measured as a number of berths).
Near-Term Sites	Those shoreline sites considered to be the best for marine terminal development.
Long-Term Sites	Those shoreline sites that could be considered for development after the near-term sites have been used.
Active Terminal Sites	Existing marine terminal facilities that are expected to remain active for the foreseeable future.
Military Sites	Shoreline sites within military installations that have potential for marine terminal use, if and when the military no longer needs them.

INSTITUTIONS/LEGISLATION

Bay Area Ports	Encinal Terminals and the ports of Benicia, Oakland, Redwood City, Richmond, and San Francisco.
Association of Bay Area Governments (ABAG)	Created in January 1961 as a Bay Area regional land-use planning agency; primary function is to provide a framework for dealing with regional problems on a cooperative and coordinated basis. Not a governmental body; formal organization provided by contractual agreement between member cities and counties.
California Department of Transportation (Caltrans)	Created in July 1973 by the state Legislature as an agency responsible for the statewide coordination of multi-modal comprehensive transportation planning and development.
Golden Gate Ports Association (GGPA)	See "Northern California Ports and Terminals Bureau."
Maritime Administration (MarAd)	A federal agency, within the Department of Transportation, responsible for promoting the U.S. merchant marine and the development of U.S. ports and marine terminal facilities.

INSTITUTIONS/LEGISLATION (cont.)

Metropolitan Transportation Commission (MTC)	Created by the State Legislature to provide multi-modal, comprehensive regional transportation planning and financial programming for the nine county San Francisco Bay Area. Has responsibilities for reviewing any applications for federal or state funds, if such application has a transportation element.
Northern California Ports and Terminals Bureau (NORCAL)	Created in 1952 for rate making purposes; renamed as Golden Gate Ports Association to advocate the views of the Bay Area and Delta port industry with respect to regional port planning. Membership includes the ports of Redwood City, Oakland, San Francisco, Richmond, Stockton, and Sacramento.
San Francisco Bay Conservation and Development Commission (BCDC)	Created by the State Legislature in 1965; has responsibilities for regulating the use of the Bay shoreline, and has the power to grant or deny permits for all Bay filling and dredging.
U.S. Army Corps of Engineers	A Federal agency under the Department of Defense responsible for maintaining the navigable waters of the United States.
McAteer-Petris Act (1965) (Sections 66600-66658, Title 7.2, California Government Code)	Created BCDC and set criteria for evaluating proposed Bay fill and dredging projects. Used in conjunction with the BCDC San Francisco Bay Plan to evaluate all permit applications for Bay port development and related fill or dredging.

REGIONAL PLANS

Regional Transportation Plan (RTP)	First adopted by the Metropolitan Transportation Commission in June 1973, to guide development of a safe, efficient and environmentally responsive regional transportation system at a reasonable cost for the movement of people and goods. Revisions are incorporated annually.
San Francisco Bay Plan	Adopted in 1969, by BCDC as a plan to guide future uses of San Francisco Bay and its shoreline area. Used in conjunction with the McAteer-Petris Act to evaluate all permit applications for Bay port development and related fill or dredging.

COMMODITY CATEGORIES/MEANS OF CARRIAGE

Break Bulk Cargo	Cargo handled in individually packaged units.
Containerized Cargo	General cargo packed in standard size weather-tight boxes. Cargo remains in container from origin to destination.

COMMODITY CATEGORIES/MEANS OF CARRIAGE (cont.)

Neo-Bulk Cargo	Cargoes generally shipped in large quantities and having some characteristics of bulk commodities. Neo-bulk cargoes in the Bay Area are generally autos, steel products, and newsprint.
Dry Bulk Cargo	Cargoes loaded or unloaded in conveyor belts, spouts or scoops, and not placed individually; flowable cargoes; rice, grain, various ores, etc.; stored loose.
Dry Cargo	All break bulk, containerized, neo-bulk, and dry bulk cargoes.
Liquid Bulk Cargo	Liquid cargoes, such as petroleum or vegetable oil, that are shipped in tanks rather than small individual units.
Roll-on/Roll-off (RO/RO)	A method of ocean transport which permits wheeled vehicles (e.g., autos, trucks, forklifts) to drive on and off the vessel under their own power.
Lighter Aboard Ship (LASH)	A method of ocean transport which uses lighters (i.e., barges) capable of carrying smaller standard sized containers, general cargo or bulk cargo. LASH barges are taken aboard ship or discharged by shipboard cranes.

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