Attachment 3

Work Plan

Introduction

Goals & Objectives

The primary goal of this project is to construct the box culvert in Reach 2A, upstream of Yanonali Street and tie-in to the existing box culvert that was constructed in 2009 under the Union Pacific Railroad (UPRR). This box culvert along with the existing culvert and a future culvert to be constructed upstream will complete an overflow bypass culvert to improve flood flow conveyance. This project is part of the overall 1.3-mile Lower Mission Creek Flood Control Project.

This project will meet the following objectives:

- Ecosystem Restoration: Protect and restore habitat and ecosystems
- Water Quality: Protect and improve groundwater, freshwater, brackish water and ocean water.
- Emergency Preparedness: Prevent and prepare for flooding emergencies.

Purpose & Need

The City of Santa Barbara has experienced approximately 20 damaging floods since 1900. As such, the Santa Barbara County Flood Control and Water Conservation District (SBCFC&WCD) and the City of Santa Barbara, along with the United States Army Corps of Engineers (USACE), have developed reconnaissance studies, feasibility studies (Exhibit 3-A), and an Environmental Impact Statement/Environmental Impact Report (EIS/EIR) (Exhibit 3-B) to address and contemplate the restoration needs and flood control measures required in the lower Mission Creek. The primary problem affecting the lower Mission Creek area, as characterized by USACE, is the threat of flooding to property, which affects the health, safety, and well being of the residents of Santa Barbara. This project will provide improved flood protection to the thousands of residents and millions of dollars of valuable property.

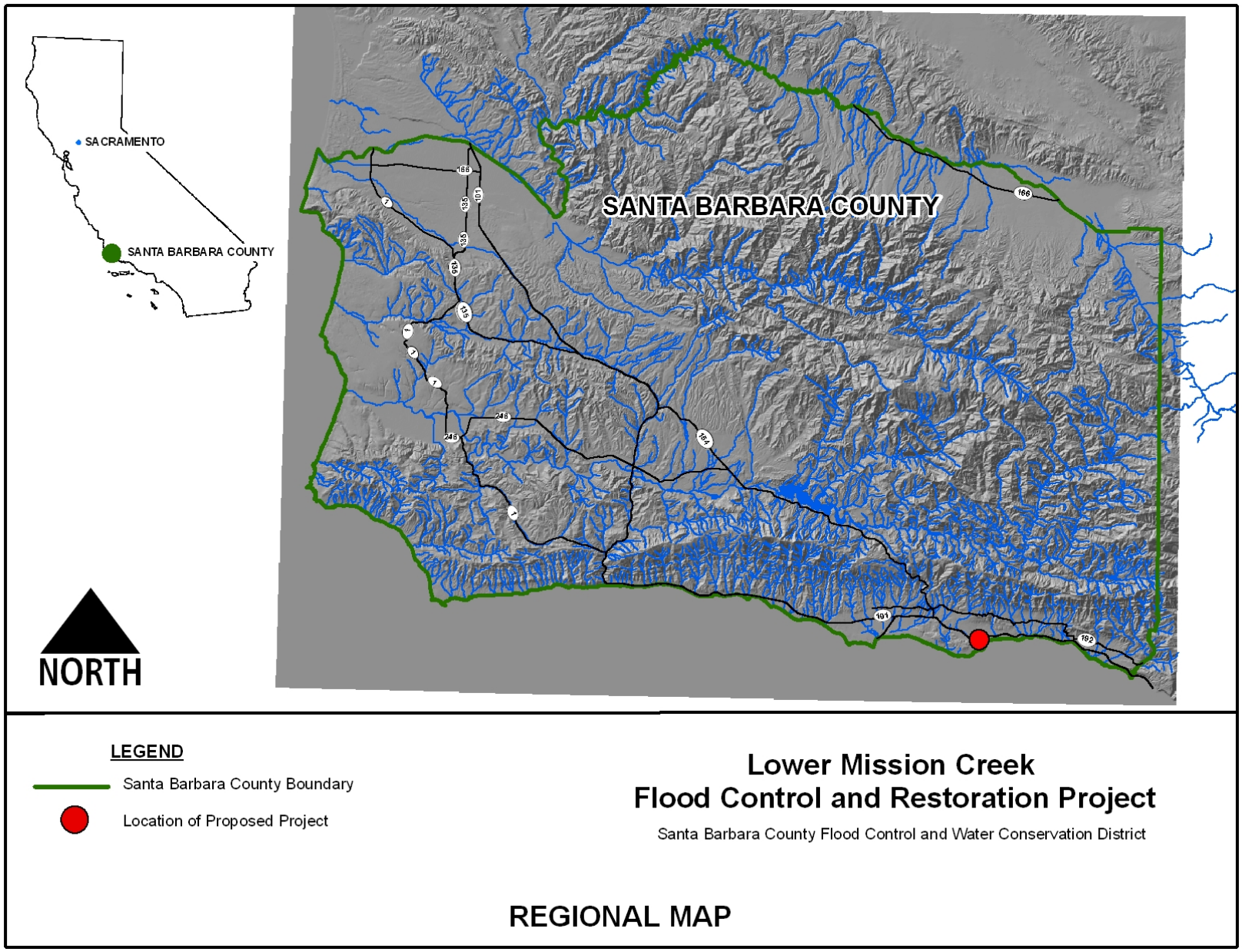
Additional issues along lower Mission Creek include environmental impacts of flooding, urbanization, and uncoordinated individual bank stabilization measures. The bank stabilization efforts have degraded the natural characteristics of the creek bottom by unconfined placement of concrete material found in numerous locations along the creek. Persistent non-native vegetation, especially giant reed, have invaded and overwhelmed the creek's environs because of the loss of the riparian community. Inhospitable patchy bank treatments and periodic maintenance is necessary, in part, to control bank erosion and prevent further encroachment of weedy species and subsequent loss of conveyance capacity.

Table 3-1 Project List			
Project Title	Project Abstract	Current Status	Implementing Agency
Lower Mission Creek Flood Control & Restoration Project – Reach 2A	This project will construct an extension of the existing box culvert which was constructed under the Union Pacific Railroad (UPRR) in 2009 to the existing Mission Creek open channel downstream of Yanonali Street. This project will improve flood flow conveyance, reduce erosion and improve water quality.	Design Level: 60%	Santa Barbara County Flood Control & Water Conservation District

Integrated Elements of Projects

This project is a portion of the overall Lower Mission Creek Flood Control & Restoration Project. When all reaches of the project are completed they will reduce urban flooding, improve water quality and restore riparian habitat.

Regional Map



Location Map

LEGEND

- Project Alignment
- Location of Proposed Project Reach
- Santa Barbara Groundwater Basin

Lower Mission Creek
Flood Control and Restoration Project
Reach 2A

Santa Barbara County Flood Control and Water Conservation District

LOCATION MAP

Completed Work

The box culvert constructed under the UPRR was completed in 2009 and will be tied into by Reach 2A of this project. Reach 1A – Phase I of the overall Lower Mission Creek Project is scheduled for construction in Summer 2011 and is partially funded by IRWM - Proposition 50 funding.

The project EIR/EIS has been completed, satisfying the CEQA and NEPA requirements. A Coastal Zone Federal Consistency Certificate was approved in 2006. As part of the Coastal Zone Federal Consistency Certificate, a "Channel Design Recommendations" report, which resulted in numerous environmental enhancements to the project, was developed and submitted to the California Coastal Commission for review and approval.

Existing Data and Studies

An extensive project feasibility study was completed in 2000 by the United States Army Corps of Engineers (USACE). The recommended features and alternatives described in the USACE feasibility study underwent a USACE value engineering study where all aspects of the project were reviewed for technical, environmental and economic effectiveness compared to other options. Twelve alternatives were evaluated in the USACE feasibility study. The alternatives include the no action plan, a 2,500-cubic feet per second (cfs) capacity with two different channel configurations, and a 3,400-cfs capacity with nine different channel configurations. Differences in the channel configuration are due to the oxbow-bypass and different combinations of bank protection.

Project Map

Reach 2A
Chapala St
Union Pacific RR
Yanonali St
Kimberly Ave
Yanonali St
Los Aguajes Ave
0 35 70 140 Feet
NORTH
LEGEND
Approximate Project Limits
Lower Mission Creek
Flood Control and Restoration Project
Reach 2A
Santa Barbara County Flood Control and Water Conservation District

Project Specifics

The Lower Mission Creek Flood Control Project is located in the City of Santa Barbara, Santa Barbara County. Mission Creek is one of two creeks which run through the urbanized area of downtown Santa Barbara, the other being Sycamore Creek. There are several major storm drain systems in the downtown area, two of which transport local drainage to Mission Creek. The other systems transport local drainage directly to the ocean.

Project Timing and Phasing

This project is a portion of the overall Lower Mission Creek Flood Control project which is broken up into seven reaches. Each reach will be constructed as a standalone project or phased as necessary. When all the reaches of the overall project are completed the full benefits will be realized, although the construction of any reach will significantly reduce the extent of local flooding.

Tasks

Project Administration Tasks

Task 1 – Administration (ongoing)

The purpose of this task is to keep the project budget and schedule on track and to communicate project progress with the other sponsoring agencies. As the lead agency for Reach 1A, Phase 2 of the Lower Mission Creek Flood Control and Restoration Project, the County of Santa Barbara will be responsible for the daily management of the project, including reviewing plans and specifications, administering and awarding contract bidding, construction management, administering a labor compliance program and project close out.

Task 2 – Labor Compliance Program (to be in effect by Spring of 2012)

The County of Santa Barbara will contract with a Third Party Labor Compliance Program approved by the Department of Industrial Relations to oversee all aspects of Contractor compliance with the Code of Federal Regulations. Labor Compliance will include, but not be limited to:

- Ensure that all project legal notices contain the proper LCP notifications to bidders; and statement of payment of prevailing wage requirements as stated in Labor Code Section 1771.8 for entities receiving funds from DWR's Stormwater Flood Management (SWFM) Grant, funded by Proposition 1E.
- Provide direction and guidance to bidders in their queries regarding compliance with the LCP, including payment of prevailing wages, identification of labor classifications, and proper completion and submission of forms and notices.

- Collect and record the receipt of weekly Certified Payroll Records Pursuant to Labor Code Sections 1771.5(4), 1776, and California Code of Regulations 16401, 16402, 16403 as well as any applicable Federal statutes.
- Conduct random audits of Certified Payroll Records.
- Conduct periodic and routine site visits to physically monitor the Project. Note the number of workers on the site and interview a sufficient number to ensure that they are receiving the proper prevailing wage rate for the duties performed.
- Investigate all allegations of failure to pay prevailing wage rates and/or worker complaints per project.
- Attend and participate in on-site meetings, or other meetings, as requested by Santa Barbara County Flood Control District.
- Engage in all such duties required for those entities receiving funds from the DWR's Stormwater Flood Management (SWFM) Grant, funded by Proposition 1E.
- Assist in litigation related to LCP issues brought by third parties.

Task 3 – Reporting (to begin upon award of grant)

The County of Santa Barbara will prepare quarterly, annual and final reports that evaluate and report on project progress, track successes, and identify problems. These reports shall be submitted by the County to the State as outlined in the grant agreement.

Land Purchase/Easement Tasks

No work will be performed as part of this category, as no land purchase or easements are required for this project.

Planning/Design/Engineering/Environmental Documentation Tasks

Task 4 – Assessment and Evaluation (Completed)

The overall project has undergone extensive assessment and evaluation prior to this point in time. In 2000, the USACE issued a Project Feasibility Study (Exhibit 3-A) investigating the feasibility of flood control along Lower Mission Creek, and landing on a design that maximizes net economic benefits while addressing flood control and environmental restoration needs.

Task 5 – Final Design (scheduled for December 2011)
The USACE has contracted with Tetratech Engineering to develop plans, specifications and the project cost estimate (PS&E). The County is currently reviewing the 60% PS&E submittal. The final submittal is expected to be completed by December 2011.

Task 6 – Environmental Documentation (Completed)

The project EIR/EIS has been completed, satisfying the CEQA and NEPA requirements (Exhibit 3-B), and a Coastal Zone Federal Consistency Certificate for the overall project was approved in 2006.

Task 7 – Permitting

The following list itemizes the required project permits and status:

- USACE Section 404 Nationwide Permit (Scheduled to be Issued by mid April 2011)
- California Department of Fish and Game 1601 Streambed Alteration Permit (Scheduled to be issued by Mid April 2011)
- City of Santa Barbara Coastal Development Permit (completed March 2009)
- Regional Water Quality Control Board Section 401 Water Quality Certification (completed January 2010)

Construction/Implementation Tasks

Task 8 – Construction Contracting (January – March 2012)
After the final design PS&E submittal, the County will compile the project contract documents and publically advertize the project for bidding for a 1 month period. The next item involves 10 days for processing bids and awarding the contract to the lowest responsive, responsible bidder.

Task 9 – Construction (April 2012 – October 2012)

Subtask 9.1 Mobilization and Site Preparation
The awarded bidder will be given two (2) months to mobilize the project. Mobilization will include tasks such as notifying adjacent private and commercial properties of construction timing, obtaining haul permits from the City, and delivery of materials.

Subtask 9.2 Project Construction
Five (5) months are provided for the contractor to complete the proposed project. The project will meet the requirements of Labor Compliance Program per California Labor Code Section 1771.8. Financial and labor compliance reports will be developed as appropriate.

Subtask 9.3 Performance Testing and Demobilization
A construction manager will be hired by the County to oversee and inspect all aspects of construction including performance testing.

Environmental Compliance/Mitigation/Enhancement Tasks

Task 10 – Environmental Compliance/Mitigation/Enhancement (April - October 2012)

This phase of the overall Lower Mission Creek Flood Control and Restoration Project is located in an area where minimal mitigation and enhancement are required as the bypass culvert will be constructed underground and outside of the creek limits and sensitive areas. However, steel bulkheads will be placed at the downstream end of the project to protect from incidental water from entering the culvert until all phases are constructed. Environmental requirements as outlined in the environmental permits will be adhered to during construction via oversight by the construction managers.

Construction Administration Tasks

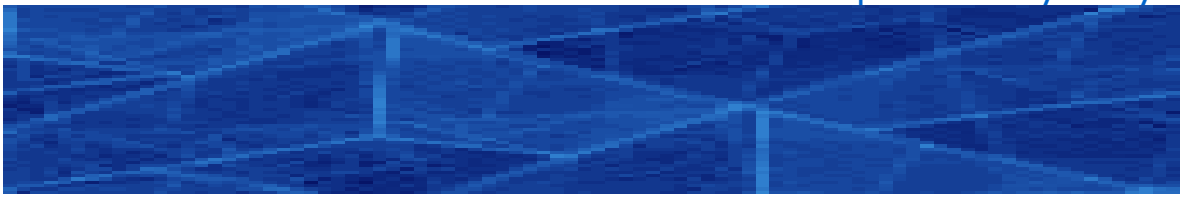
Task 11 – Construction Administration (January 2012 – October 2012)

The County will contract with a company experienced in construction management to oversee the progress of the project. Construction management will include, but not be limited to the following:

- Bidding and review services – review the contract documents for clarity and constructability and provide the county with feedback
- Pre-construction Services – attend the pre-bid project site visit and bid opening. Consult with the County on project timing and deliverables.
- Inspection – provide inspection services throughout the duration of the project, including overseeing project schedule, materials testing, change orders, disputes, and deliverables.

Exhibit 3-A

Lower Mission Creek Corps Feasibility Study



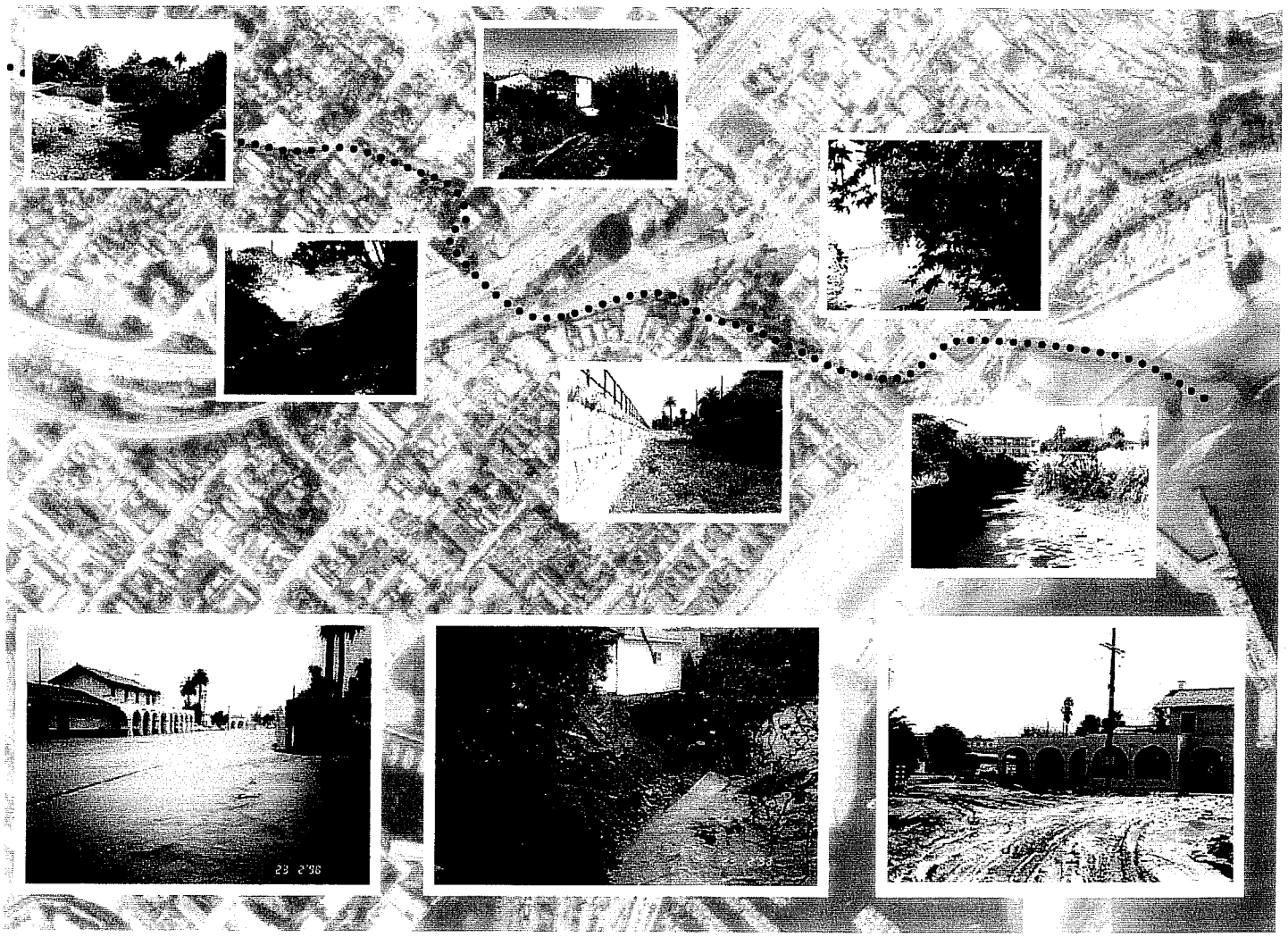
Only the Executive Summary and Table of Contents are attached as the complete document is very large. The complete Feasibility Study is available upon request.

US Army
Corps of Engineers
Los Angeles District
South Pacific Division

FEASIBILITY REPORT, September 2000

SANTA BARBARA COUNTY STREAMS

LOWER MISSION CREEK
FLOOD CONTROL FEASIBILITY STUDY



Los Angeles District, Corps of Engineers
Planning Division
P.O. Box 532711
Los Angeles, California 90053

CESPD-ET-P (September 2000) (1105) 1st End Sloan/tjm/415-977-8168
SUBJECT: Feasibility Report for Lower Mission Creek, Santa Barbara County Streams, California

DA, South Pacific Division, Corps of Engineers, 333 Market Street, Room 923
San Francisco, CA 94105-2195 28 September 2000

FOR Deputy Commanding General for Civil Works, ATTN: CECW-B, U.S. Army Corps of Engineers, 441 G Street, NW., Washington, DC 20314-1000

I concur in the conclusions and recommendations of the District Commander.

PETER T. MADSEN
Brigadier General, U.S. Army
Commanding

EXECUTIVE SUMMARY

SANTA BARBARA COUNTY STREAMS, LOWER MISSION CREEK FLOOD CONTROL FEASIBILITY STUDY

Authority and Purpose

The Los Angeles District has been directed to perform feasibility level studies of flood control alternatives in the City of Santa Barbara, California as authorized by Section 209 of the Flood Control Act of 1962 (Public Law 87-874, 87th Congress, 2nd session).

The purpose of this study is to investigate the feasibility of flood control along the lower reach of Mission Creek in Santa Barbara, California. The City of Santa Barbara has experienced approximately 20 damaging floods since 1900.

This feasibility study completes the planning process of formulating and evaluating the array of alternative plans identified in the reconnaissance study and additional alternatives developed during the feasibility study, and selects a plan that maximizes net economic benefits while addressing flood control, environmental restoration and other needs identified and defined throughout the planning process. The results presented in this report were developed in accordance with Federal water resources planning principles, guidelines, procedures, and policies.

Study Participants

The Feasibility Report, together with the Environmental Impact Statement / Environmental Impact Report (EIS/EIR) was prepared by the U.S. Army Corps of Engineers, Los Angeles District, in cooperation with the Santa Barbara County Flood Control and Water Conservation District (SBCFC&WCD) and the City of Santa Barbara (City). The SBCFC&WCD is the non-Federal Sponsor of this study and together with the City, is expected to share the non-Federal cost of implementing the recommended project. Coordination was also conducted with the Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), California Department of Fish and Game (CDFG), California Coastal Commission (CCC), Regional Water Quality Control Board (RWQCB), State Historic Preservation Office (SHPO), other interested organizations and parties.

Problem Description

The primary problem affecting the lower Mission Creek area is the threat of flooding to property, which affects the health, safety and well being of the residents of Santa Barbara.

Secondary problems are the environmental impacts of flooding, urbanization, and the uncoordinated individual bank stabilization measures. The bank stabilization efforts have

degraded the natural characteristics of the creek bottom by unconfined placement of concrete material found in numerous locations along the creek. Persistent non-native vegetation, especially giant reed, has invaded and overwhelmed the creek's environs because of the loss of the riparian community. Inhospitable patchy bank treatments, and periodic maintenance is necessary, in part, to control bank erosion and prevent further encroachment of those weedy species and subsequent loss of conveyance capacity.

Planning Objectives

The Federal objective of water and related land resources project planning is to contribute to the overall National Economic Development (NED) and National Environmental Quality (NEQ). NED contributions include increases in the net value of the national output of goods and services, expressed in monetary units. NED contributions are consistent with protecting the Nation's environment, pursuant to national environmental statutes, applicable Executive Orders, and other Federal planning requirements.

The following specific objectives of the feasibility study were based on review of problems and needs and in coordination with the desires of the local sponsors and the Mission Creek Consensus Group:

- Provide increased flood protection for the residents and businesses of Santa Barbara along the lower mile of Mission Creek;
- Restore the major species of a native riparian community along the project reach;
- Remove and suppress invasive non-native vegetation and replace with native plants;
- Remove man-made construction materials along the creek bottom and restore to natural; and
- Enhance the aquatic habitat by changing the streambed characteristics.

Plan Formulation

At the request of the local sponsor and as indicated in earlier Corps studies whereby expected flood control benefits for the upper reaches of Mission Creek would not likely warrant federal participation, this study focuses on the reach most prone to flooding; approximately the last mile of Mission Creek, beginning just downstream of Canon Perdido, across 13 bridges, and ends at Cabrillo Boulevard near the Pacific Ocean. It also includes the Laguna Drainage area, which is reach by overflows from Mission Creek.

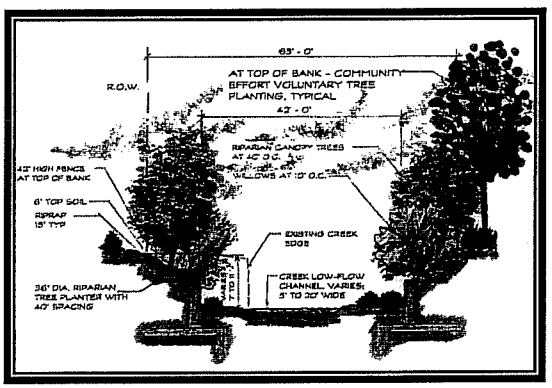
A total of 12 alternatives were developed in the feasibility study including the "No Action" alternative. Alternatives 2 and 3 were designed while placing high emphasis on using as much of the creek's existing footprint as possible with minimal creek widening allowed while replacing only the most constricted bridges. These alternatives would consequently have limited conveyance capacity estimated at 2500 cubic feet per second (cfs), which would provide approximately 15-year level of flood protection. Alternatives 2 and 3 were found to be not economically feasible and will not warrant federal participation. Subsequently they were eliminated from further consideration.

Nine other alternatives were developed with a 3400 cfs conveyance capacity (approximately 20-year level of flood protection). Alternatives 4 through 7 would use the creek's existing

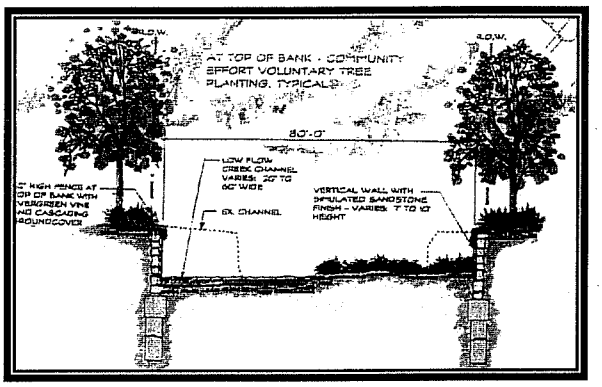
alignment throughout the project reach. The section of the creek between Gutierrez and Chapala Streets (referred to as the "oxbow"), has the sharpest bends and the least conveyance capacity. This reach would be widened to accommodate flows of up to 3400 cfs. Seven bridges would be removed and replaced. Alternatives 4 would use vertical wall sides, while Alternatives 5 to 7 would use varying amounts of vegetated-stepped walls and vertical walls would then be used where right-of-way is constricted.

Alternatives 8 through 11 differs from the earlier alternatives in that, it would incorporate an overflow culvert that would convey a significant amount of higher stormwater flows across the oxbow. The oxbow would not require any modification and would remain to carry low flows. Five bridges would be removed and replaced.

Alternative 12 has the same alignment as alternatives 8-11. It would incorporate a longer overflow culvert and would require the removal and replacement of four bridges. The creek banks would be protected using a combination toe wall and vegetated-riprap slope. Vertical walls would be used along the most constricted rights-of-way.



Creek Banks with Combination toe wall and vegetated riprap slope



Creek Banks with Vertical wall sides

The proposed alternatives except for the No Action, would have natural bottom. They would include the creation of numerous habitat expansion areas created on excess land from property acquisitions. For all the structural alternatives, future maintenance is an integral part of the project design in order to maintain its form and function.

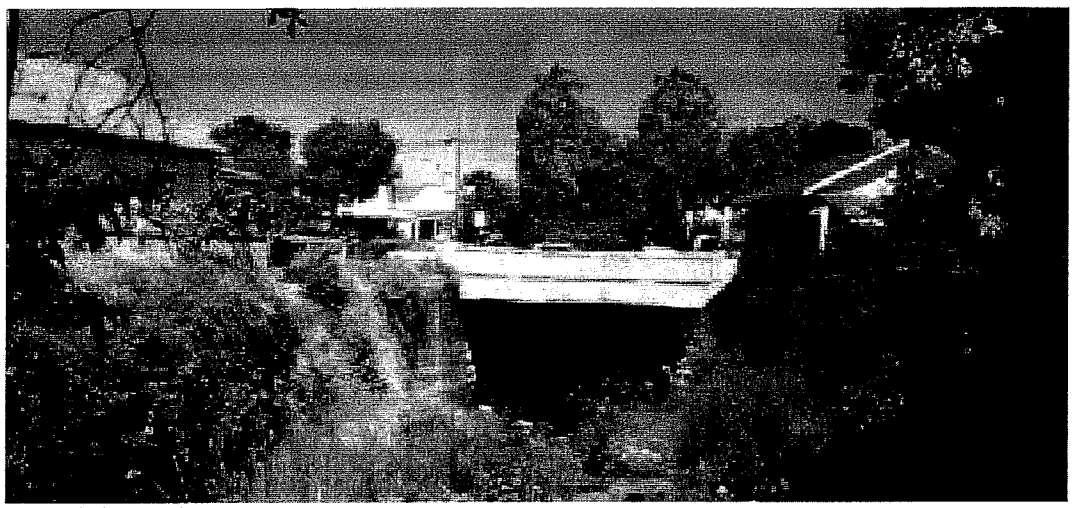
Together with the No Action alternative, Alternatives 6, 8, and 12, which best represent the project objectives and meet federal economic requirements were carried forward for full development and evaluation in the EIS/R. This combined environmental document has been prepared in compliance with the National Environmental Protection Act (NEPA) and the California Environmental Quality Act (CEQA).

In order to select the proposed Recommended Plan, the final alternatives were evaluated based on comparison to the No Action Plan on meeting the project objectives, their contributions to National Economic Development (NED), and their environmental benefits and impacts, and their compliance with environmental laws, policies, and other guidelines.

Recommended Plan

Alternative 12 best satisfies the project objectives. It provides the desired level of flood protection, produces the highest environmental outputs, and yields the highest monetary net benefits. It is therefore designated as the NED and NEQ plan. It is supported and preferred by the non-Federal sponsor. Alternative 12 is estimated to cost about $18.3 Million and has a benefit-to-cost ratio of 1.2.

Alternative 12, where the creek banks are protected with the toe wall and vegetated riprap is expected to resemble the conditions depicted in the following digital photograph simulation. The section of the creek between Ortega and Bath Street Bridges is shown in these photos.



Existing Condition (August 2000):

Expected Future With-Project Appearance after Vegetation has established:

Environmental Impacts of the Recommended Plan

The feasibility report and the combined environmental document fully describe the environmental impacts and mitigation requirements for the recommended plan.

Short term less than significant impacts to water quality, air quality, noise conditions, and other resources are expected during construction and future maintenance activities. However, no change from the existing conditions is expected in the long term. Impacts to two Endangered Species; Steelhead and tidewater goby, could be avoided or minimized by suspending construction activities within flowing water between December to March, and by scheduling future maintenance activities between April and November. Short-term impact to the tidewater gobies during construction would be minimized to insignificant level by dewatering one side of the estuary at a time for construction activities. However, future maintenance is expected to have minimal incidental take of tidewater gobies, the scheduling of maintenance would instead avoid impacts to steelhead. The anticipated impacts to the aesthetics would be short term during the construction activities. In the long term, the improvements that are proposed in this project would enhance the aesthetic values along the project reach and nearby communities by the re-vegetation of creek banks and the creation of the habitat expansion zones with recreational features. This recreational feature would be added and paid for by the City of Santa Barbara. Impacts and mitigation measures for other resources are described in the Feasibility Report and the EIS/EIR.

Plan Implementation Requirements

The District Engineer's recommendation proposes to seek new Congressional Authorization for this project and de-authorize the project authorized by the Congress in 1998. In accordance with the Water Resources Development Act (WRDA) of 1986, as amended, flood control projects are typically cost shared on a 65%-35% basis with the cost for lands, easements, rights-of-way, relocations, and disposal sites (LERRDS) as non-Federal responsibility. For this project the sponsor's project share would reach the maximum 50% allowed by law. The expected project cost-sharing apportionment would be $9.1 Million for the SBCFC&WCD and $9.2 Million for the Corps. The difference is associated with cultural resources costs, which would be shared fully by the Corps.

TABLE OF CONTENTS

EXECUTIVE SUMMARY I

LIST OF ACRONYMS XIII

I. STUDY AUTHORITY 1

A. AUTHORITY 1
B. LOCAL SPONSORSHIP 1

II. STUDY PURPOSE AND SCOPE 2

A. STUDY PURPOSE 2
B. STUDY SCOPE 2
C. STUDY AND REPORT PROCESS 3

III. PRIOR STUDIES, REPORTS, AND EXISTING WATER PROJECTS 4

A. PRIOR STUDIES AND REPORTS 4
Other Studies in the Area *6*
B. EXISTING WATER PROJECTS AND FACILITIES 7
Mission and Rattlesnake Creek Debris Basins *8*
Mission Creek Channel Improvements *8*
Mission Creek Bank Stabilization *9*

IV. PLAN FORMULATION 10

A. LOCATION AND EXTENT OF STUDY AREA 10
Location of the Study Area *10*
Drainage Basin Description *10*
Mission Creek 10
Laguna Channel 11
Physical Setting *12*
Climate *12*
B. PROBLEMS AND OPPORTUNITIES 12
Problems *13*
Opportunities *13*
C. PLANNING OBJECTIVES AND CONSTRAINTS 14
Planning Objectives *14*
Planning Constraints *15*
Physical 15
Economic 15
Environmental 16
D. WITHOUT-PROJECT CONDITIONS 16
Flood History *17*

Flooding through 1911 17
The Flood of 1914 18
Mission Creek flooding from 1918 to 1983 20
Floods of 1995 24
Floods of 1998 26
Summary 26
Hydrology 27
Hydraulics 29
Geotechnical 30
Mineral Resources 30
Seismicity 31
Groundwater 32
Real Estate 33
Economics 34
Environmental 37
Surface Water Quality 37
Ground Water Quality 37
Biological Resources 38
Cultural Resources 39
Hazardous, Toxic, and Radioactive Wastes 40
Noise 42
Air 42
Recreation 42
E. FUTURE WITHOUT PROJECT CONDITIONS 42
F. FORMULATION OF ALTERNATIVE PLANS 44
Early Plan Formulation 44
Reconnaissance Phase Plan Formulation 45
Non-Structural Measures 46
Structural Measures 46
Environmental Restoration 48
Feasibility Phase Plan Formulation 48
Description of Alternative Plans 50
Alternative No. 1 50
Alternative 2 50
Alternative No. 3*: 2500 cfs Capacity - Stabilized sides using vertical walls* 51
Alternative No. 4*: 3400 cfs Capacity - Stabilized sides using vertical walls (no overflow culvert)* 51
Alternative No. 5*: 3400 cfs Capacity - Stabilized sides using vegetated stepped walls (no overflow culvert)* 51
Alternative No. 6*: 3400 cfs Capacity - Stabilized sides using predominantly vegetated stepped wall with vertical walls applied for the remaining reaches (no overflow culvert)* 52
Alternative No. 7: 3400 cfs *Capacity - Stabilized sides using a combination of vegetated stepped walls and vertical walls (no overflow culvert)* 52
Alternative No. 8*: 3400 cfs Capacity - Stabilized sides using vertical walls (with overflow culvert)* 53
Alternative No. 9*: 3400 cfs Capacity - Stabilized sides using vegetated stepped walls (with overflow culvert)* 53
Alternative No. 10*: 3400 cfs Capacity - Stabilized sides using predominantly vegetated*

stepped walls with vertical walls applied for the remaining reaches (with overflow culvert) 53
Alternative No. 11: *3400 cfs Capacity -Stabilized sides using combination vegetated stepped walls upstream of Highway 101 and vertical walls downstream of Highway 101 (with overflow culvert)* 54
Alternative No. 12: 3400 cfs Capacity With *Overflow Culvert - Stabilized sides using a combination toe wall and vegetated riprap slope and vertical walls* 54
G. EVALUATION OF ALTERNATIVE PLANS 58
Hydrology 58
Hydraulics 58
Sediment Budget Analysis 60
Effect on the Sediment Budget of the Harbor 60
With-Project Overflow Analysis 60
Geotechnical 61
Design 62
Access Ramps and Fencing 64
Retaining Wall Preliminary Design 65
Bridge Relocations and Replacements 65
Construction 65
Operation and Maintenance 66
Real Estate 66
Relocations under P.L. 91-646 67
Other Improvements (No Relocation) 68
Relocation of Bridges 68
Utilities 69
Acquisition Costs 69
Environmental 70
Water Resources 71
Biological Resources 73
Cultural Resources 78
Hazardous, Toxic and Radioactive Waste 81
Noise 83
Air Quality 84
Recreation 85
Future Maintenance 86
H. NED PLAN SELECTION 87
Benefits 87
With-Project Damage Reduction for Structures and Contents 87
Reduction of Bank Stabilization Costs 88
Automobile Transportation Delay 88
Emergency Repair and Clean-up Costs 89
FEMA Overhead Costs 89
Advanced Bridge Replacement 90
Costs 91
Benefit/Cost Analysis 93
System of Accounts 93
National Economic Development (NED) Account 94
Environmental Quality (EQ) Account 94
Regional Economic Development (RED) Account 94

Other Social Effects (OSE) Account 95
Additional Evaluation Criteria *101*
Completeness 101
Effectiveness 101
Efficiency 102
Acceptability 102

V. DESCRIPTION OF THE SELECTED PLAN 103

A. SELECTED PLAN (RECOMMENDED PLAN) 103
B. PLAN DESCRIPTION 103
General *104*
Major Design Elements of the Project *105*
Bank Protection Schemes 105
Replacement of Existing Bridges 107
Weir Inlet and Overflow Culvert that Bypasses the Oxbow 107
Rocky Energy Dissipaters and Boulder Clusters 109
Expanded Habitat Zones 109
Structural Features to Mitigate and Avoid Impacts to Biological Resources 110
Fish Ledges upstream of Mason Street 112
Fish baffles upstream of Mason Street 114
In-Stream Boulder Clusters 114
Additional Design Opportunity *115*
Detailed Description of Creek Improvements Along the Entire Project Reach *116*
Canon Perdido Street Bridge to De La Guerra Street Bridge (Station 61+36 to 57+00): 116
De la Guerra Street Bridge to Ortega Street Bridge (Station 57+00 to 52+30): 117
Ortega Street Bridge to Bath Street Bridge (Station 52+30 to 49+00): 118
Bath Street Bridge to Cota Street Bridge (Station 49+00 to 46+00): 119
Cota Street Bridge to Haley-De la Vina Bridge (Station 46+00 to 39+00): 120
Haley-De la Vina Bridge to Gutierrez Street Bridge (Station 39+00 to 34+00): 121
Gutierrez Street Bridge to Highway 101: 122
New Overflow Culvert that Bypasses the Oxbow between Highway 101 and Chapala Street Bridge: 124
Chapala/Yanonali Street Bridge to Mason Street Bridge (Station 25+00 to 17+00): 125
Mason Street Bridge to State Street Bridge (Station 17+00 to 12+50): 126
State Street Bridge to Cabrillo Boulevard Bridge (Station 12+50 10+15): 127
Removal of Existing Bank Protection and Earthen Material *128*
Operation and Maintenance *129*
Stream Bed Maintenance 130
Channel Wall Maintenance 130
CHANNEL WALL MAINTENANCE. 130
Overflow Weir Structure 131
OVERFLOW CULVERT AND WIER STRUCTURE.. 131
Vegetated Riprap Slope Banks and Other Appurtenances 132
VEGETATED RIPRAP SLOPE BANKS AND OTHER APPURTENANCES. 132
Habitat Expansion Zone Maintenance 133
Interior Drainage 133
Inspections *134*

VI. PLAN IMPLEMENTATION 135
A. STUDY RECOMMENDATION 135
B. COST ALLOCATION 135
C. CURRENT AND FUTURE WORK ELIGIBLE FOR CREDIT 136
D. INSTITUTIONAL REQUIREMENTS 139
E. ENVIRONMENTAL REQUIREMENTS 142
F. VIEWS OF THE NON-FEDERAL SPONSOR 143
G. SPONSOR'S FINANCIAL ANALYSIS 144
H. PROCEDURES FOR IMPLEMENTATION 144
I. SUMMARY OF COORDINATION, PUBLIC VIEWS, AND COMMENTS 146
VII. CONCLUSION 156
VIII. RECOMMENDATION 157

LIST OF TABLES

Page

Table 1. Median Probability Peak Discharges, Mission Creek 28
Table 2. Faults in the Vicinity of Mission Creek 31
Table 3. Historical Flood Damages 35
Table 4. Expected Annual Without-Project Structural Damages 35
Table 5. Expected Annual Without-Project Nonstructural Damages 36
Table 6. Total Without Project Expected Annual Damages 36
Table 7. Recorded Leaking Underground Storage Tanks 41
Table 8. Alternative Plan Features - Alternatives 1-6 56
Table 9. Alternative Plan Features - Alternatives 7-12 57
Table 10 Mission Creek Design Values 61
Table 11. With-Project Relocations 67
Table 12. Other Improvements To Be Taken 68
Table 13. Bridge Relocation 69
Table 14. Total Real Estate Costs 70
Table 15. Summary of Anticipated Environmental Impacts 75
Table 16. Quantitative Biological Summary 76
Table 17. Reduction in Structural and Content Damages 88
Table 18. Reduction in Transportation Damages 89
Table 19. Reduction in Emergency Repair and Clean-up Damages 89
Table 20. Savings in Flood Insurance Overhead 90
Table 21. Annual Benefits for Advanced Bridge Replacement 91
Table 22. With-Project Costs 92
Table 23. Benefit-Cost Summary 93
Table 24. System of Accounts - National Economic Development Account 98
Table 25. System of Accounts - Environmental Quality Account - Alternatives 1 & 6 96
Table 26. System of Accounts - Environmental Quality Account – Alternatives 8 & 12 97
Table 27. System of Accounts - Other Social Effects Account - Alternatives 1 & 6 98
Table 28. System of Accounts - Other Social Effects Account – Alternatives 8 & 12 99
Table 29. Fully Inflated Project Costs 136
Table 30. Project Costs 137
Table 31. Cost Apportionment 138

LIST OF FIGURES

Page

Figure 1. Toe wall and Riprap Bank Protection 77
Figure 2. Vertical Wall on Pier Footing Representative Cross Section 105
Figure 3. Vegetated Riprap Sideslope on Inverted "T" Footing Representative Cross Section 105
Figure 4. Outlet of Overflow Culvert Alongside Chapala Street Bridge 107
Figure 5. Representative Cross Section of Side Weir Channel Inlet to Overflow Culvert (Looking Downstream) 108
Figure 6. Representative Cross Section of Rocky Energy Dissipaters and Boulder Clusters ... 109
Figure 7. Representative Cross Section of a Habitat Expansion Area 110
Figure 8a. Goby Refugia, Fish Ledges and Fish Baffles Along the Walls in the Estuary (Between Mason Street and Cabrillo Boulevard) 111
Figure 8b. Representative Cross Section Showing Fish Ledges and Baffles along the Walls Upstream of Mason Street 113
Figure 9. Canon Perdido and De La Guerra Street Bridges (Upstream End of the Project) 116
Figure 10. De La Guerra Street Bridge to Ortega Street Bridge 117
Figure 11. Ortega Street Bridge to Bath Street Bridge 118
Figure 12. Bath Street Bridge to Cota Street Bridge 119
Figure 13. Cota Street Bridge to Haley-De la Vina Bridge 120
Figure14. Haley-De la Vina Bridge to Gutierrez Street Bridge 121
Figure15. Gutierrez Street Bridge to Highway 101 122
Figure 16. Representative Cross Section of the Side Weir Channel Inlet to Overflow Culvert 123
Figure 17. New Overflow Culvert that Bypasses the Oxbow between Highway 101 and Chapala Street Bridge 124
Figure 18. Chapala/Yanonali Street Bridge to Mason Street Bridge 125
Figure 18. Mason Street Bridge to State Street Bridge 126
Figure 19. State Street Bridge to Cabrillo Boulevard Bridge 127

LIST OF EXHIBITS

(EXHIBITS MAY BE FOUND FOLLOWING THE MAIN TEXT)

Exhibit 1. Regional Map
Exhibit 2. Location Map
Exhibit 3. Mission Creek Watershed Map
Exhibit 4. Laguna Channel Drainage Map
Exhibit 5. Mission Creek Floodplain Map
Exhibit 6. Mission Creek Floodplain Map 3400 cfs Project
Exhibit 7. Engineering Plans
Exhibit 8. Architectural Drawings
Exhibit 9. Letter of Support and Financial Capability

Environmental Impact Statement / Environmental Impact Report

(MAY BE FOUND FOLLOWING THE EXHIBITS)

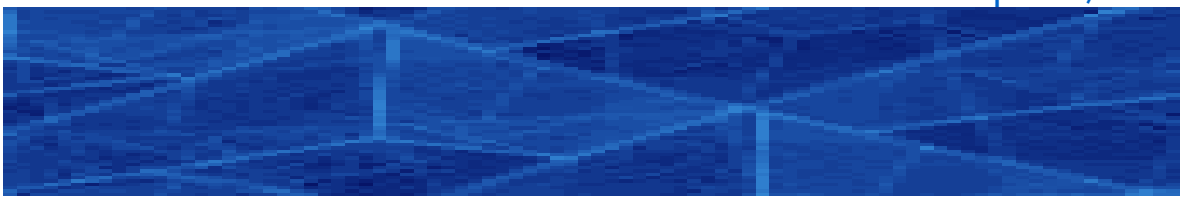
LIST OF TECHNICAL APPENDICES

(BOUND UNDER SEPARATE COVER)

Appendix A. Hydrology
Appendix B. Hydraulics
Appendix C. Economics
Appendix D. Real Estate
Appendix E. Design
Appendix F. Cost
Appendix G. Geotechnical

Exhibit 3-B

Lower Mission Creek Corps EIS/EIR



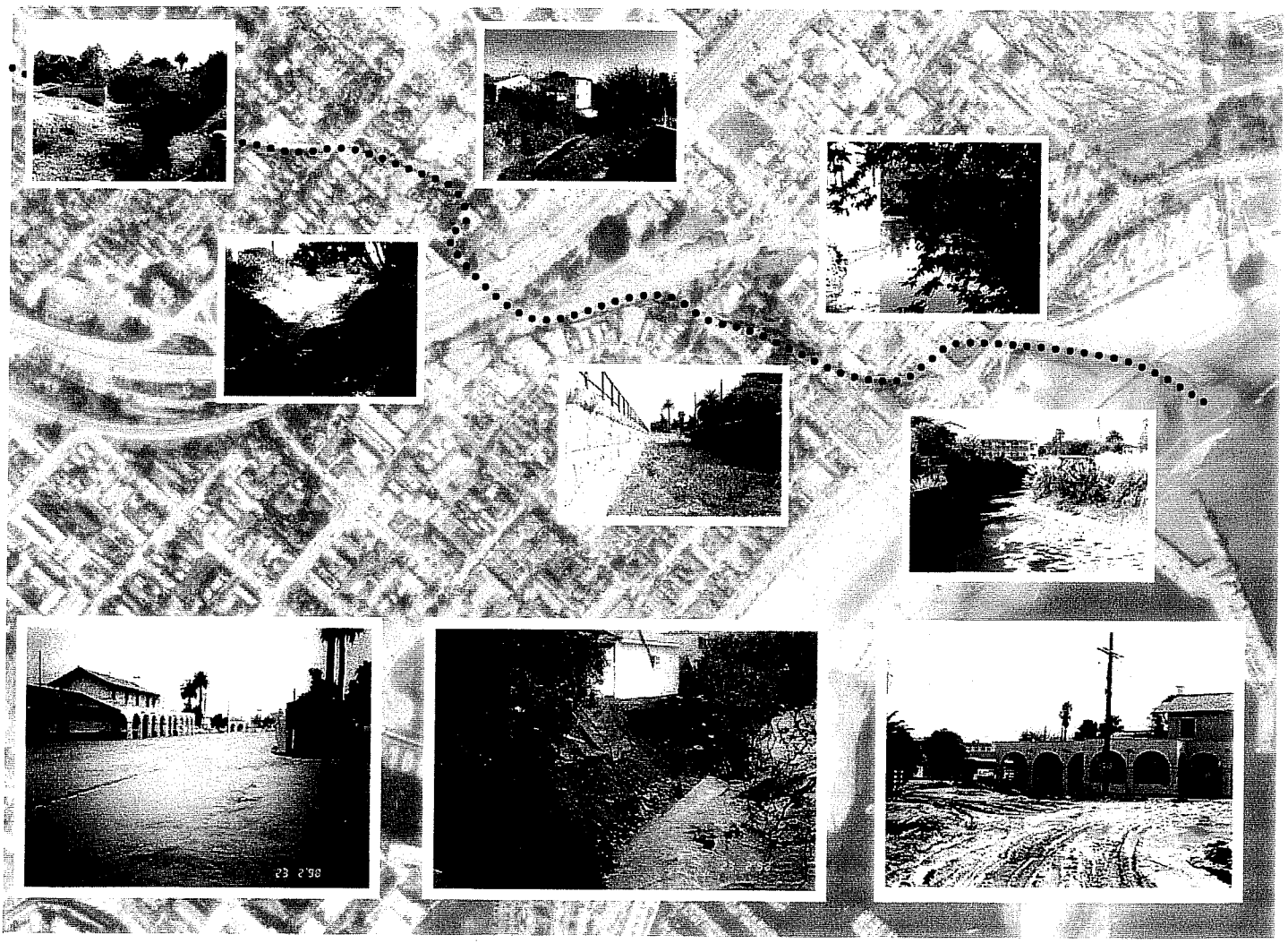
Only the Executive Summary and Table of Contents are attached as the complete document is very large. The complete EIS/EIR is available upon request.

US Army
Corps of Engineers
Los Angeles District
South Pacific Division

FINAL EIS/EIR , September 2000

SANTA BARBARA COUNTY STREAMS

LOWER MISSION CREEK FLOOD CONTROL FEASIBILITY STUDY



Los Angeles District, Corps of Engineers
Planning Division
P.O. Box 532711
Los Angeles, California 90053

Final
Environmental Impact Statement/Environmental Impact Report (EIS/EIR)
Proposed Plan for Flood Control
Lower Mission Creek Flood Control Project
Santa Barbara
Santa Barbara County, California

The lead Federal agency is the U.S. Army Corps of Engineers, Los Angeles District.
The responsible agencies for compliance with the California Environmental Quality Act are the Santa Barbara County Flood Control and Water Conservation District, and the City of Santa Barbara Public Works Department.

Abstract: The Feasibility Report for the Lower Mission Creek Flood Control Project resulted in the selection of a final array of alternatives to protect the city of Santa Barbara against future flooding. This EIS/EIR specifically addresses alternatives 12, 6, 8 and 1-No Action Alternative. These alternatives would increase the channel capacity to 3,400 cfs and would provide approximately a 20-year level of protection. Channel improvements would occur for approximately the last mile of the creek between the Canon Perdido Street Bridge at the upstream end, and the Cabrillo Boulevard Bridge near the outlet. Alternative 12, the National Economic Development (NED) and tentatively recommended plan, includes: natural creek bottom; replacement of four bridges, streamlining bedslope, installing a culvert that bypasses the oxbow, stabilizing creek banks using a combination of vertical walls and vegetated riprap; and construction of habitat zones and a wetland. Alternative 6 consists of: natural creek bottom; stabilized creek banks with vertical walls and vegetated stepped banks; replacement of seven bridges; streamlining bedslope; construction of habitat zones, a wetland; and the oxbow would be widened to convey higher flows. Alternative 8 consists of: natural creek bottom; stabilization of creek banks with vertical concrete walls; replacement of five bridges; streamlining bedslope, installing a culvert that bypasses the oxbow; and construction of habitat expansion zones and a wetland. Future maintenance is a integral part of the project design for all alternatives identified about, and it is included in the project description for the life of the project. Project design incorporates planting of vegetation along upper banks, within vacant land parcels, and construction of a wetland. Alternative 12 would provide maximum incidental environmental benefits, and it is an environmentally superior plan compared to other viable alternatives considered during the feasibility study. A Modified Habitat Evaluation Procedure (HEP) has been developed to identify the existing value of biological resources and evaluate impacts related to the project implementation and future maintenance. Alternative 8 would be environmentally damaging compared to alternatives 6 and 12. Mitigation measures and environmental commitments summarized in section 24 and Mitigation Monitoring Plan (Appendix H) of this EIS/EIR would be implemented to minimize impacts to biological, cultural, traffic, water quality, air quality and noise. Mitigation measures would be similar for all evaluated alternatives in the EIS/EIR.

Under the No Action Alternative, the existing channel would remain in place and periodic maintenance would be required, however the City of Santa Barbara would be subject to flooding.

THE OFFICIAL CLOSING DATE FOR THE RECEIPT OF COMMENTS IS 30 DAYS FROM THE DATE ON WHICH THE NOTICE OF AVAILABILITY OF THIS FINAL EIS APPEARS IN THE FEDERAL REGISTER.

If you would like further information on the Draft Feasibility Report or Draft EIS/EIR, please contact:
Ed Demesa, Study Manager (Feasibility Study Report)
Joy Jaiswal, Environmental Coordinator (EIS/EIR)
P.O. Box 532711- (CESPL-PD-RL)
Los Angeles, CA 90053-2325
Telephone: 213-452-3796 (Demesa) 213-452-3871 (Jaiswal)
Janice M. Hubbell, AICP, Project Planner, Santa Barbara
Telephone: (805) 564-5470

NOTE: Information, displays, and maps discussed in the Main Feasibility Study Report for a flood control project on Lower Mission Creek are incorporated by reference in this EIS/EIR.

FINAL ENVIRONMENTAL IMPACT STATEMENT/ ENVIRONMENTAL IMPACT REPORT (EIS/EIR) LOWER MISSION CREEK FLOOD CONTROL PROJECT

- TABLE OF CONTENTS -

PAGE

SUMMARY ES-1
Study Authority ES-1
Project Location ES-1
Introduction ES-2
Need for the Project ES-3
Planning Objectives ES-3
Background of Development of the Alternatives ES-3
Alternative 12 - National Economic Development (NED)/ Tentatively Preferred Plan - The Project Description ES-4
Alternative 1 - No Action ES-8
Alternative 6 - 3400cfs Flood Level Capacity Without Oxbow Bypass ES-8
Alternative 8 - 3400 cfs Flood Level Capacity With Oxbow Bypass ES-9
Public Participation ES-9
Comparative Impacts of Alternatives ES-12
Relationship to Environmental Protection Statutes and Other Environmental Requirements ES-12
Coordination with the Resource Agencies ES-13
Major Conclusions and Findings ES-13
Permit Requirements ES-16

SECTION 1 INTRODUCTION 1-1
1.1 Study Location 1-1
1.2 Purpose and Scope of Environmental Impact Statement (EIS) and Environmental Impact Report (EIR) 1-1
1.3 Previously Prepared Environmental Documents 1-2
1.4 Background & History of the Proposed Action 1-2
1.5 NEPA and CEQA Compliance 1-7
1.5.1 NEPA/CEQA Process 1-8
1.6 Compliance with Applicable Federal and State Statutes 1-12
1.6.1 The City of Santa Barbara General Plan and Local Coastal Plan Goals and Policies 1-19
1.7 Agency/Organization Coordination: 1-20
1.7.1 Lead and Cooperating Agencies 1-20
1.7.2 Coordination for Draft and Final EIS/EIR 1-20

SECTION 2 NEED FOR AND OBJECTIVES OF ACTION 2-1
2.1 Study Authority 2-1
2.2 Need for the Project 2-1
2.3 Planning Objectives 2-3
2.4 Public Participation 2-5
2.4.1 Notice of Intent/Notice of Preparation 2-5
2.4.2 Summary of Public Workshop and Scoping Meetings 2-5
2.4.3 Public Scoping Meeting on Initiation of EIS/EIR 2-6

SECTION 3 ALTERNATIVES 3-1
3.1 Alternatives 3-1
3.2 Background Information 3-1
3.3 Plans Eliminated From Further Study 3-4
3.3.1 Nonstructural Alternatives 3-4
3.3.1.1 Floodplain Insurance 3-4
3.3.1.2 Flood Proofing 3-4
3.3.1.3 Relocation 3-4
3.3.2 Structural Alternatives Eliminated from Further Consideration 3-5
3.3.2.1 5800cfs Conveyance Capacity 3-5
3.3.3 Bank Stabilization Alternatives Eliminated from Further Consideration 3-5
3.3.3.1 Natural Bank Protection 3-5
3.3.3.2 Geotextile Bank Protection 3-5
3.3.3.3 Grouted Riprap Bank Protection 3-6
3.3.3.4 Fully-lined Concrete Channel 3-6
3.4 Alternatives Not Evaluated for Environmental Analysis 3-6
3.4.2 Description of Alternatives Technically Feasible but Economically and Not Evaluated for Environmental Analysis 3-8
3.4.2.1 Alternative No. 2 3-9
3.4.2.2 Alternative No. 3-9
3.4.2.3 Alternative No. 4 3-9
3.4.2.4 Alternative No. 5 3-10
3.4.2.5 Alternative No. 7 3-10
3.4.2.6 Alternative No. 9 3-11
3.4.2.7 Alternative No. 10 3-11
3.4.2.8 Alternative No. 11 3-12
3.5 Alternatives Considered in Detail and Evaluated for Environmental Analysis 3-12
3.5.1 Alternative No. 1 3-13
3.5.2 Alternative No. 12 3-13
3.5.2.1 Detailed Project Description of Each Feature Associated with the Tentative Recommended Plan 3-20
3.5.3 Operation and Maintenance 3-46

3.5.3.1 Existing Operation and Maintenance 3-46
3.5.3.2 Future Operation and Maintenance 3-47
3.5.3.3 Operation and Maintenance of Structural Features 3-53
3.5.4 Alternative No. 6 3-53
3.5.5 Alternative No. 8 3-54
3.6 Comparative Impacts of Alternatives 3-55

SECTION 4 PLANS AND POLICIES 4-1
4.1 Local Plans and Policies 4-1
4.1.1 Santa Barbara City Charter 4-1
4.1.1.1 Charter Section 1507 4-1
4.1.1.2 Charter Section 1508 4-2
4.1.2 Santa Barbara Municipal Code 4-2
4.2 Santa Barbara General Plan 4-3
4.2.1 Land Use Element 4-4
4.2.2 Noise Element 4-5
4.2.3 Conservation Element 4-6
4.2.3.1 Cultural and Historic Resources 4-6
4.2.3.2 Visual Resources 4-8
4.2.3.3 Air Quality 4-11
4.2.3.4 Biological Resources 4-11
4.2.3.5 Drainage and Flood Control 4-13
4.2.3.6 Water Resources 4-14
4.2.4 Parks and Recreation Element 4-14
4.2.5 Open Space Element 4-16
4.2.6 Seismic Safety and Safety Element 4-18
4.2.7 Circulation Element 4-20
4.2.8 Housing Element 4-23
4.3 Local Coastal Plan 4-24
4.3.1 Water and Marine Environments 4-24
4.3.2 Visual Quality 4-27
4.3.3 Land Use 4-29
4.4 California Coastal Act Policies 4-30
4.4.1 Public Access 4-31
4.4.2 Recreation 4-31
4.4.3 Marine Environment 4-32
4.4.4 Land Resources 4-35
4.4.5 Development 4-36

SECTION 5 AFFECTED ENVIRONMENT AND IMPACT ANALYSIS 5-1
5.1 Introduction 5-1
5.2 General Existing Environmental Conditions 5-1
5.3 Existing Significant Resources Located Within the Project Area 5-3

5.4 Summary of Environmental Consequences of the Preferred Alternative 5-4
5.5.1 Biological Resources 5-4

SECTION 6 GEOLOGY 6-1
6.1 Site Topography 6-1
6.2 Existing Geological Conditions 6-1
6.2.1 Regional Geology 6-1
6.2.2 Existing Seismicity and Earthquakes 6-2
6.2.3 Potential Seismicity 6-2
6.2.4 Tsunamis 6-2
6.2.5 Geotechnical Conditions of Lower Mission Creek Channel 6-3
6.3 City of Santa Barbara General Plan and Local Coastal Plan Goals and Policies for Seismic Safety and Geologic Hazards 6-3
6.4 Impacts on Geological Resources 6-3
6.4.1 Alternative 1 (No Action) 6-3
6.4.2 Alternatives 12, 6 and 8 6-4
6.4.3 Future Sediment Removal 6-5
6.5 Mitigation Measures 6-6
6.6 Residual Impacts 6-6

SECTION 7 WATER QUALITY 7-1
7.1 Existing Water Quality 7-1
7.1.1 Surface Water Quality 7-2
7.1.2 Water Sample Analysis 7-4
7.1.3 Sediment Sample Analysis 7-4
7.1.4 Discussion of Water and Sediment Sample Analysis 7-5
7.2 County and City of Santa Barbara Joint Stormwater Pollution Prevention Plan (SWPP) 7-6
7.2.1 Background 7-6
7.2.2 Methodology 7-8
7.2.3 Sampling Results 7-9
7.3 Water Quality at Lagoon 7-9
7.3.1 City of Santa Barbara Mission Creek Estuary Water Quality Monitoring Program 7-10
7.4 Ground Water Quality 7-11
7.4.1 Seawater Intrusion 7-11
7.5 City of Santa Barbara General Plan and Local Coastal Plan Goals and Policies for Water and Marine Environments 7-13
7.6 Impacts on Water Resources 7-14
7.6.1 Alternative No. 1 7-14
7.6.2 Alternative No. 12, 6 and 8 7-14
7.6.3 Future Periodic Maintenance 7-15

7.6.4 Impact on Ground Water Recharge 7-15
7.6.5 Compliance with Environmental Laws and Permit Requirements 7-16
7.6.6. Mitigation of Potential Water Quality Impacts 7-17
7.7 Residual Impacts 7-17

SECTION 8 AIR QUALITY 8-1
8.1 Existing Air Quality 8-1
8.1.1 Santa Barbara County Air Pollution Control District Annual Air Quality Report (1996) 8-3
8.1.2 Historical Air Quality 8-4
8.1.3 Federal Statutes and Regulations 8-5
8.1.4 State Regulations 8-6
8.1.5 Santa Barbara County Regulations 8-6
8.2 City of Santa Barbara Air Quality Goal 8-6
8.3 Climate 8-6
8.3.1 Visibility 8-7
8.3.2 Temperature 8-7
8.3.3 Wind Speed and Direction 8-7
8.3.4 Precipitation 8-7
8.4 Impacts on Air Quality 8-8
8.4.1 No Action Alternative No. 1 (Without Project Conditions) 8-8
8.4.2 Alternatives 12, 6 and 8 8-8
8.4.3 Future Sediment Removal 8-9
8.4.4 Summary of Air Quality Analysis 8-10
8.4.5 Requirements of Determination of Conformity 8-10
8.5 Mitigation Measure 8-12
8.6 Residual Impacts 8-12

SECTION 9 NOISE 9-1
9.1 Existing Noise 9-1
9.1.2 Noise Levels Within the Project Area 9-2
9.2 City of Santa Barbara General Plan Goals and Policies for Noise 9-3
9.3 Noise Impacts 9-3
9.3.1 No Action Alternative No. 1 (Without Project Conditions) 9-3
9.3.2 Alternatives 12, 6 and 8 9-3
9.4 Mitigation Measures 9-4
9.5 Residual Impacts 9-6

SECTION 10 BIOLOGICAL RESOURCES ..... 10 - 1
10.1 The Physical Setting of Biological Resources Along the Creek ..... 10 - 1
10.1.1 An Overview ..... 10 - 1
10.1.2 Transformation from Riparian to Existing Urban Biotic Conditions 10 - 1
10.1.3 Existing Urban Conditions along Lower Mission Creek ..... 10 - 3
10.1.4 Numerical Values Express Ecological Quality ..... 10 - 4

10.2 Existing Biological Resources ..... 10 - 4
10.2.1 Aquatic Habitat ..... 10 - 4
Streambed of Lower Mission Creek ..... 10 - 4
Riverine pools ..... 10 - 7
Instream macro-invertebrate fauna ..... 10 - 9
Estuary conditions ..... 10 - 10
Quality of aquatic habitat ..... 10 - 14
10.2.2 Stream Bank Habitat ..... 10 - 14
Stream bank surfaces ..... 10 - 14
Predominant vegetation ..... 10 - 15
Scattered native tree species ..... 10 - 16
Quality of stream bank habitat ..... 10 - 18
10.2.3 Wildlife ..... 10 - 18
10.2.4 Threatened and Endangered Species ..... 10 - 19
10.2.4.1 Tidewater Goby ..... 10 - 20
Critical habitat for gobies ..... 10 - 21
10.2.4.2 Southern California Steelhead ..... 10 - 22
Critical habitat for steelhead ..... 10 - 27
10.2.4.3 Southwestern Pond Turtle ..... 10 - 28
10.2.5 Moreton Bay Fig ..... 10 - 28
10.2.6 Staging Sites for Equipment and Temporary Stockpiles of Materials 10 - 30
10.3 City of Santa Barbara General Plan and Policies for Biological Resources 10 - 31
10.3.1 Conservation Element Biological Resources Goal ..... 10 - 31
10.3.2 Conservation Element Biological Resources Policy and Implementation Strategy ..... 10 - 31
10.3.3 Location of Coastal Program Water and Marine Environmental Policies 10 - 32
10.4 Evaluation of Flood Control Alternatives in Relation to Biological Resources ..... 10 - 32
10.4.1 Implications of Design Alternatives, both Structural and the No Action Alternative ..... 10 - 32
10.4.2 Alternative 1: No Action Alternative (Future Without Project Conditions) ..... 10 - 33
10.4.2.1 Impact Analyses ..... 10 - 34
Aquatic habitat ..... 10 - 34
Stream bank habitat ..... 10 - 37
Endangered species ..... 10 - 37
The Moreton Bay Fig ..... 10 - 38
10.4.3 Alternative 12: 3400 CFS Capacity with Oxbow Bypass, Stabilized Sides using a Predominant Combination of Planted Riprap, Vertical Wall, Habitat Expansion Zones, and Wetland Construction (Recommended Alternative) ..... 10 - 38
10.4.3.1 Impact Analyses ..... 10 - 38
Aquatic habitat ..... 10 - 38

Stream bank habitat ..... 10 - 39
Endangered Species — Steelhead of the southern evolutionary unit ..... 10 - 40
Endangered Species — Tidewater goby ..... 10 - 41
The Moreton Bay Fig ..... 10 - 42
10.4.3.2 Beneficial effects to aquatic habitat of inherent design features .. 10 - 43
Hydraulic properties of Alternative 12 in regard to both endangered fish species ..... 10 - 43
Wider Creek and Channel ..... 10 - 43
Natural Bottom ..... 10 - 44
Longitudinal Streambed Profile ..... 10 - 44
Current velocity ..... 10 - 45
Sediment Budget ..... 10 - 46
10.4.3.3 Beneficial effects to stream bank habitat of inherent design features ..... 10 - 48
Combining toe walls, sloped banks stabilized by Riprap, and native species ..... 10 - 48
Taking advantage of no need for toe walls ..... 10 - 51
Habitat expansion zones on the overhand ..... 10 - 51
Tally of canopy forming trees to be installed ..... 10 - 53
10.4.3.4 Mitigation of unavoidable impacts to steelhead and tidewater gobies ..... 10 - 53
Fish refuge in the estuary ..... 10 - 55
Hydraulic considerations of the overflow culvert and oxbow channel .... 10 - 56
Mid-stream boulder clusters ..... 10 - 58
Ledges upstream of Mason Street ..... 10 - 58
Fish baffles upstream of Mason Street ..... 10 - 59
Pilot channel as permanent low flow path ..... 10 - 59
10.4.3.5 Environmental commitments to minimize temporary impacts to steelhead and tidewater gobies ..... 10 - 60
Minimize temporary adverse construction effects ..... 10 - 60
Minimize recurrent adverse effects during future channel maintenance ... 10 - 62
10.4.3.6 The balance of project impacts and benefits for Alternative 12 .. 10 - 65
Projections of aquatic habitat quality ..... 10 - 65
Projections of stream bank habitat quality ..... 10 - 67
Canopy trees as individuals ..... 10 - 67
Endangered species ..... 10 - 67
Steelhead ..... 10 - 68
Tidewater goby ..... 10 - 68
The Moreton Bay Fig ..... 10 - 69
10.4.4 Alternative 6: 3400 CFS Capacity ..... 10 - 69
10.4.4.1 Design Features ..... 10 - 69
10.4.4.2 Impact Analyses ..... 10 - 70
Aquatic habitat ..... 10 - 70

Stream bank habitat ..... 10 - 70
Endangered species ..... 10 - 71
The Moreton Bay Fig Tree ..... 10 - 71
10.4.4.3 The balance of project impacts and benefits for Alternative 6 ... 10 - 71
Projections of aquatic habitat quality ..... 10 - 71
Projections of stream bank habitat quality ..... 10 - 71
Endangered species ..... 10 - 72
The Moreton Bay Fig Tree ..... 10 - 72
10.4.4.4 Residual Impacts ..... 10 - 72
10.4.5 Alternative 8: 3400 CFS Capacity ..... 10 - 73
10.4.5.1 Design Features ..... 10 - 73
10.4.5.2 Impact Analyses ..... 10 - 73
Aquatic habitat ..... 10 - 73
Stream bank habitat ..... 10 - 73
Endangered species ..... 10 - 73
The Moreton Bay Fig Tree ..... 10 - 73
10.4.5.3 The balance of project impacts and benefits for Alternative 8 ... 10 - 74
Projections of aquatic habitat quality ..... 10 - 74
Projections of stream bank habitat quality ..... 10 - 74
Endangered species ..... 10 - 74
The Moreton Bay Fig Tree ..... 10 - 75
10.4.5.4 Residual Impacts ..... 10 - 75
10.5 Alternatives Compared for effects on Biological Resources ..... 10 - 75
10.5.1 Alternatives 12 and 1 ..... 10 - 75
10.5.1.1 Biological resources of concern within the project area ..... 10 - 75
Aquatic habitat values ..... 10 - 75
Stream bank habitat values ..... 10 - 79
Replacement of canopy trees ..... 10 - 81
Endangered species ..... 10 - 81
Moreton Bay Fig ..... 10 - 81
10.5.1.2 Summary ..... 10 - 81
Residual Impacts ..... 10 - 82
10.5.2 Alternatives 6 and 1 ..... 10 - 82
10.5.2.1 Biological resources of concern within the project area ..... 10 - 82
Aquatic habitat value ..... 10 - 82
Stream bank habitat values ..... 10 - 83
Replacement of canopy trees ..... 10 - 83
Endangered species ..... 10 - 84
Moreton Bay Fig ..... 10 - 84
10.5.1.2 Summary ..... 10 - 84
Residual Impacts ..... 10 - 84
10.5.3 Alternatives 8 and 1 ..... 10 - 85
10.5.3.1 Biological resources of concern within the project area ..... 10 - 85

Aquatic habitat value ..... 10 - 85
Stream bank habitat values ..... 10 - 85
Replacement of canopy trees ..... 10 - 86
Endangered species ..... 10 - 86
Moreton Bay Fig ..... 10 - 86
10.5.3.2 Summary ..... 10 - 86
Residual Impacts ..... 10 - 87
10.6 Conformity with City of Santa Barbara General Plan and Policies for Biological Resources ..... 10 - 88
10.6.1 Conservation Element Biological Resources Goal ..... 10 - 88
10.6.2 Conservation Element Biological Resources Policy and Implementation Strategy: ..... 10 - 89
10.6.3 Location of Coastal Program Water and Marine Environmental Policies ..... 10 - 89

SECTION 11 LAND USE 11-1
11.1 Existing and Future Land Use 11-1
11.1.1 Existing Land Use 11-1
11.1.2 Site Specific Land Use Setting 11-1
11.1.2.1 Canon Perdido Street to Gutierrez Street 11-1
11.1.2.2 Gutierrez Street to Mason Street 11-2
11.1.2.3 Mason Street to Cabrillo Boulevard 11-2
11.1.3 Zoning Designation 11-2
11.1.4 General Plan Land Use Designations 11-3
11.2 Santa Barbara City Charter 11-3
11.2.1 Charter Section 1507 11-3
11.2.2 Charter Section 1508 11-3
11.3 The City of Santa Barbara General Plan and Local Coastal Plan Goals and Policies 11-4
11.3.1 Land Use Element 11-4
11.3.2 Open Space Element 11-5
11.3.3 Seismic Safety/Safety Element 11-5
11.3.4 Conservation Element 11-5
11.4 Local Coastal Plan 11-5
11.5 Environmental Consequences on Land Use 11-6
11.5.1 Alternative No. 1 11-6
11.5.2 Alternative No. 12 11-7
11.5.3 Alternative No. 6 11-7
11.5.4 Alternative No. 8 11-7
11.6 Future Maintenance 11-9
11.7 Growth Inducement 11-9
11.8 Coastal Zone Management Act Consistency Requirements 11-10
11.9 Residual Impacts 11-10

SECTION 12 SOCIOECONOMICS 12-1
12.1 Existing Conditions 12-1
12.1.1 Employment 12-1
12.1.1.1 Retail Sector 12-5
12.1.1.2 Tourism 12-5
12.1.1.3 Education 12-5
12.1.2 Population 12-5
12.2 The City of Santa Barbara Plans and Policies 12-8
12.2.1 Housing Element 12-8
12.2.1.1 Housing Policy 12-8
12.3 Impacts on SocioEconomics Resources 12-8
12.3.1 Environmental Justice Impacts 12-8
12.3.2 Housing Impacts 12-8
12.3.2.1 Alternative No. 1 12-9
12.3.2.2 Alternative No. 12 12-9
12.3.2.3 Alternative No. 6 12-9
12.3.2.4 Alternative No. 8 12-9
12.3.3 Conclusion 12-9
12.4 Future Maintenance 12-10
12.5 Mitigation 12-10
12.6 Residual Impacts 12-10

SECTION 13 AESTHETICS/VISUAL RESOURCES 13-1
13.1 Existing Aesthetic Resources 13-1
13.2 City of Santa Barbara Visual Resources Goals and Policies 13-4
13.3 Impacts on Visual Resources 13-5
13.3.1 Alternative No. 1 13-6
13.3.2 Alternative No. 12 13-6
13.3.3 Alternative No. 6 13-9
13.3.4 Alternative No. 8 13-10
13.3.5 Future Maintenance 13-11
13.3.6 Mitigation Measures 13-12
13.4 Residual Impacts 13-12

SECTION 14 RECREATION 14-1
14.1 Existing Resources Available for Recreation 14-1
14.2 City of Santa Barbara Policies for Parks and Recreation 14-1
14.3 Impacts on Recreational Resources 14-3
14.3.1 Alternative No. 1 14-3
14.3.2 Alternative No. 12 14-3
14.3.3 Alternative No. 6 14-5
14.3.4 Alternative No. 8 14-5
14.3.5 Future Maintenance 14-5

14.4 Mitigation Measures 14-6
14.5 Residual Impacts 14-6

SECTION 15 HAZARDOUS TOXIC AND RADIOACTIVE WASTE (HTRW) 15-1
15.1 Existing Conditions 15-1
15.1.2 Results 15-2
15.1.3 HTRW Record Search 15-2
15.2 City of Santa Barbara General Plans and Polices Water and Marine Environments (which could be applicable to HTRW) 15-8
15.3 Impact Analysis of HTRW 15-8
15.3.1 Alternative No. 1 15-8
15.3.2 Alternatives No. 12, 6 and 8 15-9
15.3.3 Future Maintenance 15-9
15.4 Mitigation of Potential HTRW Impacts 15-10
15.5 Residual Impacts 15-12

SECTION 16 TRAFFIC 16-1
16.1 Existing Traffic Conditions 16-1
16.1.2 Highway Circulation and Access 16-1
16.1.3 Local Access and Traffic Circulation 16-1
16.1.4 Railway Circulation and Access 16-3
16.2 Impact Analysis 16-4
16.2.1 Alternative No. 1 16-4
16.2.2 Alternatives No.12, 6 and 8 16-4
16.2.3 Future Maintenance 16-5
16.3 Mitigation Measures 16-6
16.4 Residual Impacts 16-6

SECTION 17 SAFETY 17-1
17.1 Existing Conditions 17-1
17.2 City of Santa Barbara Plans and Polices for Safety/Flooding Polices 17-1
17.3 Impact Analysis 17-2
17.3.1 Alternative No. 1 17-2
17.3.2 Alternative No. 12 and 8 17-2
17.3.3 Alternatives No. 6 17-2
17.3.4 Mitigation Measures 17-2

SECTION 18 CULTURAL RESOURCES 18-1
18.1 Existing Cultural Resources 18-1
18.1.1 Cultural History and Chronology 18-1
18.1.2 Ethnohistoric and Ethnographic Chumash 18-4
18.1.3 History 18-6

18.1.4 Architectural History 18-7
18.1.5 Records and Literature Search 18-9
18.1.6 Present Study Results 18-11
18.1.6.1 Structures Determined to be Eligible for Listing on the National Register of Historic Places 18-11
18.1.6.2 Structures Determined to be Eligible for Listing on the California Register of Historic Resources or for Designation as a City Landmark or Structure of Merit 18-13
18.1.7 Evaluation of Sites within Study Area 18-15
18.2 City of Santa Barbara General Plans and Policies Applicable to the Cultural Resources 18-16
18.3 Impact Analysis 18-16
18.3.1 Alternative 1 (No Action) 18-17
18.3.2 Alternative 6, 8 and 12 18-17
18.3.2.1 Impacts on National Register Listed or Eligible Properties 18-17
18.3.2.2 Impacts on Properties Eligible for or Listed on the California Register or Eligible for or Designated as city Structures of Merit or Landmarks 18-17
18.3.3 Mitigation 18-19
18.3.3.1 National Environmental Policy Act (NEPA) 18-19
18.3.3.2 CEQA Mitigation 18-20
18.4 Residual Impacts 18-23

SECTION 19 UTILITIES 19-1
19.1 Locations and Type of Existing Utility Lines within the Project Area 19-1
19.1.1 Water Lines 19-1
19.1.2 Sewer Lines 19-3
19.1.3 Telephone Lines 19-4
19.2 Project Related Impacts 19-4
19.2.1 Relocations of the Utility Lines and Responsible Agency 19-4
19.2.2 Alternative 1 (No Action) 19-4
19.2.3 Alternatives 12, 6 and 8 19-4
19.2.4 Future Maintenance 19-5
19.3 Mitigation 19-5
19.4 Residual Impacts 19-5

SECTION 20 CUMULATIVE IMPACTS 20-1
20.1 Introduction 20-1
20.2 Affected Resources 20-5
20.2.1 Land Use 20-5
20.2.2 Air Quality 20-6
20.2.3 Traffic 20-6
20.3 Conclusion 20-6

SECTION 21 RELATION SHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY 21-1

SECTION 22 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS 22-1

SECTION 23 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES INVOLVED 23-1

SECTION 24 MITIGATION MEASURES/ENVIRONMENTAL COMMITMENTS 24-1

24.1 General 24-1
24.2 Water Resources 24-1
24.3 Air Quality 24-3
24.4 Noise 24-3
24.5 Biological Resources 24-4
24.6 Socioeconomics 24-8
24.7 Aesthetics/Visual Resources 24-8
24.8 Recreation 24-9
24.9 Hazardous Toxic and Radioactive Waste (HTRW): 24-9
24.10 Traffic 24-10
24.11 Safety 24-11
24.12 Utilities 24-11
24.13 Cultural Resources 24-11

SECTION 25 DISTRIBUTION LIST 25-1

SECTION 26 LIST OF PREPARERS 26-1

SECTION 27 INDEX 27-1

SECTION 28 REFERENCES 28-1

TABLES:

Table ES-1 Comparison of Design Features of Alternatives Evaluated for Environmental Analysis ES-3
Table 1.1-1 National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) 1-10
Table 3.4-1 Comparison of Design Features 3-7
Table 3.5.1-1 Construction Material Amount of Material and related Truck Trips 3-44
Table 3.6-1 Summary of Impacts, Mitigation by Alternatives Analyzed for

Environmental Evaluation 3-56
Table 7.1-1 Estimates of Typical Pollutant Concentrations in Stormwater Runoff from Urban Areas and Highways 7-3
Table 7.1-2 Quantity of Bacterial Input 7-10
Table 7.1-3 Comparison of Stormwater Pollutant Concentration in Lower Mission Creek 7-12
Table 8.1-1 National & California Ambient Air Quality Standards 8-2
Table 8.4.6-1 Total Project Emissions 8-11
Table 9.1-1 SPL, Sound Pressure, and Recognized Source of Noise in Our Daily Experiences 9-2
Table 10-1 Larger streambed as a result of flood control design ..... 10 - 44
Table 10-2 Water velocities calculated for seven representative stream cross-sections. . 10 - 46
Table 10-3 Anticipated sediment budget based on seven cross sections. ..... 10 - 47
Table 10-4 Habitat expansion zones adjacent to Lower Mission Creek ..... 10 - 52
Table 10-5 Mitigation features for adverse effects to steelhead and tidewater goby. .... 10 - 54
Table 10-6 Increments of habitat suitability index (HSI) for mitigation features ..... 10 - 55
Table 10-7 Projections of long-term aquatic habitat value, Alternatives 12 and 1. ..... 10 - 76
Table 10-8 Projections of long-term stream bank habitat value, Alternatives 12 and 1 ... 10 - 79
Table 10-9 Net long-term expectations for Alternatives 12 and 1 ..... 10 - 82
Table 10-10 Projected aquatic habitat quality for Alternative 6. ..... 10 - 83
Table 10-11 Projected "stream bank habitat" quality for Alternative 6. ..... 10 - 83
Table 10-12 Net long-term expectations for Alternatives 6 and 1. ..... 10 - 84
Table 10-13 Projected aquatic habitat quality for Alternative 8 ..... 10 - 85
Table 10-14 Projected "stream bank habitat" quality for Alternative 8 ..... 10 - 86
Table 10-15 Net long-term expectations for Alternatives 8 and. ..... 10 - 87
Table 11.6-1 Relocation of Structures 11-9
Table 12.1-1 Historic and Projected Employment by Sector 12-2
Table 12.1.2-1 Population Estimates 12-2
Table 15-1 Site Distribution Summary 15-4
Table 15-2 Recorded Leaking Underground Storage Tanks Proximate to Lower Mission Creek 15-10
Table 16.1-1 Daily Traffic Volumes - 1997 Route 101 On/Off Ramps 16-1
Table 16.1-2 Daily Traffic Volumes for Street Segments - 1996 (Northwest to Southeast Directed Streets) 16-2
Table 16.1-3 Daily Traffic Volumes for Street Segments (Southwest to Northeast Directed Streets) 16-3
Table 18.1 Concordance of Chronologies Used in Santa Barbara Region 18-2
Table 18.2 Historic Buildings Previously Identified in the Lower Mission Creek Study 18-8
Table 18.3 Affected Bridges - Inland to the Ocean 18-8
Table 20.1-1 List of Reasonably Foreseeable Future Projects 20-3

FIGURES:

Fig. 1.1.1 Location Map 1-4
Fig. 1.1.2 Study Area Map 1-5
Fig. 3.5.1-1. Lower Mission Creek and general features associated with the proposed project 3-15
Fig. 3.5.2-2. Location of the oxbow bypass culvert 3-16
Fig. 3.5.2-3. Location of possible future habitat expansion zone near the oxbow 3-17
Fig. 3.5.2-4. Locations of Habitat Expansion Zones 3-18
Fig. 3.5.2-5 Representative Cross Section of a Habitat Expansion Area 3-19
Fig. 3.5.2.1-1 - Vertical Wall on Pier Footing Representative Cross Section 3-22
Fig. 3.5.2.1-2 - Vegetated Riprap Sideslope on Inverted "T" Footing Representative Cross Section 3-22
Fig. 3.5.2.1-3 - Outlet of Overflow Culvert Alongside Chapala Street Bridge 3-23
Fig. 3.5.2.1-4 - Representative Cross Section of Side Weir Channel Inlet to Overflow Culvert (Looking Downstream). 3-24
Fig. 3.5.2.1-5 - Canon Perdido and De La Guerra Street Bridges 3-25
Fig. 3.5.2.1-6 - De La Guerra Street Bridge to Ortega Street Bridge 3-26
Fig. 3.5.2.1-7 - Ortega Street Bridge to Bath Street Bridge 3-27
Fig. 3.5.2.1-8 - Bath Street Bridge to Cota Street Bridge 3-28
Fig. 3.5.2.1-9 - Cota Street Bridge to Haley-De la Vina Bridge 3-29
Fig. 3.5.2.7-10 - Haley-De la Vina Bridge to Gutierrez Street Bridge 3-30
Fig. 3.5.2.1-11 - Gutierrez Street Bridge to Highway 101 3-31
Fig. 3.5.2.1-12 - Representative Cross Section of the Side Weir Channel Inlet to Overflow Culvert 3-32
Fig. 3.5.2.1-13 - New Overflow Culvert that Bypasses the Oxbow 3-33
Fig. 3.5.2.1-14 - Chapala/Yanonali Street Bridge to Mason Street Bridge 3-34
Fig. 3.5.2.1-15 - Mason Street Bridge to State Street Bridge 3-35
Fig. 3.5.2.1-16 - State Street Bridge to Cabrillo Boulevard Bridge 3-36
Fig. 3.2.1-17 - Representative Cross Section of Rocky Energy Dissipaters and Boulder Clusters 3-38
Fig. 3.5.2.1-18. Goby Refugia, Fish Ledges and Fish Baffles Along the Walls in the Estuary (Between Mason Street and Cabrillo Boulevard) 3-39
Fig. 3.5.2.1-19. Representative Cross Section Showing Fish Ledges and Baffles along the Walls Upstream of Mason Street 3-41
Fig. 7.1-1 Vicinity Map and Sampling Locations 7-7
Fig. 10-1. Location of riverine pools ..... 10 - 8
Fig. 10-2. Salinity at two sampling locations in the Mission Creek estuary ..... 10 - 11
Fig. 10-3. Total turbidity at two sites in the Mission Creek estuary ..... 10 - 12
Fig. 10-4. Water temperatures at two sampling locations in the Mission Creek estuary. . . 10 - 13
Fig. 10-5. Five species of native trees grow at various locations ..... 10 - 17
Fig. 10-6. Records of annual precipitation from 1983 through 1999 ..... 10 - 25
Fig. 10-7. Monthly rainfall between December and March,1983 to 2000 ..... 10 - 26
Fig. 10-8. Location of the Moreton Bay Fig, the "oxbow", and the overflow culvert .... 10 - 29
Fig. 10-9. Results of HEP analysis expected for the future without project ..... 10 - 36

Fig. 10-10. Locations of seven typical cross sections ..... 10 - 45
Fig. 10-11. Diagrammatic sketch of materials, wattled willow cuttings,, planting cylinders, toe walls and inverted "T" -footing, side baffles, fish ledges, and pilot channel of the recommended design. ..... 10 - 49
Fig. 10-12. Results of HEP analysis expected for Alternative 12 ..... 10 - 66
Fig. 10-13. Diagrammatic sketch of stepped planting areas inherent to Alternative 6 .... 10 - 70
Fig. 10-14. Pattern of aquatic habitat values, by reach, for Alternatives 12 and 1 ..... 10 - 77
Fig. 10-15. Comparison of net long-term expectations for Alternatives 12 and 1 ..... 10 - 78
Fig. 10-16. Pattern of stream bank habitat values, by reach, for Alternatives 12 and 1 .. 10 - 80
Fig. 15-1 Vicinity Map 15-3
Fig. 15-2 Site Assessment - Special Report 15-5

APPENDICES:

A. REVISED BIOLOGICAL ASSESSMENT
1. Tidewater Goby
2. Steelhead
3. Shade Study

B. U.S. FISH AND WILDLIFE SERVICE (USFWS) PLANNING AID LETTERS; FINAL COORDINATION ACT REPORT
1. Final Biological Opinion - Steelhead (prepared by the National Marine Fisheries Service)
2. Correspondence Related to Endangered & Threatened Species.
a. Letter to USFWS, dated, June 21, 2000.
b. Letter to NMFS, dated June 16, 2000.
c. Letter from the National Fisheries Service, dated March 21, 2000.
d. Letter to USFWS, dated December 20, 1999.
e. Letter to NMFS, dated December 20, 1999.
f. Letter from USFWS, dated December 8, 1997.

C. REVISED HABITAT EVALUATION PROCEDURE ANALYSIS

D. REVISED COASTAL CONSISTENCY DETERMINATION (CCD)

E. CLEAN WATER ACT SECTION 404(b)(1) WATER QUALITY EVALUATION
1. Correspondence Related to Section 404 Clean Water Act and Section 401 Water Quality Certification

F. WATER QUALITY AND SEDIMENT ANALYSIS TABLES

G. AIR QUALITY ANALYSIS DATA

H. MITIGATION MONITORING PLAN
1. Mitigation Monitoring Table

I. PUBLIC INVOLVEMENT (NOI/NOP/Initial Study)
1. Correspondence Related to Public Hearing
2. Summary of Public Hearing

J. CORRESPONDENCE AND DISTRIBUTION LIST

K. PUBLIC COMMENTS AND RESPONSES ON DRAFT EIS

L. MAILING LIST

EXECUTIVE SUMMARY
LOWER MISSION CREEK FLOOD CONTROL PROJECT
ENVIRONMENTAL IMPACT STATEMENT/
ENVIRONMENTAL IMPACT REPORT
(EIS/EIR)

STUDY AUTHORITY: The Lower Mission Creek Flood Control Project is authorized under Section 209 of the Flood Control Act of 1962 (Public Law 87-874, 87th Congress, 2nd session), which reads in parts as follows:

"Sec. 209. The secretary of the Army is hereby authorized and directed to cause surveys for flood control and allied purposes, ... to be made under the direction of the Chief of Engineers, in drainage areas of the United States and its territorial possessions, which include the following named localities [including]: *All Streams in Santa Barbara County, California, draining the Santa Ynez Mountains, except Santa Ynez River and tributaries."*

PROJECT LOCATION:

The Mission Creek drainage area is located in and adjoining the City of Santa Barbara, California, about 100 miles northwest of the City of Los Angeles. The drainage area, comprising about 11.5-square miles, is a narrow coastal area and extends from the Santa Ynez Mountains on the north to the Pacific Ocean on the south. Mission Creek begins at about 4,000 feet elevation and flows about 8 miles through the City of Santa Barbara to empty into the Pacific Ocean (see Figure 1.1-1 of the EIS/EIR). The scope of this study is to evaluate potential benefits, impacts and necessary mitigation requirements associated with flood control measures within the Lower Mission Creek Area. The study is limited to the final 1.2 miles of the creek, from just downstream of Canon Perdido Street to Cabrillo Boulevard.

INTRODUCTION:

This document is written in compliance with the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). The lead Federal agency is the U.S. Army Corps of Engineers, Los Angeles District. The responsible agencies for compliance with the California Environmental Quality Act are the Santa Barbara County Flood Control and Water Conservation District and the City of Santa Barbara.

In the development of alternatives, extensive coordination occurred between the U.S. Army Corps of Engineers (USACOE), Santa Barbara County, the City of Santa Barbara and concerned business/property owners and environmental groups. Several public workshops and a formal public scoping meeting were conducted to obtain public views regarding the project and development of alternatives. Previously prepared engineering and environmental reports have been reviewed to identify problems and development of the alternatives. The alternatives were evaluated based on past flooding history and the need to provide flood protection to the City of

Santa Barbara. In the development of alternatives, protecting properties or reducing the flood threat to the residences and businesses located in the vicinity of Lower Mission Creek and preservation of the environment were considered.

Twelve structural Alternatives were evaluated during the Feasibility Study. These alternatives included a No Action Plan, plans with 2500 cubic feet per second (cfs) capacity with two different channel configurations, and plans with 3400 cfs capacity with nine different channel configurations. Differences in channel configuration are due to the use of the oxbow-bypass and different combinations of bank protection. Alternatives 2 and 3 would be designed to convey a flow of 2500 cfs, providing about a 15- year level of protection, and alternatives 4 through 12 would be designed to convey a flow of 3400 cfs, which would provide about a 20-year level of protection.

R In the Draft and Final EIS/EIR, eight of the twelve Alternatives were not evaluated further for environmental analysis. Based on the economic analysis performed during the feasibility study phase, four of them, Alternatives 2, 3, 5, and 9, did not meet the benefit to costs (b/c) ratio; these alternatives were not evaluated in the Draft EIS/EIR.

R During preparation of the Final EIS/EIR and revised biological assessment, extensive coordination occurred with the concerned resource agencies. (See Section 1.7.2 of the Final EIS/EIR for details on coordination). The project design and mitigation have been modified due to the resource agencies/public concerns and real estate constraints. Additional mitigation features have been added in the project design to minimize impacts to Federally listed endangered and threatened species. The economic analysis was updated to incorporate costs of the modified project design, mitigation features and real estate. Based on revised economic analysis, Alternatives 2, 3, 5, 6, 7 and 9 do not meet economic requirements.

R At request of the California Coastal Commission (CCC) and in response to public comments, the USACOE performed an informal economic analysis of two smaller versions of the Recommended Plan; both would have a conveyance capacity of 2500 cfs providing approximately 15-year level of protection. The first alternative would use the combination toe wall and riprap slope (similar to the Recommended Plan) to protect and stabilize the creek banks, and the second alternative would use riprap slope protection to stabilize the entire height of the banks. Both alternatives would apply the proposed bank protection upstream and downstream of Highway 101. Results of this informal analysis can be found in the Economic Appendix of the Main Report. Available information from the earlier 2500 cfs Alternatives found in the feasibility report, including construction costs, right-of-way costs and damage reduction benefits, were used in this analysis. The results indicate that these two alternatives would not be economically feasible.

NEED FOR THE PROJECT:

The main purpose of this project is to provide flood protection to the City of Santa Barbara. Mission Creek, especially downstream from Carrillo Street, poses a serious flood threat to the City. In this area, a mix of residential, commercial, and public properties are subject to major damages during floods. Details on flooding history are provided in the Main Report, Section II.

PLANNING OBJECTIVES:

The objective of this study is to analyze the flooding and associated problems along Lower Mission Creek, to consider alternative solutions to the flood and associated problems, and to recommend, for implementation, a solution to these problems. In development of alternatives, consideration has been given to the economic, environmental, and social needs of the study area. The Federal objective of water and related land resources planning is to contribute to national economic development consistent with protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders and other Federal planning requirements. Details are provided in Section 2 of the EIS/EIR.

BACKGROUND OF DEVELOPMENT OF THE ALTERNATIVES:

Section 3 of the EIS/EIR and Section IV of the Main Report provide history of the project and plan formulation information. Twelve structural Alternatives were evaluated during the Feasibility Study. These alternatives included a No Action Plan, plans with 2500 cfs capacity with two different channel configurations, and plans with 3400 cfs capacity with nine different channel configurations. Differences in channel configuration are due to the use of the oxbow-bypass and different combinations of bank protection.

After the Alternatives Formulation Briefing, based on environmental benefits and the cost benefit ratio, a decision was made that Alternative 12 provides the most incidental environmental benefits and meets the required cost benefit ratio. The proposed alternatives were similar in nature; therefore, based on criteria, similarities and differences in the basic design features, the decision was made to evaluate four Alternatives for detailed environmental analysis in the Draft EIS/EIR. They are Alternatives 1, 6, 8, and 12. Alternative 1 continues to be the No Action plan against which the consequences of structural solutions are evaluated. The Final EIS/EIR evaluates impacts related to the same alternatives analyzed in the Draft EIS/EIR. Design features associated with these alternatives are identified in the following Table ES-1.

TABLE ES-1
COMPARISON OF DESIGN FEATURES OF ALTERNATIVES EVALUATED FOR ENVIRONMENTAL ANALYSIS

Only these Alternatives will be evaluated further. Alternative 12 has been identified as the NED (National Economic Development) and tentative preferred plan.

Design Feature	Alt. 6	Alt. 8	Alt. 12 (NED)
Conveyance capacity	3,400 ft^3/sec	3,400 ft^3/sec	3,400 ft^3/sec
Oxbow bypass	no	Yes	yes
Some vertical walls	yes	Yes	yes
Some stepped walls	yes	No	no
Some riprap slopes with native vegetation above short vertical walls	no	No	yes

R The remaining eight Alternatives were not evaluated further for environmental analysis. Since the release of the Draft EIS/EIR, the economic analysis was updated to incorporate costs of the modified project design, mitigation features and real estate. Based on revised economic analysis, Alternatives 2, 3, 5, 6, 7 and 9 do not meet economic requirements. The various design features of Alternatives 4, 6, and 7 have corresponding equivalents in Alternatives 8, 10, and 11. However, Alternative 12 also corresponds to design features of Alternatives 10 and 11. Based on those equivalencies, further environmental evaluation has not been performed for Alternatives 4, 7, 10, and 11. Plans of all alternatives except Alternative 1 are provided in the Main Report. ***The numbering of Alternatives is kept the same as the Main Report for consistency and comparison purposes. The Main Report describes all 12 Alternatives formulated during the feasibility study. Alternative 12 is the tentatively preferred alternative; therefore, it has been described first, followed by Alternatives 6 and 8.*** The project description for Alternative 12, NED/tentatively preferred plan, and brief descriptions of Alternatives 6, 8 and 1 (No Action) are provided below.

ALTERNATIVE 12 - NATIONAL ECONOMIC DEVELOPMENT (NED)/ TENTATIVELY PREFERRED PLAN - THE PROJECT DESCRIPTION:

Alternative 12 is the NED and tentatively recommended plan, which provides maximum incidental environmental benefit. This alternative is environmentally superior compared to other feasible alternatives. The project description includes features associated with the tentatively proposed alternative. Section 3.5 of the EIS/EIR provides a detailed project description.

R Alternative 12 consists of: improvements to the soft bottom channel for approximately the last mile of the creek between the Canon Perdido Street Bridge at the upstream end, and the Cabrillo Boulevard Bridge near the outlet; replacement of four bridges, streamlining bedslope, installing a culvert that bypasses the oxbow, stabilizing creek banks using vertical walls and riprap sideslope; and planting of native vegetation along the riprap; and construction of five small habitat expansion zones (See details in Section 3.5 of the EIS/EIR). This alternative would also provide the opportunity to construct another habitat expansion zone in the vicinity of the oxbow formation area. This habitat expansion zone would be located just upstream of Highway 101. This alternative would increase the channel capacity to 3,400 cfs and would provide approximately a 20-year level of flood protection. The creek width would range from 60 to 70 feet at the top within the project reach. The specific width of the channel at each bridge crossing is listed in Chapter 4, Plan Formulation, of the Main Report. The average depth of the constructed creek would be 8 to 12 feet throughout the project reach. Future maintenance for the life of the project is included in this project description. Future maintenance of the constructed channel is essential to retain the form and design capacity of the creek. Impacts related to future maintenance are addressed in the EIS/EIR. Chapters 6 through 19 describe existing conditions and address impacts related to this proposed project. Environmental commitments and mitigation measures are included to avoid/reduce or minimize impacts to natural and cultural resources. A brief description of each feature is provided in the following paragraphs.

R **Removal of Existing Bank Protection and Earthen Material:**

The creek bottom and banks for about a mile, between the Canon Perdido Street and

Cabrillo Boulevard Bridges, would be excavated to increase the creek capacity to provide a 20-year level of flood protection to the City of Santa Barbara. The total amount of material to be excavated from creek banks and creek bottom would be about 82,000 cubic yards (CY). The material could be distributed to other construction sites requiring fill. All of the sandstone not used in project construction will either be conserved for use in other City projects or recycled. Most of the metal and concrete can be recycled. The green waste can be composed and recycled as compost and mulch. The USACOE will examine the suitability of the excavated materials for beach nourishment. If material is suitable, it can be used to restore sand supply on local beaches. Excavated material would be partially stockpiled in the staging areas located along the creek bank and the remaining material would be transported to disposal sites located within a radius of about 10 to 25 miles from the project site. About 17,000 to 18,000 Cubic Yards (CY) of material would be utilized in project construction as fill material. The remaining material would be disposed off at available disposal sites.

Stabilization of Creek Banks:

The existing creek banks would either be replaced with the combination short walls and riprap sideslopes or vertical walls. Lower banks would be stabilized by short vertical walls; appropriate aesthetic treatment would be applied to minimize aesthetic impacts for visible portions of the creek banks. The upper banks would be stabilized by vegetated riprap. Concrete pipes of varying sizes, would be placed vertically in between the riprap, in these pipes native or riparian type vegetation would be planted.

Oxbow Culvert:

R **Weir Inlet and Culvert that Bypasses the Oxbow:**

The oxbow is located between the Gutierrez Street and Chapala Street Bridges, where the creek makes several meandering turns. The culvert alignment would be outside the Moreton Bay Fig tree dripline to minimize impacts to its major root system. Two culverts (15-foot wide by 6-foot high boxes) connecting both ends of the oxbow are referred to as the overflow culvert or the "oxbow bypass." The overflow culvert would follow a more direct path across the oxbow. It would begin upstream of Highway 101, pass under the highway (where Caltrans had built a span to accommodate such a crossing to eliminate impacts to highway traffic), Montecito Street, and the railroad tracks before rejoining the creek alongside the downstream end of Chapala Street Bridge (See Figure 3.5.2.1-3 of the EIS/EIR).

Removal and Replacement of Bridges:

Twelve bridges span Lower Mission Creek before emptying in to the Pacific Ocean. Four of those bridges would need to be replaced including Ortega Street, Cota Street, De la Vina Street, and Mason Street Bridges. De La Vina Street Bridge will be replaced by the City prior to implementation of this project. Construction of the bridge replacements at the road crossings would need to be phased so that the adjacent road crossing could be used as a detour. Bridge reconstruction would start with the most downstream bridge (Mason State Bridge) and progress sequentially in the upstream direction ahead of the creek improvements. Detailed project descriptions of each bridge are provided in Section 3.5 of the EIS/EIR.

Habitat Expansion Zones:

Approximately five small parcels of open land would be planted with native and riparian type of vegetation. These parcels range in size between 0.03 and 0.52 acres (see figure 3.5.4 of EIS/EIR for locations). Habitat expansion zones would be designed to serve a dual purpose: to expand the corridor of riparian habitat to be planted along the stream banks and to provide passive recreational area for residents.

R The proposed project provides an opportunity for construction of an additional habitat zone in the vicinity of the oxbow formation area. This area was originally proposed as a constructed wetland. However, after further review, it was determined that this site is more suitable for use as a habitat expansion zone, as described above. However, construction of this habitat zone is subject to cleanup of the existing known contamination on the site (see details in Section 15, HTRW, of the EIS/EIR).

R **Pilot Channel:**

The project's design for the creek's invert includes scoring a "pilot channel" into the bottom as the last element of construction. Otherwise, the streambed would be a uniformly flat expanse of native sediments between the toe walls. This pilot channel would constitute a permanent component of the instream habitat between Canon Perdido and Highway 101, although one possibly given to positional shifts as the finished creek bed evolves. No pilot channel would be fashioned into the creek bed below Yanonali Street. Between Yanonali and Mason Streets, periodic tidal ebb and flow would largely negate the intended purpose of such a channel, and below Mason Street the tidal movements would very quickly would make it thoroughly ineffective.

A pilot channel large enough to carry at least 50 ft^3/sec would be adequate to carry water along the preferential innate course. Its physical size and shape would also be determined after final hydraulic analyses, but would probably be generally trapezoidal in appearance and 10 to 12 feet wide and about 1 foot deep. The channel would be enriched with representative types and gradations of the larger native substrates - coarse gravels, small cobbles, and rocks or boulders as currently exist within Mission Creek.

R **Structural Features to Mitigate and Avoid Impacts to Biological Resources:**

Several structural features would be included to avoid and mitigate impacts to biological resources. These permanent and durable mitigation features would create hiding places where fish may take refuge. They would be composed of four separate structural elements formed by coarse surface relief of the walls (goby refugia), artificial overhangs projecting from the walls (fish ledges), placing double rows of coarse boulders (fish baffles) between the overhangs along the creek walls (See Figure 3.5.2.1-18) and rock energy dissipaters. In combination, they should provide shelter for fish of all sizes. See Section 3.5 of the EIS/EIR for the detailed description of these features. Section 10 and the Biological Assessments provide purpose, implementation and mitigation provided by these features.

Duration of Construction:

Project construction, including the proposed creek improvements, oxbow culvert, and bridge replacements, is expected to take a minimum of two years to complete. During construction, excavation activities would not be carried out during heavy rain and flooding season. Every effort would be made to complete the project construction within two years. However, due to weather conditions/seasonal heavy rainfall, mechanical failure, or funding constraints, completion of the project construction could be delayed. In that case, project construction could take up to three or four years to complete. Project construction is scheduled to begin in mid-2003.

Staging / Stockpiling Areas:

The proposed staging area would be located north of Highway 101 adjacent to the channel with access off of De la Vina Street. This area could also be used for construction access. Another possible staging area would be located north of the channel between the railroad and Yanonali Street. Additional access points could be at State Street, Mason Street, Montecito Street, Cota Street, Bath Street, Ortega Street, and north of De La Guerra Street. At this staging area, the selected contractor would install a temporary trailer with the sanitary facilities. Small quantities of material excavated (about 3000 to 4000 cy) from the creekbed would be stockpiled at these local staging areas, but the majority of it would be recycled or transported to the remote stockpile/disposal site, about 20 miles from the project area.

Haul Routes:

Hauling of materials and equipment to and from the project site would primarily use Highway 101 and the three nearby on/off ramps. Carrillo Street on/off ramp is located near the upstream end of the project, while Castillo Street on/off ramp is near the lower end and provides the most direct route to the proposed staging and stockpiling sites. Access and haul routes from the staging and stockpiling sites to the specific creek construction site would use streets that are nearest to the creek, taking the most direct route. Above Highway 101, it is expected that De la Vina, Castillo, and Bath Streets would generally be the main haul routes to and from the staging area, while Castillo, Montecito, Yanonali, Mason, and State Streets would provide the main access during construction downstream of Highway 101.

R **Future Operation and Maintenance:**

Future maintenance of the creek is an integral part of the Recommended Alternative (Alternative 12). To ensure and maintain its design function and form, some activity to maintain the design capacity of the channel would be needed on a regular basis. Any areas where sediment deposition and/or vegetation growth occur beyond 15% of the channel capacity would be required to be removed to maintain the capacity of the project reach. Future maintenance would also include maintenance of the structures such as cleaning of oxbow culverts and the pilot channel, repair of vertical concrete walls and riprap (bottom riprap lining and baffle piers), structures for mitigation, and maintenance of planted vegetation (after initial establishment required as part of project construction). It is estimated that the frequency of sediment removal would be at an interval as often as once a year. However, when several low-flow years occur

sequentially, sediment removal might occur every two to three or more years. Floodflows and debris accumulation and removal would continue to impact channel vegetation and aquatic resources. Over time, pools and riffles that provide aquatic habitat would reestablish in the channel (See denials in Section 3.5 of the EIS/EIR).

Impact analysis for future maintenance is included in each resource is discussed in this EIS/EIR. Impacts related to maintenance activities are addressed in Chapters 6 through 19. Mitigation measures for future operation and maintenance for the life of the project are included in this EIS/EIR. Conditions identified in the EIS/EIR, Biological Opinions, and Mitigation Monitoring Plan would be followed during each operation and maintenance activity.

Alternative No - 1: **No Action:** With this alternative (future without project conditions), the existing channel and sideslope protection would remain in place. No flood protection would be provided to the residents and commercial properties located in the vicinity of the Lower Mission Creek. The No Action Alternative provides about 1,500 cfs capacity.

Alternative No. 6: **3400 cfs Flood Level Capacity Without Oxbow Bypass - Stabilized sides using predominantly vegetated stepped walls with vertical walls applied for the remaining reaches**. This alternative would increase the channel capacity to 3,400 cfs and would provide approximately a 20-year level of protection. The natural bottom would be maintained and would consist of vegetated stepped banks at a 2:1 (V: H) slope upstream of Highway 101. Downstream of Highway 101, vegetated stepped walls would be applied along the southeast bank, starting from midway between the Chapala and Mason Street Bridges to the State Street Bridge, and along the middle third of the southwest bank between Mason and State Streets. Vertical walls would be maintained for the remainder of this reach. The improved creek would generally follow the existing alignment throughout the project reach. The creek would be 50 to 70 feet wide at the top of the bank and 8 to 12 feet deep. Seven bridges along the study reach would be replaced: the Ortega Street, Cota Street, De la Vina Street, Montecito Street, Union Pacific Railroad, Chapala Street, and Mason Street Bridges. The habitat expansion zones are also a project design for this alternative. Future maintenance would remain the same as identified under Alternative 12. This alternative would have all features identified under Alternative 12, except installation of culvert and stabilization of creek banks with vegetated stepped walls (see table ES-1). The remaining project description would be the same as identified under Alternative 12. It would not be as environmentally damaging as Alternative 8.

Without Oxbow Bypass:

Lower Mission Creek develops meandering course near Downtown Santa Barbara, between Yanonali and Gutierrez Streets. At this location, a oxbow has been developed. This alternative would involve stabilization of the creek banks and modification of the creek course along the oxbow, including the manmade sandstone channel. Construction along and/or within the oxbow area is called the "Without Oxbow Bypass." The location of the oxbow is shown on Figure 3.5-2 of the EIS/EIR.

Stepped Walls:

Under Alternative 6, the creek banks would be stabilized by construction of stepped walls instead of riprap. The step would allow planting of appropriate species in spaces filled with soil. These steps would be uniformly five feet wide, which would allow planting of vegetation along the creek banks. Planted shrubby native species along stepped walls would grow to an understory plant community in future.

Alternative No. 8: 3400 cfs Flood Level Capacity with Oxbow Bypass - Stabilized sides using vertical walls. This alternative would increase the channel capacity to 3,400 cfs and would provide approximately a 20-year level of protection. The natural bottom would be maintained while bank treatment would consist of concrete vertical walls throughout the project reach. This alternative would incorporate a new culvert, by-passing the oxbow between just upstream of Highway 101 and the Chapala Street Bridge. The improved creek would generally follow the existing alignment except at the oxbow which would be left in place to function as a low flow channel. The creek would be 44 to 60 feet wide at the top of the bank, except between the State Street and Cabrillo Boulevard Bridges where it would be 60 to 70 feet wide. The average depth of the creek would be between 8 and 12 feet. Culverts would be installed in an open space near the Moreton Bay Fig Tree, between Gutierrez and Yanonali Streets. Installation of culverts outside of the creek bed is called "With Oxbow Bypass" (see figure 3.5.2 of the EIS/EIR). Five bridges along the study reach would be replaced: the Ortega Street, Cota Street, De la Vina Street, Chapala Street, and Mason Street Bridges. The project features for this alternative are similar to Alternative 12, except the sideslopes would be stabilized by vertical concrete walls instead of a combination of short-vertical walls and vegetated riprap. Habitat expansion zones are part of this alternative design. This alternative would result in significant impacts on aesthetics and recreational resources. This alternative would not provide environmental benefits which would be provided by Alternatives 12 and 6. Please refer to the text of Alternative 12 for a detailed project description.

PUBLIC PARTICIPATION:

Public participation is important in the environmental analysis for providing assistance in defining the scope of analysis in the EIS/EIR; identifying significant environmental issues and project related impacts. Participation of affected Federal, State, and local resource agencies, Native American groups and concerned interest groups/individuals is encouraged in the scoping process. Public participation is initiated by providing the Notice of Intent and Notice of Preparation of the EIS/EIR. Prior to initiation of the EIS/EIR, a public workshop was conducted on August 28, 1997 at the City of Santa Barbara. The purpose of the workshop was to provide an update on the progress of the Lower Mission Creek Feasibility Study to the Santa Barbara area public and provide an opportunity to the residents to discuss their concerns about flooding, the environment, potential solutions, and issues related to the project.

On October 29, 1998, the Los Angeles District, U.S. Army Corps of Engineers, and the City of Santa Barbara Planning Commission hosted a public scoping meeting at the Santa Barbara, City Council Chambers to obtain agency and community views and concerns. The concerns expressed at the meeting included the need to consider a variety of alternatives; the need to address biological resources including such sensitive species as steelhead and the

California red legged frog; the need to consider potential impacts to air quality, water quality, aesthetics, safety, and cultural resources; and the need to comply with both the National Environmental Policy Act and the California Environmental Quality Act. All of these concerns have been addressed during project planning and preparation of the EIS/EIR. Comment letters received from the public during scoping process are located in Appendix I of the EIS/EIR. Concerns identified by the public on August 28, 1997, were similar to the concerns raised at the public scoping meeting for the EIS/EIR. See details in Section 2 of the EIS/EIR.

R **Public Review of Draft EIS/EIR**:

The Draft EIS/EIR was provided for public review in December 1999. The Corps of Engineers filed copies of the EIS/EIR with the EPA on December 15, 1999. The Notice of Availability (NOA) of the Draft EIS/EIR was published in the Federal Register on December 23, 1999. Copies of the Draft EIS/EIR were provided to California State Clearing House (SCH# 1998101061) for agency distribution in compliance with CEQA. The City of Santa Barbara published the NOA of the Draft EIS/EIR and public hearing in the local Newspaper and distributed the NOA to property owners, tenants, agencies and other interested parties. The Draft EIS/EIR was distributed to agencies and the public for 45-days public review (December 23, 1999 to February 7, 2000). Copies of the Draft EIS/EIR were made available at the public library for the public who wished to review it. The public hearing was conducted on January 19, 2000, at City Hall, City Council Chambers, Santa Barbara at 6:30 P.M. to solicit the public's concerns on the Draft EIS/EIR. The public was informed by mailing notices and publishing a notice in the local newspaper (see Appendix I-1, for correspondence). A summary of the public comments received during the public hearing is included in the Appendix I-2 of the EIS/EIR. Comment letters received on the Draft EIS/EIR and responses are located in the Appendix K. In accordance with NEPA (Section 1503.4(b) and CEQA (Section 15088), the USACOE, Santa Barbara County and the City of Santa Barbara reviewed the comment letters; appropriate responses are provided in Appendix K of the EIS/EIR. The text in the EIS/EIR has been revised to reflect public comments/responses. The revised text is marked with letter "**R**" in the left margin. The project description/mitigation measures have been modified in response to some the agencies/public comments. The following subsection summarizes public comments and brief responses. A list of the comment letters is provided below.

Comments Received on the Draft EIS/EIR:

1. United States Environmental Protection Agency
2. United States Department of the Interior
3. United States Coast Guard
4. California Governor's Office of Planning and Research, Clearinghouse
5. City of Santa Barbara Historic Landmarks Commission
6. City of Santa Barbara Architectural Board of Review
7. City of Santa Barbara Parks and Recreation Commission
8. City of Santa Barbara Parks and Recreation Department
9. Justin Ruhge, Concerned Taxpayers of Santa Barbara County
10. Robert Bernstein, Santa Barbara Bicycle Coalition
11. Edward Cella, President, De la Guerra Homeowners Association
12. Darlene Chirman, President, and Kendy Radasky, Santa Barbara Audubon Society
13. Richard A. Stromme, Railroad Advocates
14. Louise Boucher, Citizens Planning Association of Santa Barbara County
15. Eddie Harris, Urban Creeks Council
16. Maria Gordon, Small Wilderness Area Preservation
17. Brian Trautwein, Environmental Defense Center
18. Gabrielle and Jerome Boucher (letter #1)
19. Lisa Ann Kelly and Family
20. David Dates
21. Gail Pearce O'Brien
22. Jerome and Gabrielle Boucher (letter #2)
23. Eva Inbar
24. Dennis Hoey
25. Eduardo and Marite Gonzalez
26. Peter Gerlach
27. Antonio R. Romasanta, Harbor View Inn
28. Elihu M. Gevirtz
29. Lisa Torres
30. David Shelton and Alexandra C. Cole
31. Rita Gronhovd
32. Jana Zimmer
33. Kate Lundy
34. Teddy Gasser and Carlin Moyer
35. Charles I. Kline
36. Martin Landsfeld
37. J. D. Dale
38. John Poucher, Hollister and Brace, for Jacques Partners
39. F. Zambelli

R **Summary of the Public Hearing and Brief Responses to Comments**:

The U.S. Army Corps of Engineers (Corps), the Santa Barbara County Flood Control District (Flood Control District), and the City of Santa Barbara (City) held a public meeting on Wednesday evening, January 19, 2000, 6:30 PM, to give the public an opportunity to comment orally on the Draft Feasibility Study and Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR). The public meeting was held in the Council Chambers at Santa Barbara City Hall located at De la Guerra Plaza. A verbatim transcript of the public meeting

proceedings from a videotape was prepared; the transcript is on file at USACOE, Los Angeles District Office. Comments, and concerns raised at the public meeting and responses are provided in Section 2.5 of the Final EIS/EIR.

COMPARATIVE IMPACTS OF ALTERNATIVES:

Table 3.6-1 of the EIS/EIR provides comparative impact analysis of the alternatives evaluated for the proposed project. Alternative 12 would provide maximum incidental environmental benefits, and it is an environmentally superior plan compared to the other viable alternatives considered during the feasibility study.

RELATIONSHIP TO ENVIRONMENTAL PROTECTION STATUTES AND OTHER ENVIRONMENTAL REQUIREMENTS:

The proposed project is designed in compliance with environmental laws, Executive Orders, and other policies. Detailed descriptions and applicability of each regulation is provided in detail in Section 1 of the EIS/EIR. A list of these laws and regulations is provided below.

FEDERAL:

National Environmental Policy Act of 1969 (Public Law 91-190) as amended.
Department of Army, Regulation 200-1 (AR 200-1)
Department of Army, Regulation 200-2 (AR 200-2).
ER-200-2-2, 33 CFR 230, March 1988.
ER-1105-2-100 Regulation December 1990
Clean Water Act of 1977 (Public Law 95-217).
Endangered Species Act of 1973 (Public Law 93-205), as amended
Fish and Wildlife Coordination Act of 1958 (Public Law 85-624).
Migratory Bird Treaty Act, as amended (16 USC 703-711)
Executive Order 11988, Floodplain Management, May 24, 1977.
Executive Order 11990, Protection of Wetlands, May 24, 1977.
National Historic Preservation Act of 1966 (Public Law 89-665 as amended December 12, 1980).
Clean Air Act (Public Law 91-604), as amended.
Executive Order 12898, Environmental Justice.
Farmland Protection Policy Act, December 22, 1981 (Public Law 97-98).
Federal Water Project Recreation Act (Public Law 89-72), July 9, 1965.
Wild and Scenic Rivers Act (Public Law 90-542, as amended through Public Law 96-580, December 23, 1980).
Executive Order 13045, "Environmental Health and Safety Risks to Children" (62 Fed. Reg. 1988s (1997)).
Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC § 4601 (1996)).
Coastal Zone Management Act (Public Law 92-583).

STATE:

California Environmental Quality Act (CEQA) (Public Resources Code §§22,000 et seq.).
California Coastal Act of 1976, as amended.
California Endangered Species Act (Cal. Fish and Game Code §§ 2050-2116).
Streambed Alteration Agreement (Cal. Fish and Game Code, § 1600).
Surface Mining and Reclamation Act of 1975 (SMARA) (Cal. Pub. Res. Code § 2710).

LOCAL:

The City of Santa Barbara General Plan and Local Coastal Plan Goals and Policies

R **COORDINATION WITH THE RESOURCE AGENCIES**:

Formal and informal coordination has been conducted with concerned resource agencies. The U.S. Fish and Wildlife Service (USFWS), National Marine Fishery Service (NMFS), Corps Regulatory Branch and California Department of Fish and Game (CDFG) have participated in the planning process. During preparation of the Final EIS/EIR, extensive coordination occurred with the concerned resources agencies, these agencies are: USFWS, NMFS, California Coastal Commission (CCC), CDFG and Corps Regulatory Branch. The USACOE developed additional mitigation measures to minimize impacts to the biological resources. Concerns of the resource agencies have been addressed to the maximum extent possible. A summary of coordination is provided in Section 1 of the EIS/EIR. A list of agencies contacted is provided below.

U.S. Fish & Wildlife Service (USFWS)
National Marine Fisheries Service (NMFS)
U.S. Army Corps of Engineers Regulatory Branch
California Regional Water Quality Control Board (CRWQCB)
California Department of Fish and Game (CDFG)
California Coastal Commission (CCC)
State Historic Preservation Officer (SHPO)
Santa Barbara County Air Pollution Control District

R In addition to the resource agencies, the USACOE and the City of Santa Barbara coordinated with the Environmental Defense Center (EDC), Urban Creek Council and Audubon Society staff. The USACOE and the City of Santa Barbara met with these concerned groups to provide a status of the project and updated mitigation measures (see detail in Section 1 of the EIS/EIR).

R **MAJOR CONCLUSIONS AND FINDINGS**:

The environmental effects of the proposed array of alternatives presented in the Main Feasibility Report and in the EIS/EIR, the Affected environment and impact analysis by each resource have been discussed in detailed in sections 6 through 19 of the EIS/EIR. Alternative 1, the No Action/No Project Alternative, represents the future without project condition. Alternative 12 is the National Economic Development (NED) and tentative recommended plan. Increasing environmental benefit opportunity is feasible with alternatives consisting of

stabilization of sideslopes with a combination of vertical walls and stepped walls or combination of vertical walls and riprap. During plan formulation study, twelve alternatives were formulated to provide flood protection to the city of Santa Barbara. Alternative 12 provides maximum opportunity for providing incidental environmental benefit by planting of native riparian vegetation, compared to all other viable alternatives. The EIS/EIR also includes impacts and mitigation measures related to the future maintenance activities. Mitigation measures are summarized in Section 24 and the Mitigation Monitoring Plan in the EIS/EIR. Since the release of the Draft EIS/EIR, the project design has been modified, extensive coordination occurred with the concerned resource agencies. The USACOE developed additional mitigation measures to minimize impacts to the biological resources. With the re-alignment of the project design, impacts to the cultural resources have been minimized. Coordination with the State Historical Preservation Officer (SHPO) under NHPA Section 106has been completed.

This EIS/EIR includes, as appropriate, consideration of impacts of initial construction and future periodic debris removal; cumulative impacts of the proposed action on the environment when added to reasonably foreseeable future actions/projects in the area; a summary of mitigation measures and environmental commitments; the relationship between short-term uses of man's environment and maintenance and enhancement of long-term productivity; and any irreversible or irretrievable commitment of resources which would be involved in the proposal should it be implemented. All of the alternatives, including Alternative 1, the No Action/No Project (future without project conditions) alternative, are discussed in chapters 6 through 19. Because none of the alternatives would have a detectable impact on local or regional climatic conditions, climate is discussed in this analysis only in the context of air quality impacts. All environmental resources, the existing condition and impacts related to each resource, are described in sections 6 through 19. Section 24 of the EIS/EIR summarizes project related mitigation measures/environmental commitments to minimize project related impacts. A survey of each resource was performed. After evaluation of each resource located within the project area, it was determined the project area does contain two significant resources, biological and cultural resources. Therefore, only these two resources have been discussed briefly in the following paragraphs.

R **Biological Resources:**

Two species of fish, both listed as Federally endangered, under the Endangered Species Act, utilize Mission Creek. The tidewater goby (*Eucyclogobius newberryi*) enters the creek from the coastal lagoon and forages as far upstream as the Yanonali Street Bridge. Tidewater gobies are normally present in the area from late spring through fall.

The second species, steelhead (*Oncorhynchus mykiss*), use the lower end of Mission Creek as a migratory channel when flow conditions permit. Adults could swim upstream after steady winter rains have raised runoff rates. The species evidently spawns successfully in some years in the upper reaches of the watershed. Juvenile steelhead would use Mission Creek through the project area only as a migratory corridor to the ocean. Lower Mission Creek, the area within the project area, does not afford rearing conditions or suitable spawning conditions for steelhead.

Isolated native trees of notable age still occur at various locations along the creek. Of these, six are western sycamores (*Platanus racemosa*) and one is a coast live oak (*Quercus*

agrifolia). Elsewhere along the creek, a young cottonwood (*Populus fremontii*) struggles to survive against the effects of periodic channel maintenance, and a few mature willows (*Salix lasiolepis*) and fewer still white alders (*Alnus rhombifolia*) have become established on the overbank.

The Moreton Bay Fig (*Ficus macrophylla*) is located east of Mission Creek, at an elevation about 7 feet higher than the channel.

The USACOE has revised a modified Habitat Evaluation Procedure (HEP) to evaluate project related loss of habitat during the preparation of the Final EIS/EIR. Calculations of the HEP analysis revealed that the implementation of the proposed/preferred Alternative will yield greater habitat quality and values compared with existing conditions. In HEP analysis, loss due to project construction and future maintenance has been included for the life of the project. Conclusions of that HEP have been discussed at length with the USFWS. The HEP analysis is located in Appendix C of the EIS/EIR. The USFWS has provided a Final Coordination Act Report for the implementation of the project, which is located in Appendix B of the EIS/EIR.

A Mitigation Monitoring plan is included in Appendix H.

R The preferred plan for bank stabilization, a riprap slope extending to the bank top from low channel walls, would allow planting of a narrow but viable corridor of native riparian vegetation. A canopy consisting of several species of native trees and an understory layer consisting of willows and other native perennial species would be planted. Overall, habitat restoration of Lower Mission Creek would restore a significant wildlife corridor to this coastal stream.

R Removal of concrete surfaces from many places along the creek and restoration of a natural bottom would enhance aquatic habitats along the creek. Placement of large boulders for the purpose of dissipating stream flow energy would also promote stream conditions favorable to all fish and benthic organisms. Expansion of the creek channel below Yanonali Street would increase the habitat available to tidewater gobies. Various structural adaptations of the walls would mitigate for unavoidable, but not significant effects on gobies and steelhead. These features and future maintenance techniques which have been developed, would yield an important measure of incidental ecological benefit.

R Construction of flood control structures along Mission Creek would cause significant, temporary impacts to the stream's bottom, and thereby to the low-quality aquatic habitat which exists along the channel. Similarly, significant and temporary impacts would occur to coarse, weedy vegetation along the banks. Solitary, stately native trees would be removed in two locations to accomplish construction.

Direct impacts to gobies would be minimized by slowly de-watering half the channel at a time to allow construction in dry conditions. This plan would entail enclosing half of channel at its lower end with sheet piling, then trapping as many fish as possible and removing them to the other side of the piling. The process would be repeated for the other half of the channel. Impacts to steelhead would be avoided, or minimized, by scheduling construction in the channel and along the banks during the summer and fall months, when steelhead would not normally be present.

Various mitigation measures have been included in the project design to minimize impacts to steelhead. The NMFS has provided a Final Biological Opinion on the tidewater goby for the proposed project (Appendix B-1 of the Final EIS/EIR). Conditions/mitigation measures identified in the Biological Opinion would be followed during project construction and future maintenance. The USACOE would continuously coordinate the project design with the NMFS during development of the final project design. The USFWS Biological Opinion for the steelhead has not yet been submitted. However, the Coordination Act Report has indicated that impacts on the Steelhead are likely to be less than significant. Any mitigation measures required by the Biological Opinion will be added to the project during final design.

Construction effects have the potential to damage small roots of the Moreton Bay Fig, but not the principal components of its root system. Construction would occur sufficiently far from it to avoid any direct impact to its buttress roots, trunk, or branches. The flood control structure should have no effect on subsurface water flow around the fig tree.

Cultural Resources:

Alternatives 6, 8, and 12 have the potential to require removal of a number of historic structures. The City of Santa Barbara awarded a contract to conduct an updated architectural survey of the affected environment in the area of potential effects (APE). The survey report, completed in November 1999, recommended buildings and structures which should be determined eligible for the National Register, California Register or local listing. There are potential adverse effects under the National Historic Preservation Act for Alternatives 6 and 8. There are none for Alternative 12. Mitigation of adversely affected historic properties under Alternatives 6 and 8, may consist of historic recordation of the locally significant historic properties, and possible relocation of important houses. Archeological and Native American monitors will be on-site during all ground disturbing activities to ensure that if any Native American materials or deposits are discovered, the Corps of Engineers and the City of Santa Barbara will be notified immediately.

PERMIT REQUIREMENTS:

Clean Water Act 404 (b)(1) Water Quality Evaluation has been prepared to evaluate discharge of fill or dredged material in the waters of the United States (Appendix E).

The Section 401, State Water Quality Certification, is waived for the project construction as identified in Section 404(r) regulation. The California Regional Water Quality Control has provided a waiver from the Section 401, Water Quality Certification for the project construction and future maintenance. Future maintenance is a part of the project and will be performed by the Local Sponsor. No separate environmental document would be prepared for the future maintenance, because impacts related to the future maintenance have been addressed in the Final EIS/EIR. The USACOE recommends a waiver from the Section 404, Regulatory Permit for the future maintenance.

A Pollution Prevention Plan will be prepared to meet Section 402 Clean Water Action and National Pollutant Discharge Elimination System (NPDES) Storm Water Program requirements prior to the project construction. The selected construction contractor will prepare

a Storm Water Pollution Prevention Plan to reduce erosion and degradation to waters of the United States.

The local sponsor is involved in this project; therefore, a 1603 Streambed Alternation permit would be required prior to construction and the County of Santa Barbara would need to submit an application to the California Fish and Game for the Streambed Alternation Permit. With completion of these actions, the project will comply with Federal and State water quality requirements.

R On December 20, 1999, the USACOE submitted a CCD with project description, HEP Analysis report, biological assessments, and Draft Coordination Act Report to CCC. Since submittal of the CCD, extensive coordination has occurred between USACOE, City of Santa Barbara and CCC staff. The CCC staff expressed their concerns for the project design, and required detailed project plans to examine the project features. In addition, they were concerned about construction of vertical walls within the coastal zone, impacts to water quality, non-point source discharge degrading water quality of the creek, goals, success criteria for the planted vegetation, impacts to endangered species, estuarine habitat, mitigation, sand supply, HEP analysis, visual resources and cultural resources. The CCC also desired to have biological opinions from both agencies, USFWS and NMFS to make their determination. The CCC recommended that the USACOE examine an alternative with vegetated riprap slope or a full vegetated riprap bank below the freeway. The USACOE performed a cursory economic analysis of these alternatives. Results of this conceptual analysis can be found in the Economic Appendix. These alternatives are not economically feasible.

The biological opinion from the USFWS has not received, therefore, the USACOE requested postponement of the public hearing on the CCD until February 2001 or until the biological opinion is received from the USFWS. The USACOE has revised the CCD to incorporate revised project design, mitigation measures and coordination/input received from the CCC staff. The revised CCD can be found in Appendix D of the Final EIS/EIR. The USACOE will make every effort to provide requested information to facilitate the CCC in drafting a staff report/recommendation of the proposed project. Prior to project construction, concurrence from the CCC would be obtained. Therefore, the project would comply with the CZMA.

Two revised Biological Assessments have been prepared for the Federally listed Endangered and Threatened species (Appendix A-EIS/EIR). The Corps has initiated formal Section 7 with the USFWS and NMFS. A Biological Opinion for steelhead has been received from the NMFS. A Biological Opinion from the USFWS will be obtained prior to signing of the Record of Decision.