CHAPTER 1

1.0 INTRODUCTION

1.1 MANAGEMENT PLAN OVERVIEW

1.1.1 LTMS Program and LTMS Management Plan

In the early 1980s, a mound of dredged material was discovered at the Alcatraz (SF-11) disposal site. At the same time, concerns were mounting about the potential environmental and fishery impacts associated with in-Bay disposal activities. In light of the limited capacity of the Alcatraz site and associated potential navigational hazards, and environmental concerns, the primary agencies regulating dredging and disposal activities in San Francisco Bay (the Bay), U.S. Army Corps of Engineers (USACE), U.S. Environmental Protection Agency (USEPA), San Francisco Bay Conservation and Development Commission (BCDC), and the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), along with the State Water Resources Control Board (SWRCB), began to make decisions on a case-by-case and agency-by-agency basis reducing predictability for project sponsors, and public confidence that environmental resources were being adequately protected. In response, the USACE, USEPA, BCDC, SFBRWQCB, and SWRCB, along with representatives from the dredging, environmental, regulatory, and scientific communities, initiated the LTMS in 1990.

Original LTMS goals

(adopted by the LTMS Executive Committee June 7, 1991)

- Maintain in an economically and environmentally sound manner those channels necessary for navigation in San Francisco Bay and Estuary and eliminate unnecessary dredging activities in the Bay and Estuary;
- Conduct dredged material disposal in the most environmentally sound manner;
- Maximize the use of dredged material as a resource; and
- Establish a cooperative permitting framework for dredging and disposal applications.

Initially, the LTMS agencies took specific policy actions to support their participation and to ensure that their regulatory decisions would be consistent with the original LTMS goals. In 1991, BCDC amended its *San Francisco Bay Plan* (Bay Plan) findings and policies on dredging and disposal activities to: (1) recognize the importance of dredging to the economic and social welfare of the Bay Area; (2) address the limited capacity of existing in-Bay sites and potential adverse impacts on the Bay's natural resources associated with dredging and disposal; and (3) encourage the placement of material at beneficial reuse sites or the ocean. In 1986, during its triennial review of the *Water Quality Control Plan* (Basin Plan), the SFBRWQCB recognized that dredging is necessary to maintain navigation and other water dependent activities, and stated its intention to update and revise the Basin Plan dredged sediment disposal policy and to enact guidelines to determine the suitability of dredged sediment for unconfined aquatic disposal in the Bay. In 1993, the USACE issued Public Notice (PN) No. 93-2 which promulgated interim guidelines for testing dredged material proposed for in-Bay disposal, and PN No. 93-3, which proposed several interim measures for

managing the in-Bay disposal sites (e.g., a reduction of in-Bay disposal site limits and restrictions as to the type of material that could be disposed at the sites).

The LTMS program is composed of five individual and sequential phases. Phase III involved preparation of the Long-Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region Policy Environmental Impact Statement/Programmatic Environmental Impact Report (LTMS EIS/EIR), which evaluated alternative long-term dredged material management strategies, each involving a combination of volumes of material placement in the Bay and ocean, and beneficial reuse environments. The alternatives were compared to determine the degree to which each would achieve the goals of the LTMS. The alternative emphasizing the placement of approximately 80 percent of material at both the upland and ocean environments and approximately 20 percent in the Bay was selected because it came closest to matching the overall goals and objectives of the LTMS while combining substantial environmental benefit with the fewest environmental risks.

This new management strategy will require specific mechanisms and changes in existing institutional arrangements and policies of the LTMS agencies. This *Long-Term Management Strategy Management Plan* (Management Plan), which has been prepared by the primary LTMS agencies, in close cooperation with the interested parties, presents the specific guidance for implementing this strategy. Successful implementation of this strategy will require ongoing work and cooperation between the LTMS agencies and the interested parties, such as through the LTMS workshops and focused work groups regarding disposal and reuse site management and monitoring, funding and sediment quality guidelines (Chapter 2), the Dredged Material Management Office (DMMO) (Chapter 3), and efforts to bring beneficial reuse sites on-line, such as the Hamilton Restoration site.

1.1.2 Document Organization

The Management Plan presents:

- The institutional structure of the LTMS during the implementation phase of the program (Chapter 2).
- Procedures and requirements for obtaining authorization for dredging and dredged material disposal and/or reuse activities (Chapter 3).
- Criteria for determining the suitability of dredged material (Chapter 4).
- Management and monitoring plans for disposal and reuse sites (Chapter 5).
- Strategies for managing the in-Bay disposal goal (Chapter 6).
- Strategies for reuse and disposal of dredged material outside of the Bay (Chapter 7).
- Procedures and schedule for review and revisions of the Management Plan (Chapter 8).
- Resource and funding needs for implementing the long-term dredging and disposal strategy for the Bay Area (Chapter 9).

LTMS Management Plan: Key Issues
(listed in order of importance as identified by stakeholders)

- Sediment testing
- Disposal & reuse allocations
- Process for beneficial reuse sites (e.g., selection and use, impacts to diked baylands and seasonal wetlands, future site disposition and management)
- Use of dredged material at landfills
- Phasing of transition toward 40/40/20 strategy
- Reduction and/or elimination of unnecessary dredging
- Funding
- Public participation (e.g., in DMMO)
- CEQA review for individual projects

- Amendments to the Bay Plan and Basin Plan, and changes to BCDC's implementing regulations (Chapter 10).[1]
- Other relevant information (e.g., appendices).
- Response to public comments (Volume II).

1.1.3 Public Review and Comment

Preparation of the Management Plan began in April 1998 when the agencies held a set of initial public workshops to present and discuss issues related to implementation of the LTMS. Subsequently, the remainder of the public workshops focused on key issues identified by the stakeholders.

The public workshop process provided early input from the stakeholders regarding implementation issues and opportunities for comments which the LTMS agencies used in the development of the Management Plan (Appendix A).

Public review and comment of the Management Plan began in June 2000, followed by a series of public hearings. Over the 50-year LTMS planning period, the Management Plan will be reviewed and updated as necessary. During the initial three-year period following finalization of the Management Plan, the LTMS agencies will produce an annual progress report of the program. Subsequent to the initial three-year implementation period, the Management Plan will be reviewed and, if necessary, revised every three years to reflect changing statutory, regulatory, technical and environmental conditions. Every six-year review could involve Bay Plan and/or Basin Plan amendments.

1.1.4 Regulatory and Policy Changes

The LTMS agencies will also take specific actions to reflect necessary changes in their statutory, regulatory, or management activities to implement the selected long-term management alternative. For example, this Management Plan includes amendments to the Bay Plan and Basin Plan policies for regulating dredging and disposal activities in the Bay. Also, during Fiscal Year (FY) 2001, the USACE will begin preparing its Dredged Material Management Plans (DMMPs) for existing federal

1 California Code of Regulations, Title 14. Natural Resources, Division 5. San Francisco Bay Conservation and Development Commission, Vol. 19, Section 10602(e)(2)(A-D).

maintenance dredging projects in the Bay and undertake National Environmental Policy Act (NEPA) reviews, as needed, including supplementing the 1975 Composite EIS for Maintenance Dredging.[2]

1.2 DREDGING AND DISPOSAL IN THE BAY

The focus of this Management Plan is on the disposal of dredged material generated from maintenance and "new" (e.g., deepening projects) work projects in the Bay.[3] The LTMS Planning Area with existing dredged material disposal sites is shown in Figure 1.1. The Management Plan focuses on dredged material disposal not on the act of dredging itself, except as it relates to disposal activities, potential mechanisms for reducing dredging volumes or eliminating unnecessary dredging, and potential measures for mitigating dredging impacts to special status species.

1.2.1 Dredging Activities

Large-scale dredging has taken place in the Bay for more than 100 years. Sediments are regularly dredged in the Bay for navigation and the maritime industry. The USACE maintains 17 deep- and shallow-draft channels in the Bay. Smaller channels, marinas, and berthing areas that support shallow-draft commerce, commercial fishing, and recreational boating are regularly maintained by private-sector entities.

Dredging is characterized as either "maintenance" or "new" work. Maintenance work removes relatively soft, unconsolidated silts and clays accumulating along the bottom of the Bay. New work removes historical marine or riverine sediment deposits that are generally deeper, consolidated, and lower in moisture content.

Types of Dredging

- Maintenance: Removal of relatively soft, unconsolidated material located along the bottom of the Bay.
- New work: Removal of historical marine or riverine sediment deposits that are generally deeper, consolidated, and lower in moisture content.

1.2.1.1 Project Types and Volumes

The Management Plan deals with dredged material generated by: (1) small dredging projects defined by a project depth of less than -12 feet Mean Lower Low Water (MLLW) (not including over-depth), and generating less than 50,000 cubic yards (cy) per year on average; and (2) other dredging projects defined by a project depth greater than -12 feet MLLW or average annual volumes greater than 50,000 cy, including the federally authorized dredging projects.[4]

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2 It is important to note that the LTMS agencies that authorize dredging and dredged material disposal activities through the issuance of permits will still continue to require those permits and process them through their standard procedures.

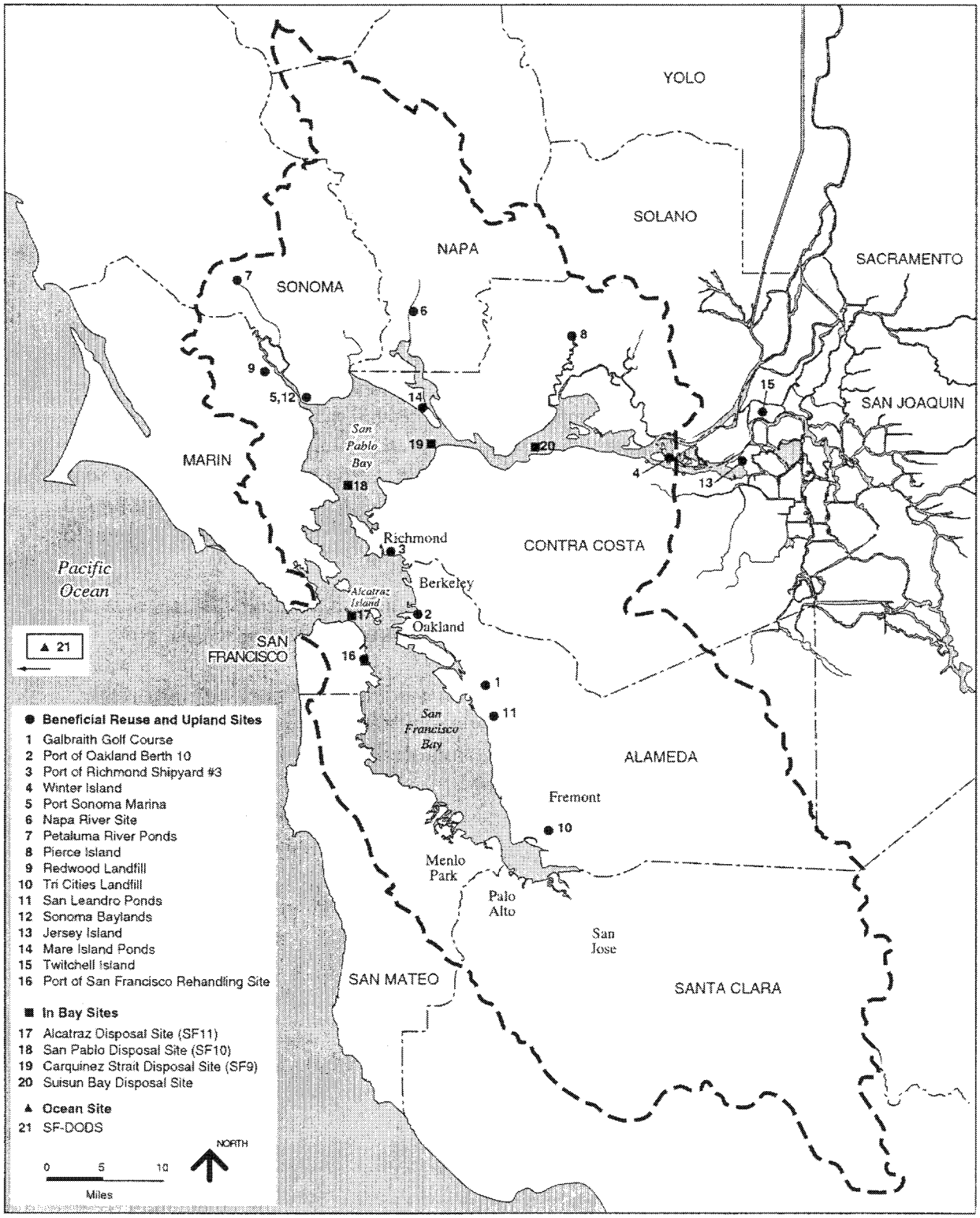
3 The document does not address specifically the management of material resulting from sand dredging, material dredged in the Delta region or at the San Francisco Bar Channel, or material that historically has been taken to dedicated upland disposal sites (e.g., the federal channels in the upper Petaluma River and the San Leandro marina).

4 The Management Plan deals primarily with dredging for navigational purposes. It does not specifically address dredging for the purpose of remediating contaminated sediments, dredging of flood control channels, or sand mining.

Figure 1.1

SOURCE: Final LTMS EIS/R, 1998

LTMS Planning Area with Existing Dredged Material Disposal and Reuse Sites



Over the 50-year LTMS planning period, it was estimated that approximately 6.0 million cubic yards (mcy) of material annually, or a total of approximately 296 mcy of material would be dredged from the Bay (LTMS 1998). This is a conservatively high estimate based on historical dredged volumes. A primary focus of the Management Plan is to ensure adequate disposal capacity at various sites for this volume of dredged material (of which approximately two percent is expected to be unsuitable for unconfined aquatic disposal).

Types of Dredging Projects

- Small dredging projects: a project depth not exceeding -12 feet MLLW (not including over-depth) and generating less than 50,000 cy per year on average.
- Other dredging projects: a project depth greater than -12 feet MLLW or average annual long-term volumes greater than 50,000 cy as well as the federally authorized dredging projects.

1.2.2 Dredged Material Disposal and Reuse

Historically, the majority of sediments dredged in the Bay have been disposed at three federally designated open-water sites, located near Alcatraz Island, in San Pablo Bay, and in Carquinez Strait, and at other sites designated for specific projects or types of material such as the Suisun Bay Channel site (Figure 1.1). Ocean and beneficial reuse opportunities for dredged material exist, but use of these sites for material has generally been limited. The discrepancy in the volumes of material going to the in-Bay sites and those located outside the Bay has been mostly due to the unavailability of alternative sites, disposal or reuse costs, the regulatory hurdles involved with using or developing alternatives to in-Bay disposal, and the site-specific restrictions regarding volumes, types and sources of dredged material.

1.2.2.1 In-Bay Disposal

The existing limits on disposal at the federally designated open-water disposal sites in the Bay have been based on disposal volume targets in the Basin Plan, BCDC's regulations, and in the USACE Public Notice No. 93-3. These limits reestablish a total disposal volume cap at the in-Bay sites of 7.7 mcy in a wet year and 6.7 mcy in all other years. However, an analysis of data from 1991 to 1999 shows that the maximum volume of maintenance material disposed in the Bay was 3.3 mcy in 1993.[5] Further, from 1991 to 1999, the average annual

In-Bay Disposal Site Targets

- Alcatraz Island (SF-11): 4.0 mcy/year (1.0 mcy monthly maximum in October-April; 0.3 mcy in May-September)
- San Pablo Bay (SF-10): 0.5 mcy/year (and in any one month)
- Carquinez Strait (SF-9): 3.0 mcy/year in wet year and 2.0 mcy/year in other years (1.0 mcy maximum in any one month)
- Suisun Bay Channel (SF-16): 0.2 mcy/year (for USACE material only)

5 Disposal volume records from years prior to 1991 are less reliable and thus were not used. The use of a longer time period could change this analysis.

in-Bay disposal volume of maintenance material from these sources was approximately 2.4 mcy (LTMS 2000) (Figure 1.2). [6]

1.2.2.2 Ocean Disposal

The San Francisco Deep Ocean Disposal Site (SF-DODS) was formally designated in 1994 by the USEPA. The site is located on the lower continental slope, approximately 50 nautical miles west of San Francisco. Water depth at the site ranges between approximately 8,200 feet and 9,800 feet. The SF-DODS encompasses an area of approximately 6.5 square miles. The annual volume limit for disposal at the site is 4.8 mcy as mandated by federal regulation (Figure 1.1). [7]

1.2.2.3 Beneficial Reuse and Disposal of Dredged Material

Dredged material can be reused for a variety of beneficial purposes, including habitat improvements at diked baylands (e.g., to restore tidal and seasonal wetlands), to create in-Bay habitat, to stabilize levees, and for capping and liner material at landfills.[8] Several of these beneficial reuse options require dredged material to first be dried at a rehandling facility prior to delivery to the end use site.[9] In some cases it may be necessary to permanently confine material dredged from the aquatic environment (for instance due to certain contaminant levels). Confined disposal facilities can be designed and operated for beneficial uses in some cases, as well. To date, a variety of beneficial reuse and disposal (e.g., rehandling facility) sites of varying capacities have been implemented around the Bay Area (Figure 1.1).[10]

1.2.3 Historical Management and Regulation

Dredged sediments disposed at the Alcatraz site—the most heavily used aquatic disposal site—were originally expected to disperse, but an 80-foot-high mound of dredged material was discovered at the site in 1982. Consequently, it became apparent that the site's capacity was limited and that the mound was a potential navigational hazard. Around this same period, concerns mounted about the potential environmental and fishery impacts associated with in-Bay disposal activities.

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6 The average annual maintenance dredging volume does not reflect (1) new projects; (2) sand dredging; (3) projects located outside the geographic scope of the LTMS planning area such as those in the Sacramento-San Joaquin Delta (e.g., New York Slough) and the San Francisco Bar Channel; (4) projects where dredging has not occurred over the past eight years (e.g., Bel Marin Keys lagoon); (5) historic military projects; and (6) projects with dedicated upland disposal sites, such as the federal channels at both the Petaluma River and at the San Leandro marina.

7 40 CFR Part 228.15(l)(3)(vii).

8 Reuse and/or disposal of dredged material would occur at a designated landfill or other permitted waste discharge unit.

9 It should be noted that the term "UWR" or Upland/Wetland/Reuse is no longer used to characterize sites where dredged material can be immediately reused, disposed, or processed for ultimate beneficial reuse. Instead, the LTMS Management Plan identifies such sites as beneficial reuse sites.

10 It is important to note that the capacity for dredged material at several of these sites (e.g., Sonoma Baylands, and Galbraith Golf Course) has been reached, and further that several sites are not currently accepting dredged material for various reasons (e.g., Mare Island, Jersey Island, and Twitchell Island).

The primary agencies responsible for governing dredging and disposal activities in the Bay Area responded to these problems in the early 1980s by making changes in their regulatory requirements. These agencies included the USACE, USEPA, BCDC, SFBRWQCB, and SWRCB.

Prior to the establishment of the LTMS, most regulatory actions were taken on a case-by-case and an agency-by-agency basis. This reduced predictability for dredging project sponsors, and public confidence that environmental resources were being adequately protected. These disposal site limitations, mounting environmental concerns, and project delays eventually became known as "mudlock." The capacity limitation and controversy over the environmental impacts of in-Bay disposal highlighted the need for a diverse array of alternative disposal options, so that the region would not be dependent on a single site to support its maritime needs.

1.3 LONG-TERM MANAGEMENT STRATEGY

In the early 1980s, the problems associated with heavy reliance on in-Bay disposal sites became apparent, including navigational problems associated with the mound of dredged material at the Alcatraz disposal site, as well as environmental problems associated with disposal and dredging activities in general. These conditions led to the creation of the LTMS program in 1990, by the USACE, USEPA, BCDC, SFBRWQCB, and SWRCB, along with representatives from the dredging and environmental communities. The primary focus of the LTMS was on the various dredged material disposal options and their related impacts. The LTMS program is composed of five individual and sequential phases.

1.3.1 Evaluation of Existing Management Options (Phase I)

In Phase I of the LTMS, existing dredging and disposal options and needs were evaluated and 50-year dredging volumes estimated. Data indicated that dredging and disposal of unsuitable material could adversely impact resources, but that more information was needed to fully understand these impacts. The assumption that existing disposal sites possessed limited capacity particularly for material deemed unsuitable for unconfined aquatic disposal was confirmed, and a commitment was made to expand beneficial reuse and disposal opportunities at upland sites (LTMS 1991).

1.3.2 LTMS Technical Studies (Phase II)

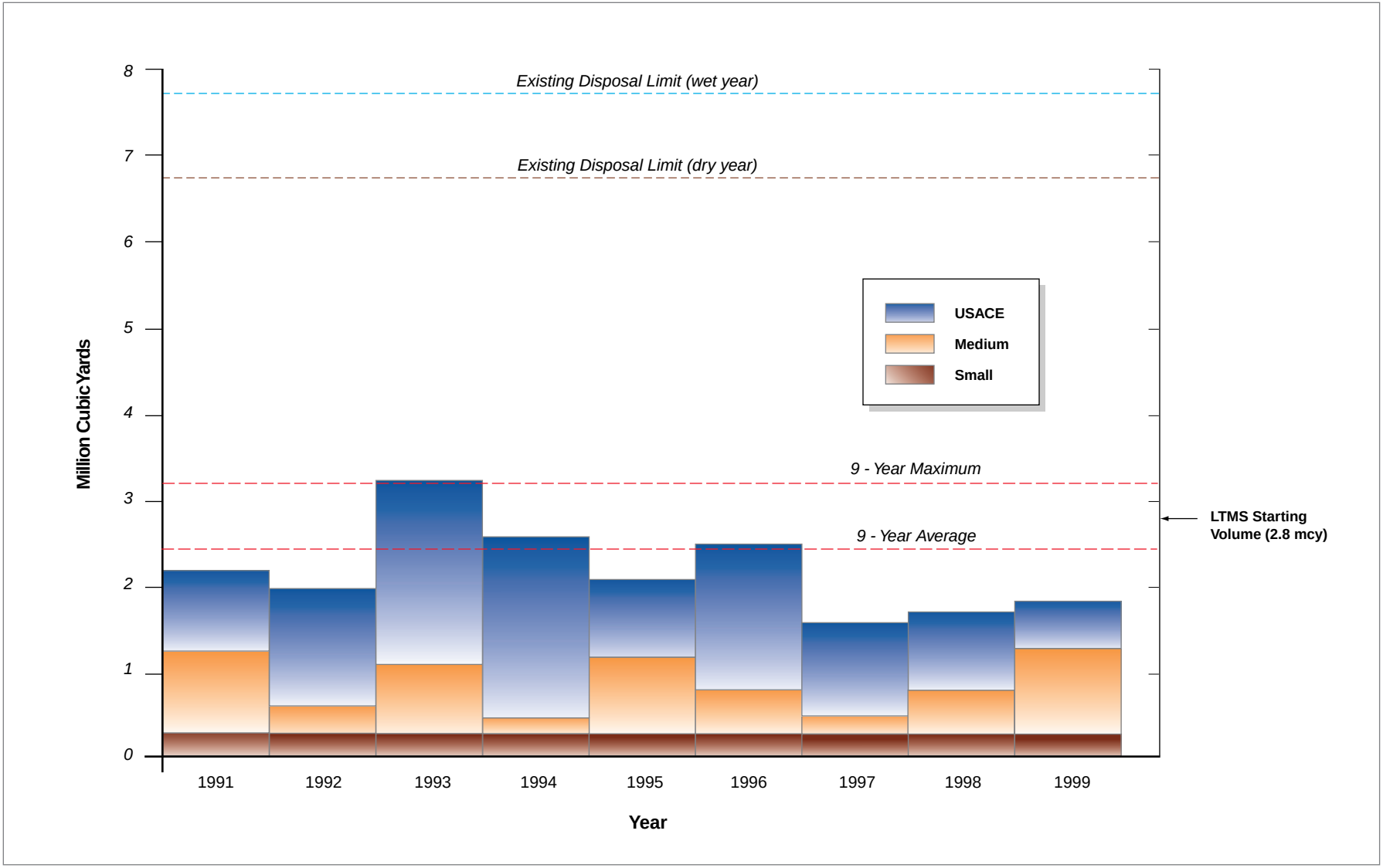
Phase II involved evaluating in-Bay, ocean, and beneficial reuse and disposal alternatives by conducting a series of technical studies. The USEPA led the effort to study disposal options in the ocean eventually designating the SF-DODS. The SFBRWQCB led the effort to study disposal options in the Bay. Lastly, the BCDC managed the studies regarding beneficial reuse options. (A complete list of the LTMS technical studies is contained in Appendix B.)[11]

11 A complete list of the LTMS technical studies is also available on the LTMS website: http://www.bcdc.ca.gov/ic/ic_ltms/mgmtplan/app-B.pdf.

Figure 1.2

SOURCE: Final LTMS EIS/R, 1998.

In-Bay Disposal of Maintenance Material (1991 - 1999)



1.3.2.1 Ocean Studies

Over 1,000 square miles off the coast of the San Francisco Bay Area were surveyed to identify candidate disposal sites with the appropriate sea floor stability, sediment types, and topographic features to accommodate and contain disposed dredged material. Thirteen reports were published in 1992 that focused on the resources at potential sites, geological and geophysical surveys, current patterns and circulation studies in the area of potential disposal sites, and modeling of potential deposition and water column turbidity at the sites. The *Environmental Impact Statement for Designation of a Deepwater Dredged Material Disposal Site off San Francisco, California* was prepared for USEPA's designation of a deep-water dredged material disposal site in the ocean (SF-DODS) in 1993.[12]

1.3.2.2 In-Bay Studies

In-Bay studies focused on reaching a better understanding of the Bay's complex estuarine system, which is influenced by river outflows, ocean tides, and multiple human uses of its waters and shores. The in-Bay studies examined the influence of water and sediment circulation around the Bay on disposed material, the toxicity of sediments to bottom-dwelling mollusks, whether fish in disposal areas are exposed to higher levels of contaminants, and the potential to distribute contaminants in sediments around the Bay via disposal operations. The behavior and fate of sediments in the Bay was analyzed through the LTMS in twelve different studies. At least six studies focused on bioaccumulation and effects on fish habitat. Studies also have been conducted on the effects of suspended solids on the Bay organisms.

1.3.2.3 Beneficial Reuse Studies

The beneficial reuse studies (formerly referred to as Upland/Wetland Reuse [UWR] studies) focused on evaluating and ranking sites for their potential to reuse dredged materials. The studies were conducted with the following objectives: to identify and analyze opportunities for reuse and, if necessary, disposal of dredged material at sites located outside the Bay (such as for levee stabilization, wetland restoration, and landfill operations); to identify and resolve any physical, regulatory, and institutional constraints associated with beneficial reuse projects; to develop and evaluate implementation strategies and programs for using material at these sites; and to prepare site-specific plans and implementation programs for certain projects. Approximately 100 sites were evaluated and ranked. Three sites were found to have high potential for the use of dredged material for restoring levees; three landfills were found to have high potential for using dredged material as a resource; eight sites were found to have high potential for the establishment of rehandling facilities where dredged material could be dried or stored permanently if necessary, and nine sites were found

12 For more detailed information regarding the SF-DODS site refer to *LTMS 1993 Environmental Impact Statement (EIS) for Designation of a Deepwater Dredged Material Disposal Site off San Francisco, California*. Prepared by USEPA with SAIC.

to have high potential for the restoration of wetlands using dredged material.[13] Studies were also prepared regarding engineering and other considerations for rehandling sites, reuse in solid waste landfills, and various aspects of wetland restoration using dredged material.

1.3.3 LTMS EIS/EIR (Phase III)

Phase III involved preparation of the LTMS EIS/EIR for the overall program. The EIS/EIR evaluated five alternative long-term dredged material management strategies for the Bay, in addition to the "no action alternative" representing current conditions. Each alternative reflected a combination of volumes of dredged material placement at the Bay, ocean, and beneficial reuse environments.

Through a preliminary screening, alternatives involving a "high" overall placement volume at any single environment—except the no action alternative (for which an evaluation is required per regulations)—were eliminated, since such a placement scenario could: (1) result in substantial environmental impacts; (2) prove unsound from an economic and management standpoint; or (3) preclude achievement of the LTMS goals regarding beneficial reuse of dredged material. The three remaining alternatives (in addition to the no action alternative) involved a diversity of placement environments and some degree of beneficial reuse. However, each alternative differed in terms of the relative emphasis on each placement environment, the potential impacts and benefits to different resources, and the potential costs to different sectors of the dredging-related economy. The alternatives were compared to determine the degree to which each would: (1) present potential environmental impacts or risks, as well as offer environmental benefits to the Bay, ocean, and beneficial reuse environments; (2) improve agency coordination, predictability for dredging project sponsors, and environmental protection; and (3) affect the dredging-related economic sectors.

"Policy-level mitigation measures" also were developed to ensure environmental protection at the three placement environments applicable to the remaining alternatives. These measures address potential adverse impacts on a broad regional and cumulative level and help direct how and when site-specific measures will be needed to preclude or mitigate potential impacts. Many of these measures are restatements of existing federal or state requirements and policies. Although, in some cases, specific measures may exceed the minimum requirements of a particular regulation or an individual agency's policies, together they are necessary to ensure that, for the region as a whole and across all placement environments, overall environmental impacts can be minimized and environmental benefits can be maximized in an economically prudent manner.[14]

Alternative 3 (also known as the "40/40/20" plan), emphasizing placement of dredged material at upland and ocean environments (approximately 40 percent of material at each) with limited in-Bay disposal (no more than 20 percent of material), was selected because it provided the best balance of

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13 For information about the results of these studies, refer to (1) LTMS. 1995b. *Reuse/Upland Site Analysis and Documentation, Feasibility Analyses of Four Sites (Volume II), Final.* Prepared By Gahagan & Bryant Associates, Inc. with Entrix, Inc. 102 pp. with Appendices, and (2) LTMS. 1995a. *Reuse/Upland Site Analysis And Documentation. Reuse/Upland Site Ranking, Analysis And Documentation (Volume I), Final Report.* Prepared by Gahagan & Bryant Associates, Inc. with Entrix, Inc. 410 pp. with Appendices.

14 The Policy-Level Mitigation Measures can be found in the Final LTMS EIS/EIR (Chapter 5.0) which is located on the LTMS website: http://www.spn.usace.army.mil/ltms.

the overall goals and objectives of the LTMS, and combined the maximum environmental benefit with the minimum environmental risks (Figure 1.3).[15]

1.3.4 Implementation (Phase IV)

The shift toward greater beneficial reuse and ocean disposal will be phased in over time, and requires changes in existing institutional arrangements. While the LTMS EIS/EIR identified the future disposal management strategy for the Bay Area, this Management Plan, prepared during Phase IV of the LTMS, contains specific guidance to implement the new dredged material management strategy for the region.

1.3.5 Periodic Review and Update (Phase V)

During Phase V of the LTMS, this Management Plan will be reviewed and modified to ensure that the document—and the implementation process—progress in step with a changing environment. During the first three years of implementation, the LTMS agencies will prepare an annual progress report. Subsequently, reviews will occur every three years for relatively minor "course changes" or modifications to the LTMS implementation strategy. More comprehensive reviews will occur every six years and, if necessary, will involve Bay Plan or Basin Plan amendments.

1.4 CEQA/NEPA REQUIREMENTS AND PROCESS

In 1992, the LTMS agencies began preparing the LTMS EIS/EIR to evaluate and solicit additional public input on approaches for dredged material management in the region. In 1998, the final LTMS EIS/EIR was published. In 1999, the federal Record of Decision (ROD) for the EIS was signed by the USACE and the USEPA, which completed the federal requirements under NEPA. In October 1999, the SWRCB certified the EIR pursuant to the requirements under CEQA. The LTMS agencies adopted the strategy specified in the ROD, and the associated policy-level mitigation measures, as the overall approach for implementation of the LTMS (LTMS 1998). The SFBRWQCB and BCDC are "certified agencies," and thus are exempt from CEQA's requirements to prepare EIRs and Negative Declarations, but must comply with CEQA's goals and policies, and requirements for public review, response to comments, and adoption of CEQA findings. Further, the agencies must prepare "substitute documents," which include an evaluation of the impacts, alternatives, mitigation measures, and cumulative effects of proposed actions. The BCDC and SFBRWQCB staff prepared "substitute documents" (staff report) regarding the amendments to the Bay Plan and Basin Plan (and changes to BCDC's implementing regulations (Chapter 10), which were presented to the BCDC Commissioners and SFBRWQCB members. The process included public comment periods and public hearings, and response to comments by the agencies.

The federal LTMS partners are not required by NEPA to take any specific or formal action with regard to the Management Plan. However, the Management Plan will be signed by all of the LTMS agencies to formally acknowledge their agreement with, and implementation of, the measures contained in the document.

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15 When compared to the other alternatives, it was determined that this alternative would result in significant environmental benefits, no direct risk to the ocean site, and only a low risk to sensitive resources at beneficial reuse areas.

1.5 IMPLEMENTATION OF THE LTMS

The long-term strategy of the LTMS is to dispose an average of no more than 1.0 mcy of dredged material per year at the in-Bay sites, with the remainder of the material going to beneficial reuse sites or the SF-DODS. The original goals of the LTMS program included sound maintenance of the Bay's navigation channels, the elimination of unnecessary dredging, environmentally sound disposal of dredged material and maximum use of material as a resource, and the establishment of a cooperative framework for dredging and disposal permit applications. Since the inception of the LTMS program in 1990, there has been considerable progress toward reaching these goals, and the volume of dredged material disposed at the in-Bay sites is currently considerably lower than historical volumes (Figure 1.4).

Accomplishments

- Current in-Bay disposal volume lower than historical volumes.
- DMMO established in 1995.
- Beneficial reuse projects: Sonoma Baylands wetlands restoration project, Galbraith Golf Course reconstruction project, Port of Richmond former shipyard No. 3 remediation project, Jersey Island and Winter Island levee restoration projects, Port of Oakland's Berth 10 rehandling facility.
- Beneficial reuse planning efforts for Hamilton Army Airfield (and adjacent sites) wetland restoration and Montezuma wetland restoration.

The DMMO, a coordinated permit application review program of the USACE, BCDC, SFBRWQCB, USEPA, and the State Lands Commission (SLC), was established in 1995 to ensure consistent permit decisions and reduce redundancies and delays while maintaining adequate environmental protection. Additionally, several working groups have recently been formed, as a part of the Management Plan process, that are focusing on the development of sediment quality guidelines, management and monitoring plans for disposal and reuse sites, and funding mechanisms for implementing the LTMS program.

Several beneficial reuse projects also have been implemented, including the Sonoma Baylands wetlands restoration project (Sonoma County), the Galbraith Golf Course reconstruction project (Alameda County), the Port of Richmond former shipyard No. 3 remediation project (Contra Costa County), the Jersey Island and Winter Island levee rehabilitation projects (Contra Costa County), and the Port of Oakland's Berth 10 dredged material rehandling facility (Alameda County) (Figure 1.1).

1.5.1 Beneficial Reuse Planning and Implementation

Efforts are currently underway for additional reuse projects, at the former Hamilton Army Airfield and adjacent sites (Marin County) and the Montezuma wetland site (Solano County).

1.5.1.1 Hamilton Wetland Restoration Project

The former Hamilton Army Airfield has been in the base closure process pursuant to the Base Realignment and Closure Act (BRAC) since the early 1970s. Over the past years, the California Coastal Conservancy, BCDC, and USACE, in close coordination with the City of Novato and the

Figure 1.3

SOURCE: Final LTMS EIS/R, 1998.

Long Term Management Strategy for the S.F. Bay Area

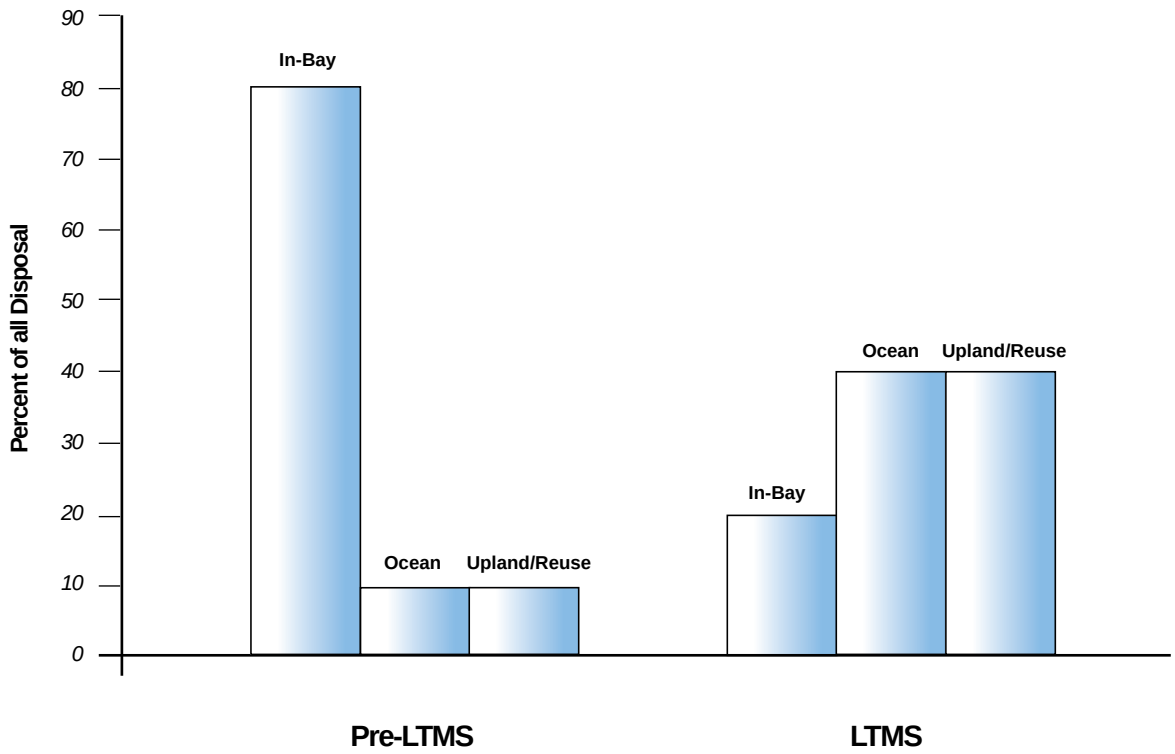
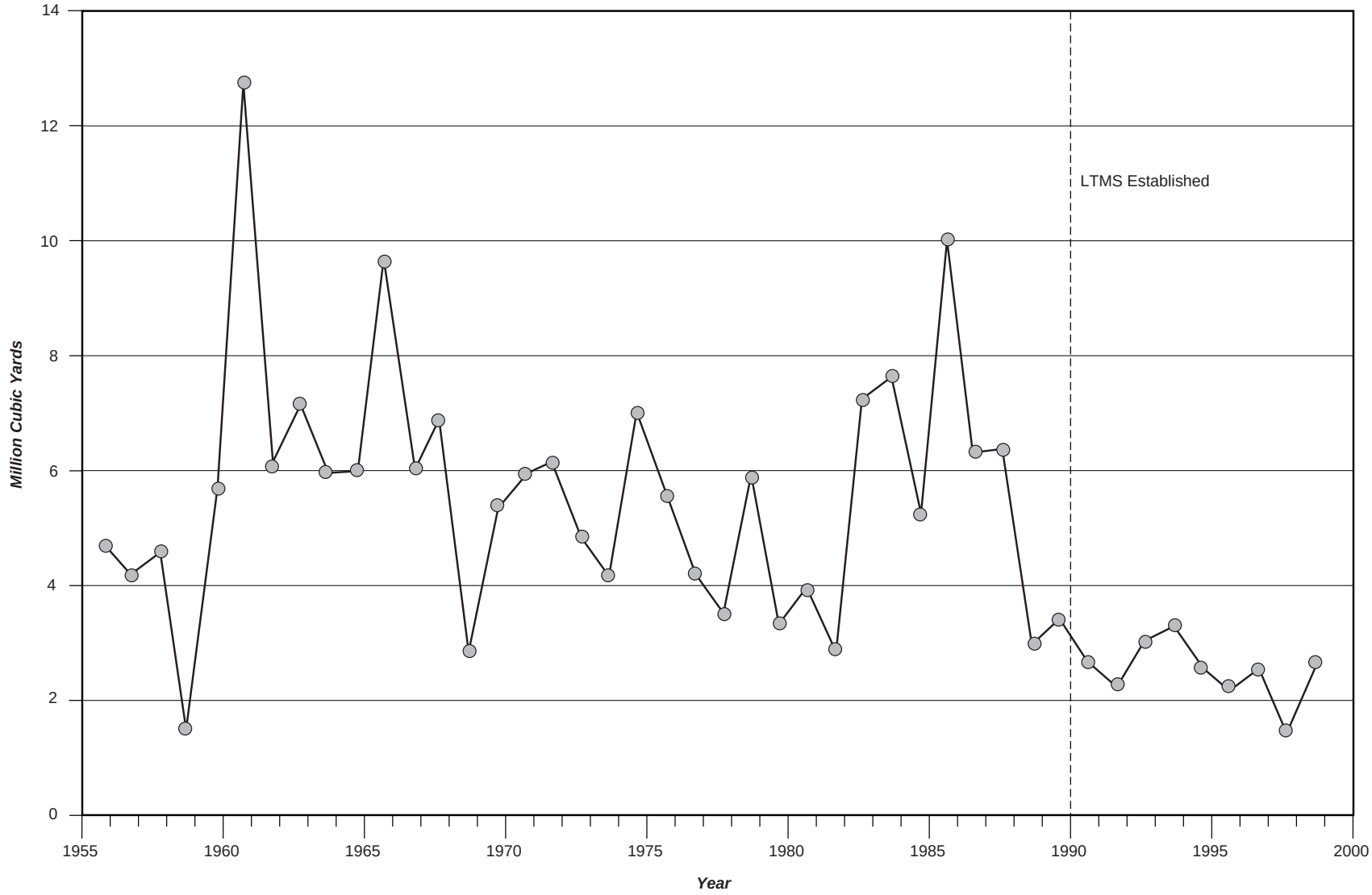


Figure 1.4

SOURCE: LTMS (1992e) Sediment Budget Study for San Francisco Bay; BCDC Road Map; USACE Quarterly Disposal Reports to SFBRWQCB

In-Bay Disposal (1995-1999)



Hamilton Restoration Group, comprised of federal, state, and local government representatives, as well as technical experts, nonprofit organizations, and interested citizens have conducted an intensive planning effort to restore tidal and seasonal wetlands at this diked bayland. The potential restoration area includes the adjacent SLC's decommissioned antenna field and the Bel Marin Keys Unit V site. The potential restoration area totals approximately 2,600 acres.

In April 1998, the technical studies needed to develop a conceptual wetland restoration plan and assess the project's feasibility were completed, followed by completion of the final EIS/EIR for the project. The planning studies determined that restoration would best be achieved by using dredged material or by relying on natural sedimentation to raise existing elevations to facilitate marsh development.[16] Up to 10.6 mcy of dredged material could be used to bring the subsided site up to marsh plain elevations and restore 988 acres of the site. The final site restoration plan has not yet been developed, yet it is anticipated that site construction will commence in 2001, and, if determined feasible, the site will be ready to accept dredged material starting in 2002.[17]

Presently, material from the Port of Oakland's 50-foot deepening project is under consideration to construct the tidal and seasonal wetlands at the Hamilton site. However, implementation of the Hamilton restoration site depends on completion of environmental remediation of the Airfield, finalization of a transfer of the Airfield to the State of California, and adequately addressing endangered species concerns regarding temporary impacts.

1.5.1.2 Montezuma Wetland Restoration Project

The proposed privately sponsored Montezuma Wetlands site will involve using approximately 17.0 mcy of dredged material over 1,822 acres of the 2,398-acre site to raise site elevations, and thereby restore a variety of wetland habitat. The restoration project is proposed to be constructed in four phases, so that existing wetland functions and values are restored at a rate that will mitigate short-term impacts to existing wetland resources, and engineered placement of dredged materials can be facilitated. Thus, restoration will be accomplished by constructing cells, separated by levees, grading channels in the cells, and connecting the four phases of the project to tidal flows. Construction of wetland habitat at the site would allow for the disposal of both clean cover material and material with slightly elevated contaminant levels buried under the clean material.[18] The Final EIR/EIS for the project was completed in 1999. Currently, clean dredged material from the Port of Oakland's 50-foot deepening project is under consideration for use at the site.

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16 Studies to date have not considered or included the Bel Marin Keys site in light of its only recent inclusion in the project. However, a supplemental EIS/EIR and conceptual design plan will need to be prepared for restoration of the site.

17 Site construction is estimated to take up to 6 years: two years for site preparation; one year to place 2.1 mcy of dredged material for restoration of seasonal wetlands; 3 years to place 8.5 mcy of dredged material for restoration of tidal wetlands; and one year to consolidate material. Following site construction and consolidation of dredged material, the bayward levee will be breached. Site monitoring and adaptive management of the site will take place over a 13-year period. Complete restoration of the Hamilton site is estimated to take 30 years.

18 The sponsor also proposes to construct a dredged material rehandling and dewatering facility on a 165-acre portion of the site.

1.5.1.3 Winter Island and Sherman Island Levee Restoration Projects

In 1998, the USACE, in cooperation with Winter Island's owner and local sponsor, the Winter Island Reclamation District, used dredged material from Suisun Channel to restore levees at Winter Island (Contra Costa County). The site capacity is approximately 100,000 cy per drying cycle. For currently planned Suisun Bay Channel maintenance episodes, the USACE is considering use of material at nearby Sherman Island (Sacramento County), owned almost entirely by the State of California and under the jurisdiction of the California Department of Water Resources (DWR). To that end, planning efforts are now under way between the USACE, DWR, Central Valley Regional Water Quality Control Board and the local government to bring about this project and address ongoing concerns about using saline dredged material in a freshwater environment. In the event the material cannot be taken to Sherman Island, the maintenance material will be used again at Winter Island.

1.5.2 LTMS Transition and Initiation

Reaching the in-Bay disposal goal will involve a significant decrease in the total volume presently allowed. One of the primary purposes of the Management Plan is to identify potential mechanisms for achieving this goal. One of these mechanisms will be a new strategy for allocating use of the in-Bay disposal sites and gradually decreasing the overall volume of dredged material allowed in the Bay over time.

During the early stages of implementation, beneficial reuse sites will be available, but their capacity will not be adequate to immediately accommodate up to 40 percent of the material dredged from the Bay. During this time, the SF-DODS will provide capacity for material diverted from in-Bay disposal and for which sufficient beneficial reuse capacity is not available or not practical, and thus act as a "safety valve" for dredging projects. Although the use of in-Bay disposal sites will be reduced, these sites will continue to provide some capacity for projects for which alternatives to in-Bay disposal are infeasible and to other projects dredged under contingency and emergency conditions. Therefore, the transition from present disposal practices to the 40/40/20 disposal goal of the LTMS will not be immediate, but rather it will be implemented gradually over a 12-year period. This phased approach is intended to reduce economic dislocations to dredgers by allowing time for new equipment and practices to be implemented, funding mechanisms and arrangements to be established, and permits to be obtained. In addition, this phased approach will allow new beneficial reuse sites to come on-line, thereby expanding the options for dredged material reuse and disposal. Over the course of the 12-year transition period, the capacity of beneficial reuse and disposal options is expected to increase significantly (Figure 1.5).

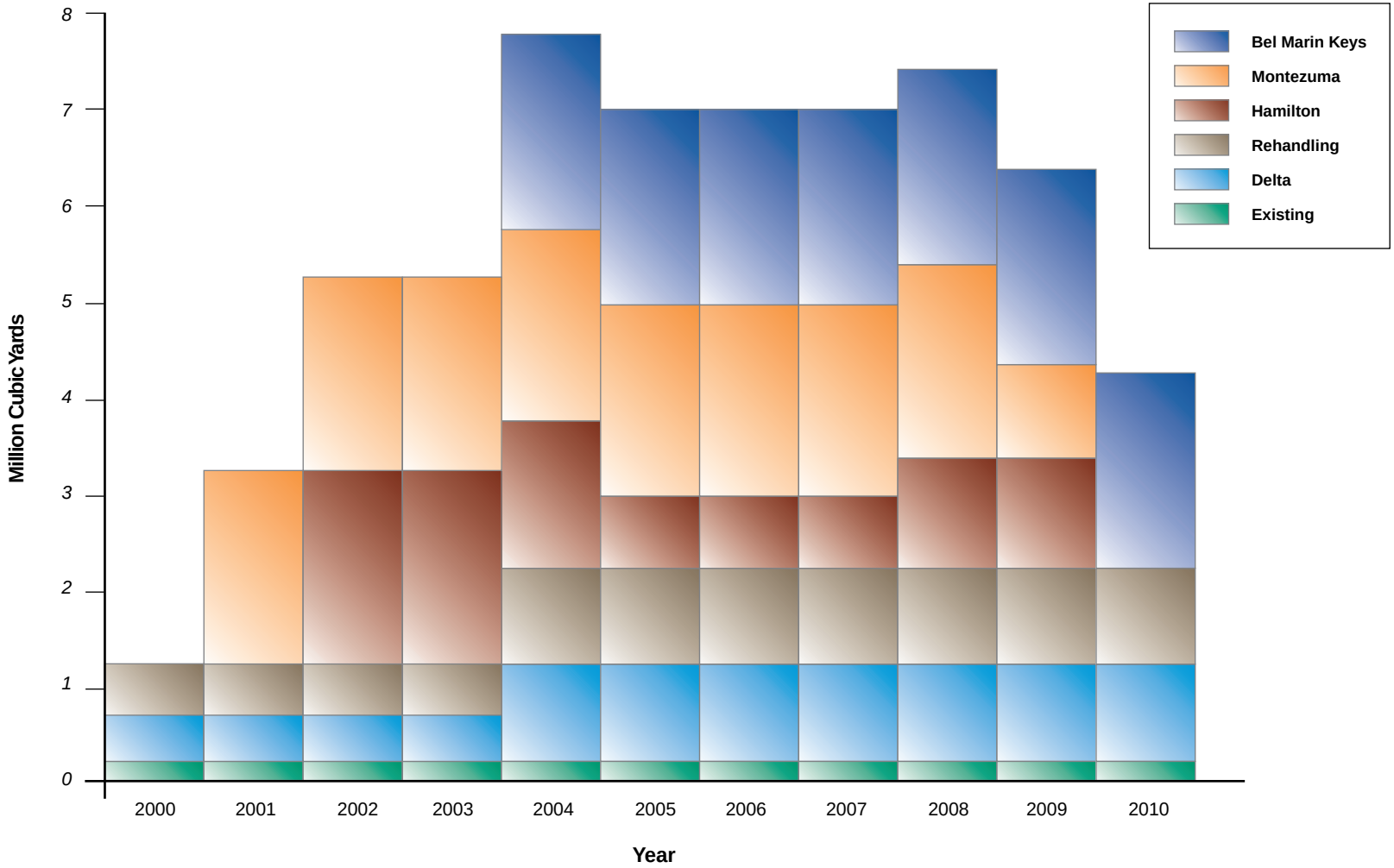
The transition began with the July 1999 signing of the ROD on the LTMS EIS/EIR by the USACE and USEPA. At that time, the LTMS agencies began implementing the early stages of the transition by managing disposal at the existing in-Bay sites based on an initial limit of 2.8 mcy per year (Chapter 6).

1.5.3 LTMS Implementation Mechanisms

Additional mechanisms for achieving the LTMS goal must be implemented during the transition period. Some mechanisms will be put into place immediately following the finalization and

publication of the *LTMS Management Plan*; others will be implemented at later stages during the transition. These mechanisms are highlighted in each chapter. The Management Plan distinguishes between proposed measures which would be implemented immediately following finalization of the document and measures which could be implemented during later stages of the transition. Additionally, a preliminary estimate of resources needed to carry out these measures is given in Chapter 9.

Figure 1.5

SOURCE: Final LTMS EIS/EIR, 1998.

Projected Beneficial Reuse and Upland Disposal Capacity