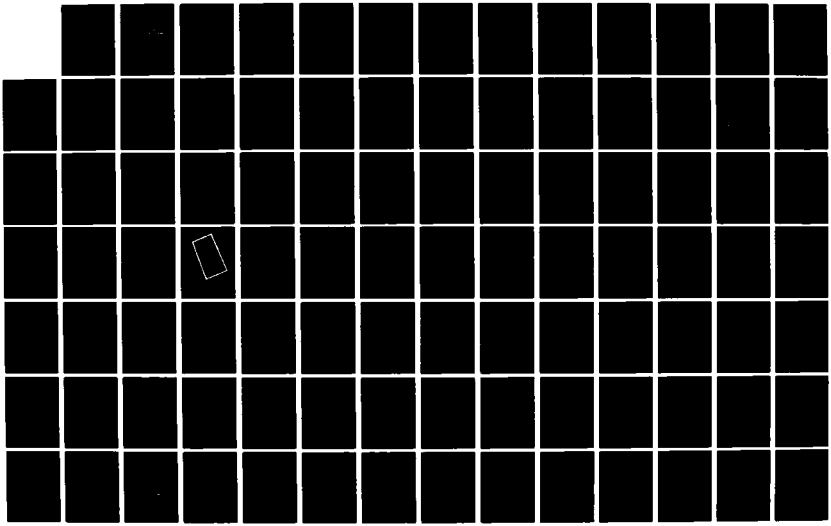
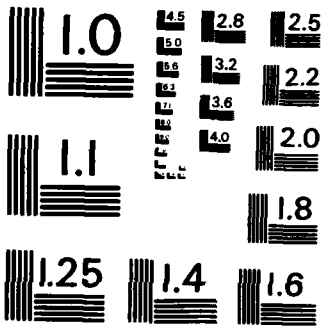
AD-A161 484 DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT PROPOSED..(U) CORPS OF ENGINEERS SAN FRANCISCO CA SAN FRANCISCO DISTRICT OCT 85 1/4

UNCLASSIFIED F/G 6/6 NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

(9)

DRAFT ENVIRONMENTAL IMPACT STATEMENT IMPACT REPORT

AD-A161 404

MARATHON INDUSTRIAL DEVELOPMENT

CITY OF HAYWARD
U.S. ARMY CORPS OF ENGINEERS

DTIC
ELECTE
NOV 2 0 1985
S D
A

TRS Consultants Inc

This document has been approved for public release and sale; its distribution is unlimited.

85 11 14 139

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER

2. GOVT ACCESSION NO. AD-A161 [illegible]

3. RECIPIENT'S CATALOG NUMBER

4. TITLE (and Subtitle)

Draft Environmental Impact Report/Environmental Impact Statement, Marathon U. S. Realties, Inc., Industrial/Business Park Development

use title page

5. TYPE OF REPORT & PERIOD COVERED

6. PERFORMING ORG. REPORT NUMBER

7. AUTHOR(s)

TRS Consultants, Inc.
San Francisco, CA

8. CONTRACT OR GRANT NUMBER(s)

9. PERFORMING ORGANIZATION NAME AND ADDRESS

U.S. Army Corps of Engineers, San Francisco Dist.
211 Main Street
San Francisco, CA 94105

10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS

11. CONTROLLING OFFICE NAME AND ADDRESS

Office of the Chief of Engineers
U.S. Department of the Army
Washington, D. C. 20314

12. REPORT DATE

October 1985

13. NUMBER OF PAGES

14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)

15. SECURITY CLASS. (of this report)

Unclassified

15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

- Prepared in cooperation with the City of Hayward Planning Department Alameda County, California
- Appendices included

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Environmental Impact
Fill
Industrial/business park
Seasonal wetland

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Joint State/Federal environmental impact document concerning a regulatory permit application by Marathon U. S. Realties, Inc. under Section 10 of the River and Harbor Act of 1899 and Section 404 of the Clean Water Act. The proposed project involves a non-water oriented industrial/business development with public utilities, and habitat improvements on public lands.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

DRAFT

ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL IMPACT STATEMENT

PROPOSED MARATHON INDUSTRIAL/COMMERCIAL BUSINESS CENTER TRACT 5167

HAYWARD, CALIFORNIA

for

City of Hayward
Planning Department

and

U. S. Army Corps of Engineers
San Francisco District

by

TRS CONSULTANTS, INC.

500 Sutter Street, Suite 615
San Francisco, California 94102

October 1985

COVER SHEET

Applicant	Marathon U.S. Realties, Inc. 595 Market Street Suite 1330 San Francisco, CA. 94105
Proposed Action	The applicant has requested a permit from the Army Corps of Engineers to fill a 134-acre site for the development of an industrial/commercial business center, and to develop 2 nearby sites (totaling 90 acres) as seasonal wetlands. This is in conjunction with a requested subdivision of the 134 acres into 65 lots, under the California Subdivision Map Act with Hayward as Lead Agency.
Project Location	The proposed industrial/commercial business center site is located mostly in the City of Hayward, bordered on the north by the existing Bockman Canal, on the east by the Southern Pacific Railroad embankment, and on the south by the Sulphur Creek levee, and on the west by lands of the East Bay Regional Park District and Oro Loma Sanitary District.
Lead Agencies-and Contacts	U.S. Army Corps of Engineers Col. Andrew M. Perkins Jr., District Engineer Ken Maynard Regulatory Functions Branch 211 Main Street San Francisco, CA 94105 (415) 974-0421 Mr. Les Tong, EIS Coordinator Environmental Branch U.S. Army Corps of Engineers 211 Main Street San Francisco, CA 94105 (415) 784-8674

Accesion For
NTIS CRA&I
DTIC TAB
By
QUALITY INSPECTED 3

Mr. Ron Gushue
City of Hayward
Planning Department
22300 Foothill Boulevard
Hayward, CA 94541
(415) 784-8674

Permit Application #

City of Hayward - Tract 5167
U.S. Army Corps of Engineers - 15483E49

Principal Contributors

TRS Consultants, Inc. (author)
500 Sutter Street, Suite 615
San Francisco, CA 94102

Shapiro & Assoc., Inc.
1812 Smith Tower
Seattle, WA 98104
(Habitat Evaluation)

John J. Forristal, Inc.
3320 Grand Avenue
Oakland, CA 94601
(Traffic/Circulation)

MO'C Physics Applied
4151 Middlefield Road
Room 204
Palo Alto, CA 94303
(Air Quality)

Licenses, Permits, Approvals

(list does not necessarily indicate sequence of permit application and/or approval)

U.S. Army Corps of Engineers:
- Section 10 Permit
- Section 404 Permit

City of Hayward:
- EIR/EIS Certification
- Tentative Map and Final Approval
- Grading and Building Permits

Regional Water Quality Control Board:
- Water Quality Certification

Date of Draft EIR/EIS Issue: 25 October 1985
Comments Due: 23 DEC 1985
Cost to Public: $ 10.00

TABLE OF CONTENTS

		Page
	Cover Sheet	i
I.	SUMMARY	1
	A. Purpose of and Need for the Proposed Action	1
	B. Alternatives Including the Proposed Action	1
	C. Significant Impacts and Mitigations	8
	D. Significant Effects Which Cannot Be Avoided	10
II.	PURPOSE OF AND NEED FOR THE PROPOSAL	12
	A. Purpose of and Need for Project	12
	B. Purpose and Need for an EIR/EIS	12
	C. Regulatory and Permit Requirements	13
III.	ALTERNATIVES INCLUDING THE PROPOSED ACTION	28
	A. Alternative 1. Project as Proposed by Applicant	30
	B. Alternative 2. Proposed Project with Alternative Mitigation	32
	a. No off-site mitigation; payment in-lieu to a land banking agency	32
	b. Improve one of the HARD parcels and provide payment in-lieu	32
	C. Alternative 3. Develop East of Western Half of Proposed Loop Road	33
	D. Alternative 4. Acquisition of Site by Public Agency	33
	E. Alternative 5. No Action	33
IV.	AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES AND RECOMMENDED MITIGATIONS (ENVIRONMENTAL SETTING, IMPACTS, AND RECOMMENDED MITIGATIONS)	35
	A. Land Use	35
	B. Vegetation and Wildlife	39
	C. Soils, Topography, Geology, and Seismicity	55
	D. Water Quality and Storm Runoff	59
	E. Traffic/Circulation	70
	F. Air Quality	75
	G. Noise	76
	H. Public Services and Utilities	80
	I. Socioeconomics	86
	J. Cultural Resources	90
V.	SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED	91

VI. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY 92

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES RESULTING FROM APPROVAL OF THE PROPOSED ACTION 93

VIII. GROWTH INDUCING IMPACTS 94

IX. PUBLIC INVOLVEMENT AND DISTRIBUTION LIST 95

X. LIST OF PREPARERS 98

XI. REFERENCES 99

XII. APPENDICES

A. Comments Received on the Public Notice

B. Habitat Evaluation for Proposed Site and the Surrounding Properties

C. Marsh Restoration Design for Two Parcels of the Hayward Shoreline

D. Soils Investigation

E. Traffic/Circulation Report

F. Archaeological Records Search

G. Summary Section of Alternative Site Analysis

H. Air Quality Analysis

LIST OF TABLES

Table 1. Wetlands in Southeast Bay Region 49

Table 2. Well Inventory 63

Table 3. Pollutant Levels in Storm Water Runoff from Light Industrial Development 67

Table 4. Levels of Service Impacts to Roadways 72

LIST OF FIGURES

Figure 1.	Site Location	2
Figure 2.	Alternative 1 (Project as Proposed)	4
Figure 3.	Alternative 3	7
Figure 4.	Corps Section 404 Jurisdiction	15
Figure 5.	Corps Section 10 Jurisdiction	17
Figure 6.	Study Area Land Use	36
Figure 7.	Habitat Map	41
Figure 8.	Street System	71
Figure 9.	Land Use Compatibility Standards for Noise Environments	77

I. SUMMARY

A. PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The proposed project is an industrial/commercial development on 134 acres in the City of Hayward and the enhancement of two nearby wetland parcels as mitigation for wetland losses on the 134 acre site (see Figure 1). The project sponsor and permit applicant is Marathon U.S. Realties, Inc. Each permit application has an applicant's purpose and need and a public purpose and need. In most cases when an EIS is required and the applicant is not a governmental body or agency, the applicant, (Marathon U.S. Realties) from the private sector, is providing a good or service for profit. The applicant's purpose is to receive requested permits to subdivide the 134 acres, to build the necessary infrastructure, and to sell the parcels to industrial builders for profit.

In addition, the applicant wishes to improve two nearby parcels as mitigation for on-site wetland losses. (Other applicant purposes specific to the type of industrial business park are described in detail in Section III).

The public benefit associated with the proposed development is additional industrial/commercial development which would create employment for local residents, generation of revenues for local government, and improvement of two existing wetland areas totaling 90 acres owned by public agencies.

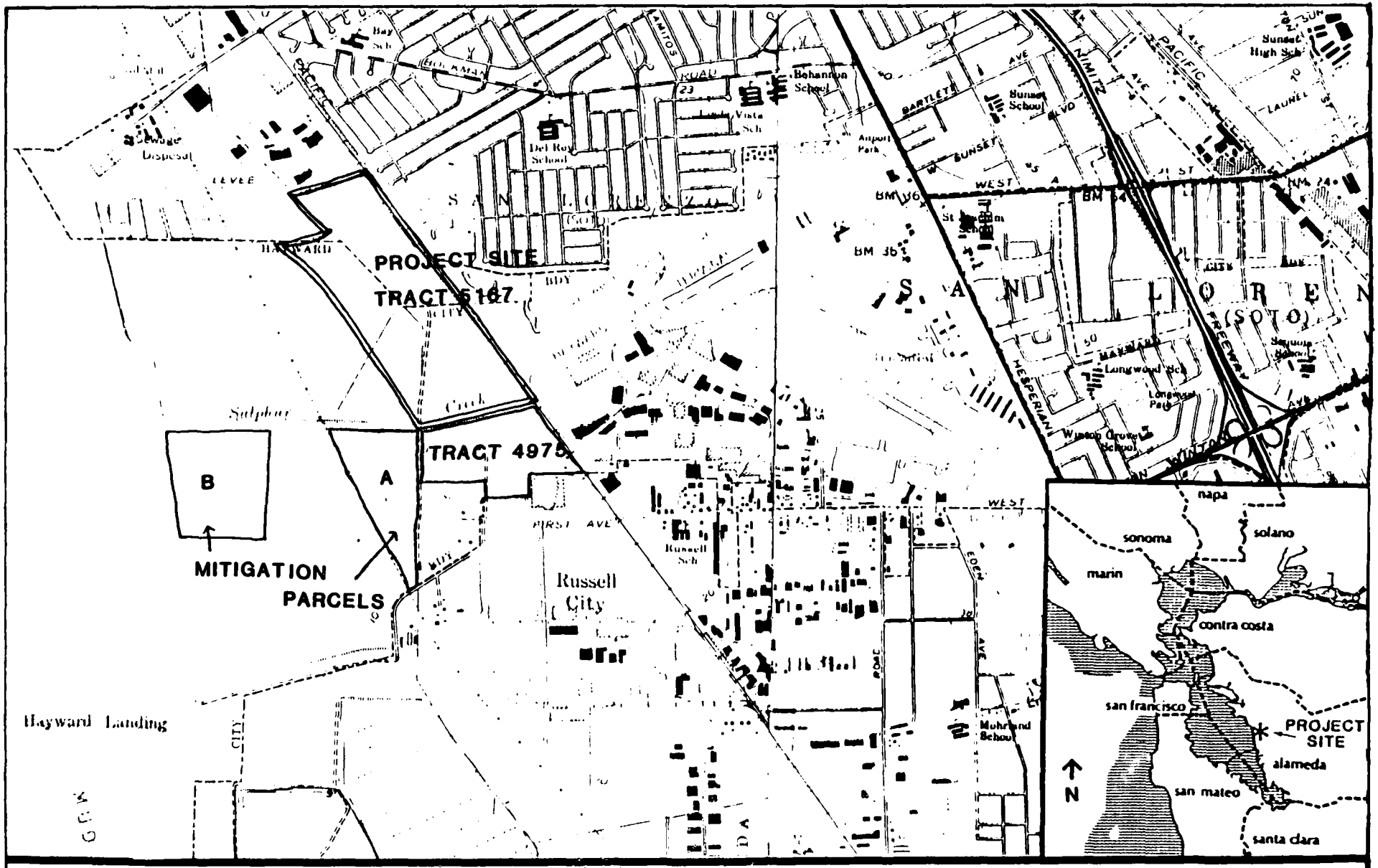
This Environmental Impact Report/Environmental Impact Statement (EIR/EIS) has been prepared to meet both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). NEPA is required due to Federal permitting activity of the U.S. Army Corps of Engineers. The applicants have applied for a Corps permit pursuant to Section 10 of the River and Harbor Act of 1899 and Section 404 of the Clean Water Act. The Corps has required the preparation of an EIS to determine the extent of the effects on the environment.

The City of Hayward has determined that a program EIR would be required for the project on the basis of an Intial Study prepared in 1982, which indicated the probable significant effects of development of the proposed site.

This document will be circulated through the State Clearing House to all permitting and review agencies for review and comment.

B. ALTERNATIVES INCLUDING THE PROPOSED ACTION

In examining alternatives for non-water-dependent activities, the Corps must presume that practicable alternatives



SITE LOCATION

FIGURE: 1

N SCALE 1" = 2000'

that do not involve special aquatic sites (including wetlands) are available, unless clearly demonstrated otherwise (EPA 40 CFR 230.10(a)(3)).

Reasonable alternatives include those that are practicable or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant. There is, however, no need to disregard the applicant's purposes or needs and the common sense realities of a given situation in the development of alternatives (CEQ FR Vol 46, No. 55, Monday, Mar 23, 1981, #2a, P. 10827 & FR Vol 48, No. 146, Thursday July 28, 1983, p. 34267).

In order then to determine the practicability of an alternative, it is important to have a defined project purpose. The purpose of the proposed development project is to provide a master-planned, rail-served, light industrial park for a mixture of tenants in accordance with the highest and best use of the subject property. In real estate terms, the highest and best use is that use that will provide the greatest net return to the land over a given foreseeable period of time.

Other alternatives which were considered but were deemed impracticable were:

. Development on the uplands only
. Alternative non-aquatic sites.

These two alternatives were deemed impracticable for reasons described in Section III of this EIR/EIS.

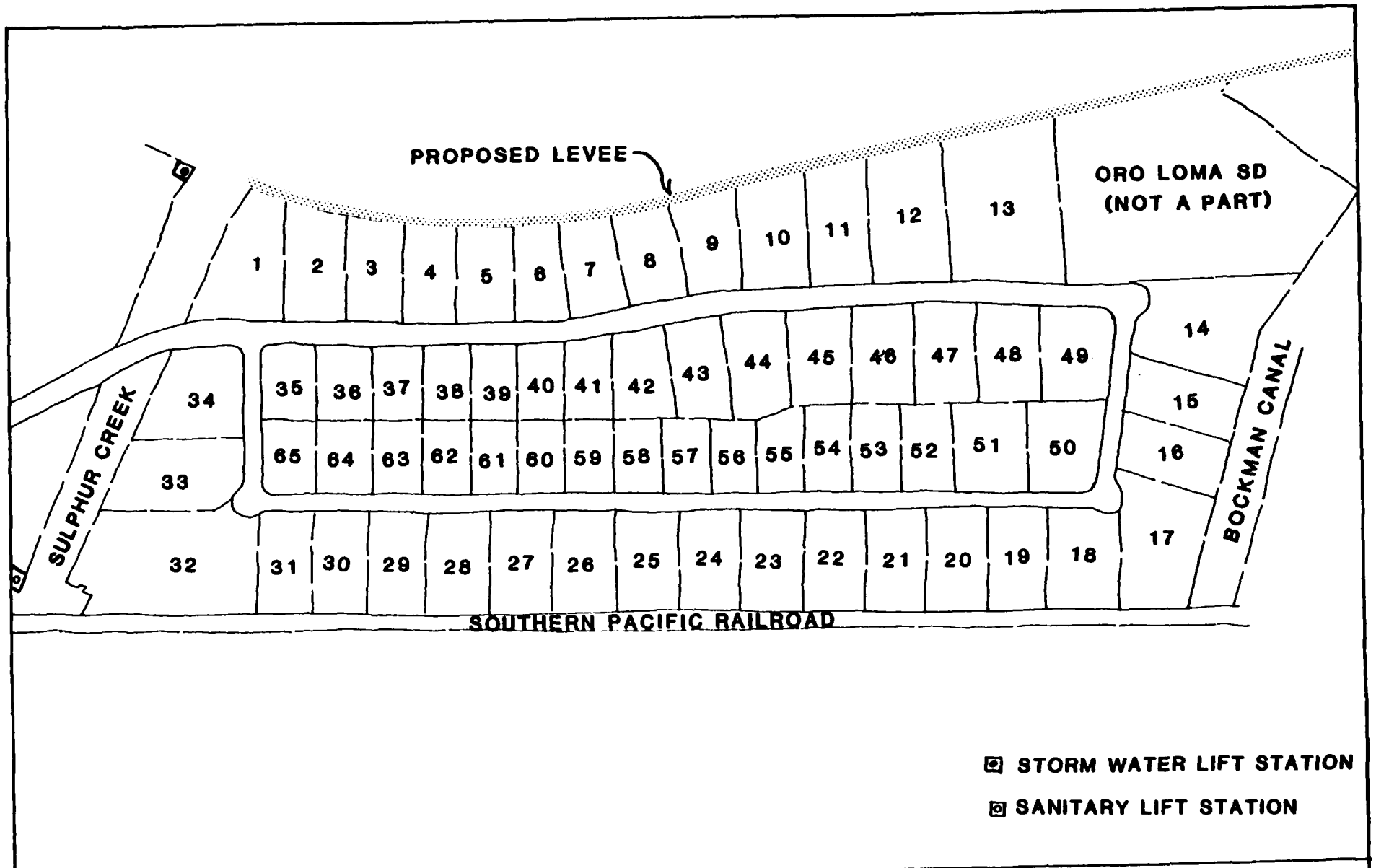
The following are considered practicable alternatives to the proposal which would generally meet the applicant's project purpose, though not all would maximize the profitability or result in the highest and best use of the property. (See Section III for further detail.)

Alternative 1 - Project as Proposed by Applicant

Marathon U.S. Realties, Inc. is proposing development of a 134-acre site for industrial/commercial business uses and enhancement of two nearby sites as seasonal wetlands to mitigate the loss of wetlands on-site.

To provide flood protection on-site, approximately 34,000 cu. yds. of fill would be placed along the western site border to create a levee connecting to the Bockman and Sulphur Creek levees. The entire site would be filled to elevation +8 ft. MSL with 540,000 cu. yds. of fill material.

The site would be subdivided into 65 lots ranging in size from 1.1 to 5.4 acres (Figure 2). Lots could be grouped or purchased separately by contractors or builders. Marathon would



ALTERNATIVE I

PLAN AS PROPOSED BY APPLICANT

N

SCALE: 1" ≅ 500'

FIGURE: 2

provide all infrastructure necessary to serve the 134 acres within the rights-of-way. Individual lot owners would be responsible for the infrastructure improvements on their lots.

Land uses expected at the site would be industrial and commercial oriented toward rail service. It is anticipated that the industrial activities would include warehouse/distribution, light manufacturing, and potentially research and development (R & D) companies. Commercial users would include businesses which support the industrial users and serve employees and the general public.

The proposed mitigation parcels (A and B shown in Figure 1) are also included as part of the proposal. Ten-foot-wide channels would be dug to a bottom elevation of 0.0 ft. NGVD in parcel A, to drain the interior of the parcel. A 30 foot wide ditch would route stormwater from the northeastern corner of the site to the south end and then to the outlet at the northwestern corner of parcel A. Three islands would be built and covered with sand and fine gravel.

Parcel B would be maintained as an open water area through the summer. This would require excavation of about 15 acres to an elevation of 0.0 ft. NGVD. The eastern edge of the parcel, which abuts an old landfill site, would be covered and graded to a maximum slope of 10:1 and would merge gradually with a gently sloping shelf. One island of about 0.4 acres would be built in the ponded area. A culvert with inlet structure would be at the upper end of the ditch which could connect Parcels A and B; it would remain open most of the time but could be used to control drainage in either parcel without affecting the other. The outlet from parcel B would drain into Sulphur Creek.

Alternative 2 - Project as Proposed with Alternative Mitigation

2a. No Off-Site Mitigation; Payment In-Lieu to a Land Bank.

There are currently two agencies potentially capable of facilitating a payment in-lieu mitigation plan. The Coastal Conservancy can acquire coastal and Bay lands which could be restored to or held as wetlands and in a land bank. Currently the Conservancy is working with the Mitigation Bank Working Group, a coalition of public and private agencies and interest groups, to develop the criteria and implementation measures for the Land Bank Restoration Project.

The other agency which facilitates off-site mitigation projects is the East Bay Regional Parks District (EBRPD).

Under this alternative the project applicant would not improve the two off-site wetland parcels as proposed but instead

would provide funds to either the Coastal Conservancy or EBRPD for enhancement or purchase of other Bay lands. This alternative would generally meet the applicant's project purpose.

2b. Improve One HARD Parcel and Provide Payment In-Lieu.

Under this alternative only one of the two HARD parcels would be used for mitigation as proposed and funds would be provided to either the Coastal Conservancy or the EBRPD for off-site mitigation elsewhere. This alternative would also generally meet the applicant's project purpose.

Alternative 3 - Develop East of the Western Half of the Proposed Loop Roadway

Under this alternative approximately 30 acres west of the proposed loop road would remain as undeveloped wetland and about 104 acres would be developed as industrial business park (see Figure 3). The proposed levee along the western site boundary would not be built; instead, the western loop of the roadway would be designed to function as the levee for the development east of the roadway.

Off-site mitigation would be largely eliminated and might consist of enhancement of one of the HARD parcels and/or payment in-lieu to a land bank fund.

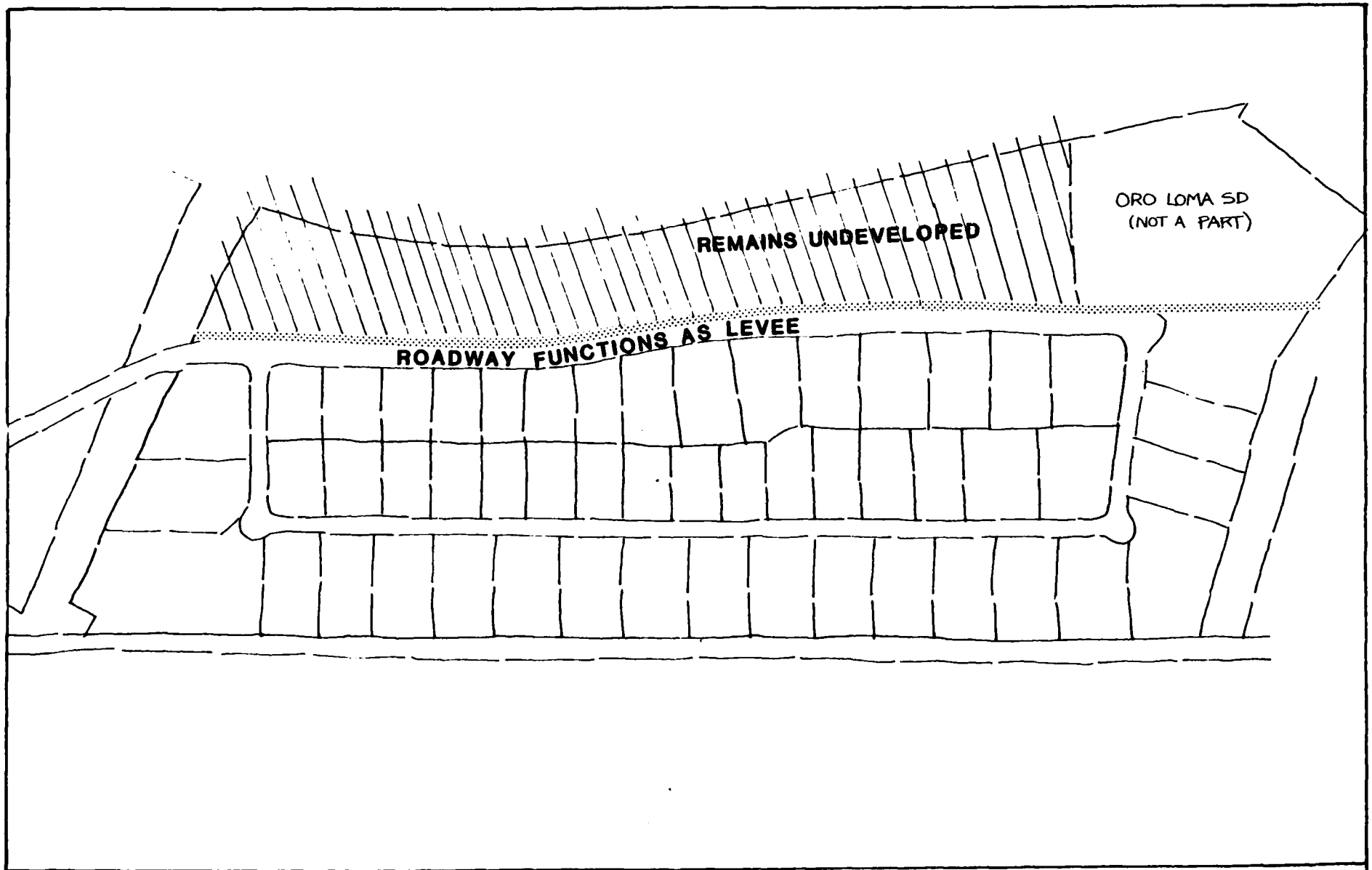
This alternative would generally meet the applicant's project purpose, however, it would not result in the highest and best use of the entire 134-acre site.

Alternative 4 - Aquisition of the Site by a Public Agency

Under this alternative the applicant would sell the property "as is" to a public agency at a fair market value. The Trust for Public Lands has indicated it may be interested in purchase of the property for a mitigation land bank (K. Zavitz, pers. comm., May, 1985). No other agencies have expressed interest at this time in purchase of the site. Under this alternative it is assumed for purposes of environmental analysis in this EIR/EIS that the site would remain undeveloped wetlands.

The two mitigation parcels would not be enhanced under this alternative and would likely remain in their existing condition for the foreseeable future.

This alternative would not require a Corps or City permit nor would it meet the applicant's purpose.



ALTERNATIVE 3

SCALE: 1" ≅ 500'

FIGURE: 3

Alternative 5 - No Action

Under this alternative the industrial/commercial development and enhancement of the HARD parcels would not be undertaken. This alternative would not meet the applicant's project purpose but is required under both NEPA and CEPA Guidelines.

C. SIGNIFICANT IMPACTS AND MITIGATIONS

The following discussion presents a summary of significant environmental impacts associated with the proposal and alternatives, followed by recommended mitigation measures. Significant impacts which cannot be mitigated are discussed in Section D.

Impacts to Land Use, Soils and Geology, Hydrology and Groundwater, Public Services and Utilities, Noise, Air Quality, Socioeconomics, and Cultural Resources are not judged to be significant. Please refer to the text of this EIR/EIS which discusses these elements in detail.

Environmental Consequences (Impacts)

Vegetation and Wildlife Impacts

Alternative 1, 2a, and 2b. Development of the Marathon Tract 5167 would result in the loss of forty-four acres of upland habitat and 90 acres of seasonal salt marsh. To offset this loss, either one or both of the HARD parcels would be enhanced and/or payments made for land banking for in-kind habitat replacement. If both HARD parcels were enhanced (Alternative 1), the overall loss of habitat value would be about 20% (Section IVB and Appendix B).

Alternative 3. This alternative would eliminate 44 acres of upland and 60 acres of wetland habitat. It would have less impact on habitat value than Alternative 1,2a, and 2b because large continuous tracts of seasonal wetlands would be left intact to the west of the developed parcel.

Alternatives 4 and 5. No significant impacts on vegetation or wildlife would occur under either of these scenarios.

City of Hayward. The Marathon property lies in one of the most valuable seasonal wetland areas in Hayward. The wetland complex includes EBRPD, HARD, and Marathon lands. The proposed development (Alternative 1) would eliminate about 1% of all of Hayward's shoreline wetlands, which constitute a portion of habitat available to waterfowl, shorebirds, and upland species for feeding, breeding, and resting, especially during winter high tides.

Regional Context. The south and east Bay region is all the properties west of the Nimitz Freeway from Oakland Airport in the north to the Santa Clara County line. The proposed action would eliminate less than 1% of the south and east Bay wetlands. The cumulative effect of the proposed action, together with other development proposals in the region, would be to reduce the remaining seasonal wetlands of the southeast Bay. Although there is a low probability of all the proposed development being permitted, the cumulative impact of this "worst-case" scenario would be a loss of approximately 65% of the southeast Bay region's seasonal wetlands. Developments are proposed for virtually all the non-tidal privately owned wetlands in the shorelines of Newark and Fremont (Paul Kelly, DFG, pers. comm.; Barry Nelson, Save San Francisco Bay, Pers. comm.)

Recommended Mitigation

Alternative 1. As compensation for the loss of on-site habitat, two degraded parcels totaling 89 acres south of Sulphur Creek would be enhanced and developed as diverse wetlands to provide open water, islands, salt marsh, and mudflat habitats for wildlife use.

Alternatives 2a and2b. The mitigation involves payment to a land acquisition agency in-lieu of mitigation off-site. In 2a, one HARD parcel would be enhanced for wildlife and payment would be made for the balance of the mitigation requirement. In 2b, payment would take the place of enhancement on either HARD parcel.

Alternative 3. Thirty acres of on-site wetlands would be enhanced for wildlife by modifying the water regime.

Alternatives 4 and 5. No mitigation is required.

Traffic/Circulation

Alternative 1, 2a, and 2b. The proposed project is estimated to generate an additional 8,170 average weekday trips (AWT) on the current road system, for a "worst-case analysis" in which 35% of the site would be occupied by R & D users. (If no R & D users were to occupy the site, then there would be an additional 5,120 average weekday trips.)

With or without the proposed project, the level of service would be reduced at all intersections in the site vicinity except the intersections of W. Winton Ave-Corsair Blvd and Depot Road-Hesperian Blvd. The levels of service at both these intersections would remain the same without the project but would be reduced with the project.

Alternative 3. This alternative would generate an additional 6760 AWT to the street system (or 3,980 without any

R & D users). Due to the reduction in developable area, the level of service would be slightly better at some of the intersections than under Alternative 1.

Alternatives 4 and 5. Both these alternatives would result in a continuation of existing conditions. It is important to note that the level of service would be reduced even without the proposed project due to current traffic conditions, general growth in the area, and other currently planned projects.

Recommended Mitigations (All Alternatives)

The traffic study included in Appendix E suggests specific measures to mitigate traffic impacts which are applicable to all alternatives. They are briefly summarized below:

- Construction of the Alameda Industrial Transportation Corridor.
- The addition of a third eastbound lane on West Winton Ave. from Hesperian Blvd. to Southland Place/Stonewall Ave. (currently planned).
- Conversion of the existing through lane on the northbound Clawiter Road approach to an optional right turn-through lane. This would require removal of the right turn channelization island and relocation of the signal.
- A 4-lane section with a 64 foot curb-to-curb width for Depot Road between Cabot Blvd. and Clawiter Road.
- A 4-lane section for Clawiter Road.
- Formation of an assessment district by the property owners in the industrial area for implementation of roadway improvements in the site area (this is currently in process).
- Encouragement of car and van-pooling and transit ridership by the various industrial users who might locate at the site.

D. SIGNIFICANT EFFECTS WHICH CANNOT BE AVOIDED

Vegetation and Wildlife

Alternatives 1, 2a, and 2b. Ninety acres of seasonal salt marsh habitat and 44 acres of grassland habitat would be permanently eliminated. Wildlife currently using the site would

have to move to surrounding lands which are already at carrying capacity.

Alternative 3. The effects under this alternative would be similar to those of Alternative 1, except that 55 - 60 acres of seasonal marsh would be eliminated and the remaining 30 - 35 acres of wetlands would be restored to tidal action.

Cumulative Impact. Any development in the Hayward Shoreline would contribute to the incremental loss and disturbance of seasonal wetlands in the San Francisco Bay area.

Traffic

All alternatives would result in increased traffic and a decrease in the Level of Service at some intersections in the area.

II. PURPOSE OF AND NEED FOR THE PROJECT

A. PURPOSE OF AND NEED FOR THE PROJECT

The proposed project is an industrial/commercial development on 134 acres in the City of Hayward and the enhancement of two nearby wetland parcels as mitigation for wetland losses on the 134-acre site. The project sponsor and permit applicant is Marathon U. S. Realties, Inc. (see Figure 1). The enhancement parcels are owned by the Hayward Area Recreation and Parks District (HARD), which has entered into an agreement with the project sponsor for wetland enhancement on its properties. The principal governmental agencies which must consider permit issuance for the proposed project are the City of Hayward and the U. S. Army Corps of Engineers. Figure 2 shows the proposed plan.

Each permit application has an applicant's purpose and need and a public purpose and need. In most cases, when an EIS is required and the applicant is not a governmental body or agency, the applicant is a member of the private sector engaged in providing goods or services for profit. At the same time, the applicant is requesting a permit to perform work which, if approved, is considered to be in the public interest (i.e. provides a public benefit). This is the case with the proposed Marathon industrial/commercial development. The applicant's purpose is to receive requested permits to subdivide the 134 acres, to build the necessary infrastructure, and to sell the parcels to industrial builders for profit. In addition, the applicant proposes to improve two nearby wetland parcels as mitigation for on-site wetland losses.

The public benefits associated with the proposed development are: 1) additional industrial/commercial development which would create employment for local residents and 2) the enhancement of two existing wetland areas totaling about 90 acres and owned by a public agency. The habitat evaluation presented as Appendix B and summarized in the Vegetation and Wildlife Section (IV B) of this EIR/EIS presents a detailed analysis of the value of the existing habitats on the site as well as on the proposed mitigation sites. The evaluation compares the existing values to the future values given the proposed mitigation plan and site development plan.

B. PURPOSE OF AND NEED FOR AN EIR/EIS

The Environmental Impact Report/Environmental Impact Statement (EIR/EIS) has been prepared to meet both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). Compliance with NEPA is required due to the Federal permitting activity of the U.S. Army Corps of Engineers. The applicants have applied for a Corps permit pursuant to

Section 10 of the River and Harbor Act (RHA) of 1899 (33 U.S.C. Section 403) and upon Section 404 of the Clean Water Act (CWA) (33 U.S.C. Section 1344) which pertains to the discharge of dredged or fill material into waters of the United States. The Corps has required the preparation of an EIS based upon its determination that the proposed project would have significant effects on the environment.

The City of Hayward has determined that an EIR would be required for the project on the basis of an Initial Study prepared for this site and adjacent Tract 4975 in 1982, which indicated potential significant effects of development on the proposed site.

This document will be circulated through the State Clearing house to all permitting and review agencies for review and comment. In accordance with NEPA and CEQA requirements, this document is available to the general public for review and comment during the 45-day public comment period.

C. REGULATORY AND PERMIT REQUIREMENTS

This section contains a brief discussion of the purpose, mandates, and activities of local, regional, state, and federal agencies as they relate to the proposed project. The following agencies are included:

- Federal Agencies
  - U.S. Army Corps of Engineers
  - U.S. Fish and Wildlife Service
  - U.S. Environmental Protection Agency
  - U.S. Coast Guard
- State Agencies
  - California Department of Fish and Game
  - State Lands Commission
  - California Regional Water Quality Control Board
  - State Historic Preservation Office
- Regional Agencies
  - San Francisco Bay Conservation and Development Commission
  - Association of Bay Area Governments
  - East Bay Regional Parks District
  - Bay Area Air Quality Management District
- Local Agencies
  - City of Hayward
  - Hayward Area Shoreline Planning Agency
  - Hayward Area Recreation and Park District
  - Alameda County
  - Alameda County Flood Control District
  - Alameda County Local Agency Formation Commission

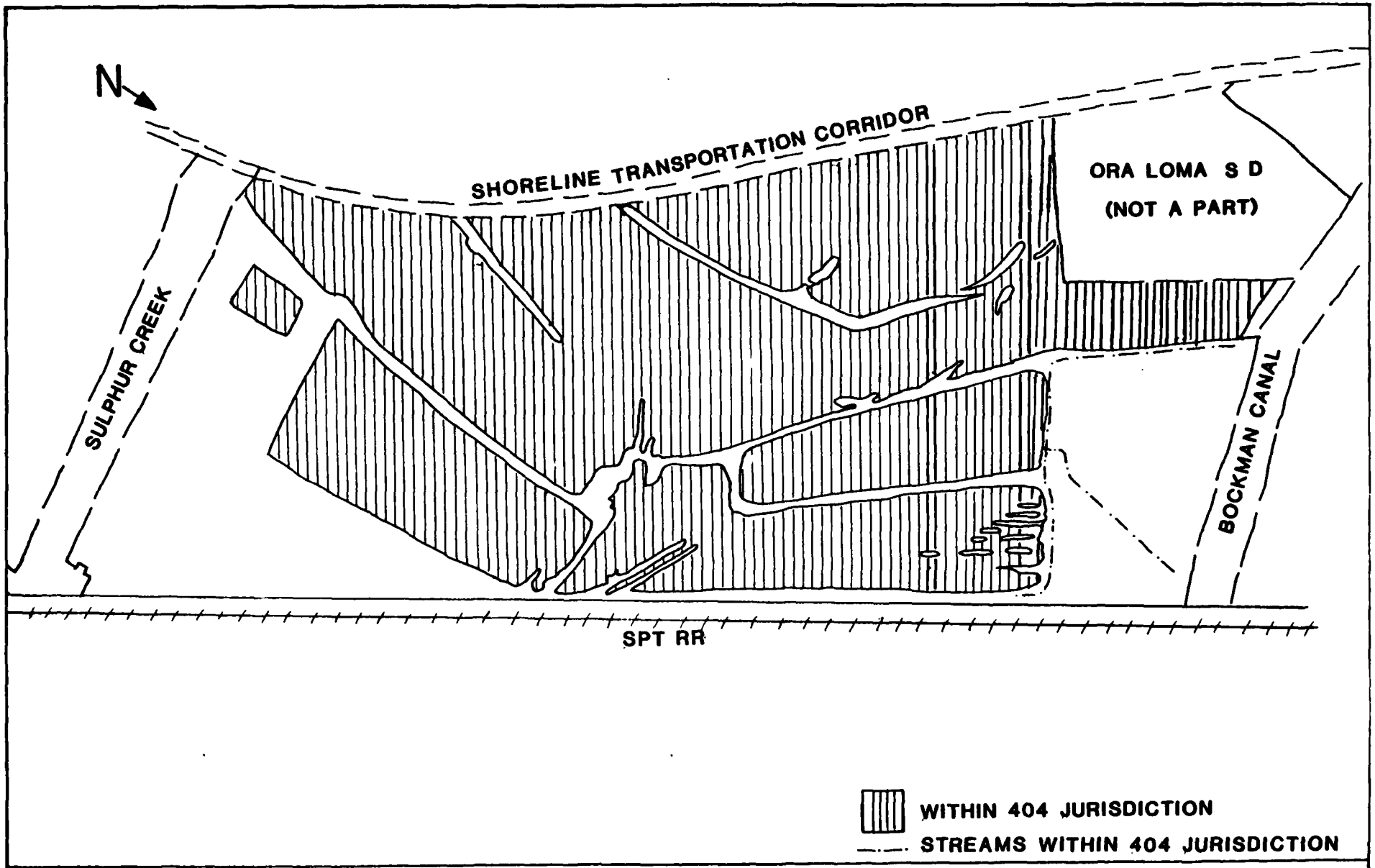
FEDERAL AGENCIES

U.S. Army Corps of Engineers (Corps). The Corps of Engineers, a branch of the U.S. Army, exercises final permit authority over the proposed project under the federal River and Harbor Act of 1899, the Federal Water Pollution Control Act of 1972 as amended (the Clean Water Act, 1977), and related statutes described below. Corps permit regulations (33 CFR 320-329) require an evaluation of the extent to which a proposed permit activity is in the public interest. This is the most important criterion applied in the decision to issue a permit. For any permit application, the Corps must consider all applicable official state, regional, or local land use plans and/or policies as reflecting local factors of the public interest [33 CFR 320.4(j)(2)]; thus, the Corps will request review of permit applications in the study area by local governments. In addition, the Corps is required by permit regulations to coordinate and consult with certain federal and state agencies (33 CFR 320.4) so that permit decisions will reflect factors of both national and statewide public interest. The following pertinent regulations will be considered by the Corps prior to issuance of a permit for the project.

Clean Water Act. The Federal Water Pollution Control Act of 1971 (FWPCA), amended as the Clean Water Act in 1977, was enacted to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The FWPCA established a number of goals, requirements, prohibitions, and programs to achieve that purpose and addressed the problems of water pollution by using many different approaches. Section 404 of the Act establishes a permit program, administered by the Corps, to regulate the discharge of dredged and fill material into the "waters of the United States." Jurisdiction over "waters of the United States" extends to the high tide line of tidal waters, plus "adjacent" or "neighboring" wetlands. Applications for a Section 404 permit are evaluated according to 404(b)(1) guidelines set forth by the Environmental Protection Agency which give specific requirements for the use of disposal sites for dredged or fill materials. These regulatory guidelines (40 CFR Part 230) prohibit "the discharge of dredged or fill material if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other adverse environmental consequences."

The proposed action includes structural fill for foundations and flood protection in wetlands which are considered to be within the jurisdiction of the Corps of Engineers (Figure 4); therefore, a 404 permit will be required.

The 404(b)(1) guidelines require that for non-water-dependent activities the applicant must demonstrate that there are no practicable alternatives to the proposed fill activity [EPA 40 CFR 230.12(a)(3)]. To meet this requirement a report has



CORPS JURISDICTION SECTION **404** FWPCA

FIGURE: 4

N

SCALE: 1" ≅ 500'

been prepared by Mills-Carneghi-Bantovich, Inc. a real estate consulting firm with experience in Alameda County, which examines the availability of alternative sites. A summary of the report is contained in Appendix G; the complete report is on file with the City of Hayward and the San Francisco District Corps of Engineers.

The San Francisco District has determined that the alternative site analysis as furnished by the applicant meets the requirements of 40 CFR 230.10 (a)(3) in that there are no practicable alternatives to the proposed fill. The Corps determination is based on the assumptions provided by Marathon regarding the market area. These assumptions are as follows:

"An industrial market area is defined as that geographical area within which industrial parks compete for the same prospective buyers and tenants. From the point of view of industrial firms, the market is that area within which the firm will search for an acceptable building site or leasable space. The subjects project's market area is defined as the Oakland airport area south through Union City".

In support of the above definition, Marathon has stated that 90 percent of the real estate activity in a given community involves firms relocating or expanding within the community, and it is relatively infrequent that a firm moves 30 miles away from the same urban area.

River and Harbor Act of 1899. Section 10 of the River and Harbor Act of 1899 prohibits the unauthorized obstruction or alteration of any navigable waters of the United States. The construction of any structure in or over any navigable water, excavation or deposit of material in such waters, and various types of work performed in such waters, including fill and stream channelization, are examples of activities requiring a Corps permit.

Navigable waters include all places covered by the ebb and flow of the tide to the mean high water mark in its unobstructed natural state. In San Francisco Bay, "navigable waters" include those areas which were historically part of the San Francisco Bay, including marshlands as of 1850, but are hydrologically separated from the Bay because of diking. A portion of the 134-acre site is within the Corps' Section 10 jurisdiction (Figure 5); therefore, a Section 10 permit is required.

Fish and Wildlife Coordination Act. This Act requires the Corps to consult with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Game during preparation of an environmental study prior to issuance of a Department of the Army permit. Formal consultation with these agencies will occur through their review

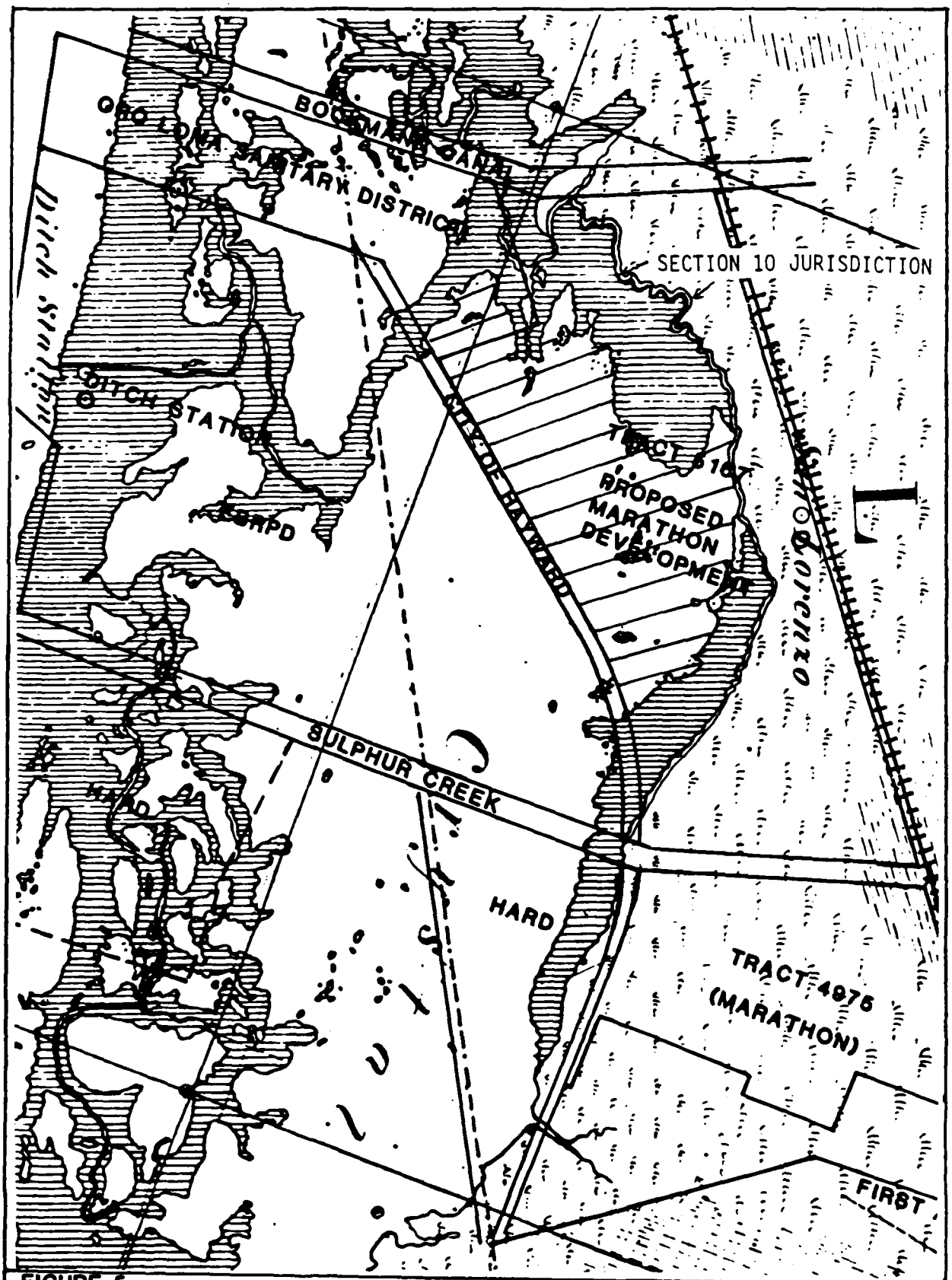


FIGURE 5

SECTION 10 JURISDICTION

Source: Plane Table Sheet XXIX, T635
San Francisco Bay, 1857 1:10,000

Grassland
Former Marsh Limits
Section 10 Former Navigable Waters

of the Corps's Public Notice and this EIR/EIS. The Corps of Engineers' regulatory program requires the District Engineer to give full consideration to the views of these agencies in evaluating a permit application. All three agencies have expressed concerns regarding the impacts of the proposed development on fish and wildlife resources. Section IV B of this report addresses those concerns.

Endangered Species Act. This act was passed in 1973 to provide protection for animal and plant species that are currently in danger of extinction ("endangered") and those that may become so in the foreseeable future ("threatened"). Section 7 of this Act requires federal agencies to ensure that their actions do not have adverse impacts on the continued existence of threatened or endangered species or on the designated areas (critical habitats) that are important in conserving those species. The U.S. Fish and Wildlife Service (FWS) maintains current lists of species which have been designated as threatened or endangered.

The FWS has notified the Corps (letter dated August 27, 1984) that there is one listed endangered animal species, the salt marsh harvest mouse (*Reithrodontomys raviventris*), and one listed endangered plant species, the Point Reyes bird's beak (*Cordylanthus maritimus* ssp. *palustris*), which may be present in the site area. The Vegetation and Wildlife Section (IV B) of the EIR/EIS describes the potential impacts of the project on these species. The Corps has prepared a biological assessment which is being coordinated with the USFWS as required by Section 7(c) of this Act.

National Historic Preservation Act of 1966, as Amended, and Executive Order 11593. This Act established the National Register of Historic Places and required the Corps of Engineers to consider the impacts of proposed activities on properties included in the National Register. Executive Order 11593 requires the Corps, when considering issuance of a permit, to identify in consultation with the State Historic Preservation Office any property potentially affected by the proposed action which is eligible for listing in the National Register. No properties listed or proposed for listing in the National Register, State Historic Landmarks, or any other known cultural resources are located within or adjacent to the project site.

Executive Order 11988, Floodplain Management (May 24, 1977). In order to reduce the risk to human safety, health, welfare, and property associated with floods and in order to preserve the natural and beneficial values served by floodplains, federal agencies are directed by this Order to evaluate the potential effects of actions (including the granting of permits) which they may take in floodplains. This EIR/EIS evaluates these effects, including the effects of other practicable alternatives as required by the Order.

The site lies within the Flood Zone A1 as designated by the Federal Emergency Management Agency (FEMA) and is currently subject to flooding during the 100-year higher high tide. The highest high tide set by FEMA for this area is +7.0 ft. MSL. The project as proposed would include structural fill to raise the site to elevation +8.0 ft. MSL, raising the levee on the north shore of Sulphur Creek to +10 ft. MSL, and constructing a levee at +10 ft. MSL along the western site boundary. All these measures would eliminate flooding on the site in the future.

Coastal Zone Management Act of 1972. Section 307(c) of this Act, as amended, prohibits the Corps of Engineers from issuing a Department of the Army permit in a coastal zone unless the permit applicant has furnished certification that the proposed activitiy complies with and will be conducted in a manner that is consistent with the approved Coastal Zone Management Program (in this case, the Bay Conservation and Development Commission (BCDC) Bay Plan). The Coastal Zone Management Act requires any proposed activity requiring a Federal permit to be consistent with the State's program (Bay Plan) if it directly affects land or water uses with the coastal zone.

Priority uses for specific shoreline areas are indicated on Bay Plan maps. Bay Plan Map 5, San Leandro, Hayward, does not designate the project site for a priority use; therefore, the proposed development does not appear to be in conflict with the Bay Plan. As noted below under Regional Agencies (BCDC), the Tract 5167 is not within BCDC jurisdiction; however, the HARD mitigation parcel located along the shoreline (HARD Parcel B) is within BCDC jurisdiction. Therefore, the losses associated with the wildlife on this parcel must be fully mitigated in accordance with poilicies 2.c. and 2.d. (BCDC, 1983).

BCDC's policies state that all "diked historic baylands should be maintained in their present uses for as long as possible", but that if development must take place it should meet a number of criteria pertaining to fill placement within the wetland, prevention of flood or seismic hazards, levee and flood control structures, mitigation, the extent of public rights, public access, and enhancement (BCDC, 1982). The criteria for development and the policies on diked baylands are described in Section IV B of this report.

Since part of the project area is within BCDC jurisdiction and the balance of the site is within the diked historic baylands boundary, the BCDC must make a final determination of conformance with the Bay Plan and the policies on diked baylands.

Executive Order 11990, Protection of Wetlands (May 24, 1977). This Order reiterates the need to preserve and protect wetlands as a national policy; however, it does not apply to the issuance of Corps permits for activities by private parties in

wetlands on non-Federal property and is therefore not applicable to the proposed project.

U.S. Fish and Wildlife Service (FWS). The U.S. Fish and Wildlife Service is responsible for the federal interest in conservation, enhancement, and protection of fish and wildlife habitat and resources. Under the Fish and Wildlife Coordination Act (16 USC 661-666c), any federal agency proposing to modify or control any body of water must first consult with FWS; thus, this Act provides the basic authority under which FWS reviews Corps permit applications. However, the FWS is a non-regulatory agency with no permit-granting authority. The service has promulgated specific policies for preserving, protecting and enhancing the fish and wildlife resources of the San Francisco Bay. The primary concern of the Fish and Wildlife Service with regard to the proposed project is the potential impacts of the proposed development on wetlands and associated fish and wildlife resources.

U.S. Environmental Protection Agency (EPA). The EPA is responsible for the administration of the Federal Water Pollution Control Act (PL 92-500) and its Amendments (FWPCA). (See the Clean Water Act above.) In general, EPA evaluates all Corps permit applications to determine the possible impacts on water quality, air quality, toxic substances, and radiation.

In response to the Public Notice, the EPA reviewed the proposal in accordance with the regulations 40 CFR 230 promulgated pursuant to Section 404(b)(1) of the Clean Water Act, and determined that the proposal did not meet the guidelines for discharge of dredged or fill material (letter dated 7 June 1984). The EPA recommended denial of the permit. Since that time a detailed alternatives analysis has been prepared and some design features have been modified (see Alternatives Section III).

U. S. Coast Guard. The U. S. Coast Guard (USCG) has permitting authority over bridges spanning the navigable waters of the United States. The proposed project would include a bridge over Sulphur Creek, which is considered a minor waterway which is "navigable in law, but does not actually support navigation, other than logs, rowboats, canoes, and small motorboats." Formal permits are no longer required for bridges constructed over minor waterways since the Commandant of the USCG has given his advance approval to the location and plans of such bridges (33 CFR 115.70). The clearance provided for high water stages (the 100 year flood) is considered adequate to meet the reasonable needs of navigation. The USCG requires that bridge plans and flood clearance information be submitted for their files.

STATE AGENCIES

State Department of Fish and Game (DFG). The California Department of Fish and Game, a division of the State Resources Agency, is charged with protecting and conserving the state's fish and wildlife resources including their supporting habitats and ecosystems. The DFG implements the State Resource Agency Policy for Preservation of Wetlands in perpetuity, as well as its own policy Guidelines for Protection and Restoration of San Francisco Bay Fish and Wildlife Habitat (DFG, 1979).

Regulations of the DFG are in the Fish and Game Code (DFG, 1975 and 1976). DFG has regulatory authority over harvest of fish and game and the taking of wildlife. It also issues stream alteration agreements for any activity which will alter the natural state of any river, stream, or lake.

Although the DFG does not issue permits for development projects directly, its advice is part of the permit application and decision-making processes of the Corps of Engineers, the final permitting agency. Its contributory role in the Corps of Engineers permit processes is established by the U.S. Fish and Wildlife Coordination Act, the State Resources Agency wetlands policy, and Corps regulations.

Regarding the proposed project, DFG is concerned about wetland and habitat losses as expressed in their response to Public Notice included in this EIR/EIS (Appendix A). A stream alteration agreement would be needed for construction of a bridge over Sulphur Creek.

State Lands Commission. The State Lands Commission issues permits, leases and licenses for the use of state and privately owned lands subject to a public trust easement for commerce, navigation and fishing. The Commission considers the public trust, resources in trust, and compensation and mitigation measures when issuing permits. Much of the land in and around San Francisco Bay has been granted by the state to local government, while other segments are privately held. Certain granted and private (non-granted) lands subject to regular tidal inundation are subject to the public trust (similar to a public easement) which restricts their use to commerce, navigation and fishery purposes. For the granted lands, the state has relinquished control of their land use and can revoke a grant only by legislative action and some violation of the public trust.

Tract 5167 is not subject to the public trust easement and the State Lands Commission has no objection to the fill on 134 acres nor to the construction on the site. Work on the mitigation parcels would not require a lease permit. (See letter dated June 27, 1984 in Appendix A).

California Regional Water Quality Control Board. The California Regional Water Quality Control Board (RWQCB) for the San Francisco Bay Area reviews activities that affect water quality in the Bay and its tributaries. Water quality standards for individual projects are established by the RWQCB as part of the National Pollutant Discharge Elimination System (NPDES) permit procedure. The RWQCB has indicated that they "cannot determine the need for water quality certification until the EIR/EIS is completed". They have also noted concern over the cumulative loss of this type of habitat due to developments of this type.

State Historic Preservation Office (SHPO). The SHPO functions as the state component to carry out the National Historic Preservation Act and to ensure that the historic aspects of projects are in compliance with the California Environmental Quality Act. The SHPO reviews private projects and Corps permit applications for protection and preservation of historic resources. The agency reviews sites for eligibility for the National Register. There are no known archaeological or historical landmarks on the proposed site.

REGIONAL AGENCIES

Bay Conservation and Development Commission. The San Francisco Bay Conservation and Development Commission (BCDC), created by the McAteer-Petris Act in 1965, exercises planning, permit and enforcement responsibilities over San Francisco Bay waters and shoreline. Charged with promoting both development and conservation, BCDC has authored the San Francisco Bay Plan to identify and resolve water and land use conflicts. The project site is not within BCDC jurisdiction and hence does not require a development permit. The HARD mitigation parcel B, located along the shoreline, is within BCDC jurisdiction and may require permit approval from BCDC for work undertaken on this parcel.

The proposed action does not conform to the BCDC policies on the diked historic baylands of San Francisco Bay and therefore, the following criteria and guidelines apply to the project (BCDC, 1982):

- "To the maximum feasible extent, development should be restricted to the dry portions of sites containing year-round, weedy vegetation. Fill should be permitted only if there is no practicable alternative and the fill is the minimum necessary. Filling should avoid areas that (1) have, or can feasibly be enhanced to have, high wildlife values; or (2) can be opened to tidal action".

- "Development should not present a hazard to persons or property due to flooding, potential liquefaction, or strong ground motion during earthquakes".

- Mitigation to "fully offset lost or adversely affected wildlife values" should be provided in every development where filling or excavating of diked baylands or other similar unavoidable impact would occur as a result of the proposed action. Protection of adjacent wildlife, buffering, and the establishment of permanent mitigation areas must be provided through the mitigation plan. No further mitigation shoud be required for cyclical or repeated losses of habitat value due to maintenance of the project.

- Mitigation should be either through acquisition, restoration, preservation and dedication of non-wetlands that can feasibly be restored to provide wetland values or through acquisition of suitable diked baylands or other wetlands which will result in "improved management practices enhancing the habitat value of the area".

- Enhancement projects should be planned in consultation with the appropriate Mosquito Abatement District and the Department of Fish and Game and all work should meet the mosquito control standards.

- The extent of public rights in the lands should be identified and resolved by the State Lands Commission prior to any project approval, improvement, or public purchase.

- Public access should be provided for along the perimeter of the baylands, except in areas where wildlife values would be adversely affected by human or animal intrusion.

- Acquisition of the diked baylands by private or public land conservation organizations should be considered as an alternative to development. First priority for acquisition should be given to scarce and valuable habitat such as fresh water marshes, rare and endangered species habitat, and sites adjacent to or near existing protected wildlife habitat and open space.

The BCDC specific policy for diked baylands currently in agricultural use states that these lands should be "maintained as long as feasible" since the current use is compatible with the preservation of their habitat value. However, agricultural uses on the baylands should be limited to "farm-related activities or development that has no significant adverse effect on agricultural use of the site". "Extensions of urban services into areas where diked historic baylands are in agricultural use should not be permitted." The general policies for diked historic baylands should be upheld where agricultural use is determined to be no longer feasible.

Association of Bay Area Governments (ABAG). ABAG has responsibility for regional planning and A-95 review in the nine-county San Francisco Bay area. The Regional Plan and

Environmental Management Plan are its major policy documents. The proposed project is not in conflict with ABAG's regional goals and strategies.

However, the following critical areas policies which recommend preserving lands with valuable resources are pertinent to the proposal. Such lands include:

- land areas associated with fish and wildlife having key roles in a regional scale ecosystem
- habitats of rare or endangered fish and wildlife that contribute to diversity of species
- lands containing vegetative resources that are elements of an ecological zone of recognized importance or uniqueness.

Water quality policies recommend establishing programs for surface water runoff which emphasize low cost measures, such as the use of wetlands to reduce pollutant loads.

Other policies pertinent to the proposal include:

- Wetlands are important for water quality protection among other ecological benefits and should be preserved and enhanced: new wetlands should be created for urban runoff control as appropriate and feasible.
- Implement wetland treatment systems for polluted waters, where appropriate and economically justified.
- Consider wetland enhancement or creation projects as alternative mitigation measures offsetting negative environmental impacts of development projects.

ABAG recommends that all efforts be made on the proposed site and mitigation parcels to ensure that there is no net loss of wetland acreage, and that using wetlands for surface water runoff control should be considered where appropriate.

East Bay Regional Parks District. The East Bay Regional Parks District (EBRPD) owns and maintains both developed and undeveloped parkland in the East Bay Region. The EBRPD owns the lands adjacent to and west of the proposed development site. This area is fenced and maintained as an undeveloped seasonal salt marsh.

The District expressed concern about potential water quality impacts of site development, particularly on its adjacent property (letter dated July 2, 1984). Under the current proposal, a levee would be built which would separate the two sites. The site would be served with an underground storm drainage system which would discharge all surface runoff to a

pump station on the south side of Sulphur Creek and then onto the two HARD parcels planned for wetland enhancement as part of the proposed action. The wetlands on the HARD parcels would receive some storm runoff from various sources (see Section IV C for a detailed discussion). No runoff is expected to be discharged onto the EBRPD site.

Bay Area Air Quality Management District. The Bay Area Air Quality Management District monitors concentrations of pollutants in the San Francisco Bay Region and is responsible for development of the Bar Area Air Quality Plan to meet the 1977 Clean Air Act.

The 1982 Bay Area Air Quality Plan addresses air quality standards set by the Federal Government to protect public health and sets forth an approximate time schedule for adopting and implementing the control programs necessary to attain the federal air quality standards for ozone and carbon monoxide by the 1987 deadline specified by the Clean Air Act. The Plan's control measures include: motor vehicle inspection and maintenance, stationary source controls, transportation controls, and administrative programs. The major source of air pollutants with the proposed project is site-generated traffic.

LOCAL AGENCIES

City of Hayward. Approximately 102 acres of the proposed development are within the City of Hayward and 32 are in unincorporated Alameda County. The portion of the site within the shoreline planning area of the City is designated for industrial uses according to the City of Hayward General Policies Plan 1990. The site is also zoned for industrial uses according to Hayward's zoning ordinance. The proposed development is consistent with the City's General Plan and zoning ordinance for the site.

Hayward Area Shoreline Planning Agency. The Hayward Area Shoreline Planning Agency (HASPA) was formed in 1971 to prepare plans and programs for Hayward's eight miles of San Francisco Bay frontage. HASPA was established under the provisions of an intergovernmental joint exercise of powers agreement and includes the East Bay Regional Park District, Hayward Area Recreation and Park District, City of Hayward, Hayward Unified School District and San Lorenzo Unified School District. Between 1971 and 1973 HASPA produced a shoreline map to indicate its conservation and development programs. The plan map designates the proposed site for urban/industrial uses. The proposal is consistent with HASPA's plan and land use designation of the site as they currently exist; however, the HASPA board is reprioritizing their planning criteria and developing guidelines specifically for wetland management within their program area (B. Shockley, pers. comm., October, 1985).

Hayward Area Recreation and Park District. The Hayward Area Recreation and Park District (HARD) owns the two proposed mitigation parcels A & B. HARD has entered into an agreement with Marathon U.S. Realties which would allow Marathon to improve the two parcels as mitigation for potential adverse impacts as a result of the proposed project. HARD desires to have Marathon construct the improvements on parcels A & B for the following reasons: (1) to enhance the natural environment; (2) to create a greater diversity of marine and wildlife habitat; (3) to enhance and protect existing plant and animal species, and other fragile resources; (4) to maintain healthy populations of all possible plant and animal species; and (5) to preserve, protect, and create an open space reserve for the benefit of the public and for its use and enjoyment. HARD does not have funds available for construction of the improvements and is therefore willing to grant Marathon the option to construct the improvements at Marathon's sole cost and expense. This EIR/EIS examines the benefits associated with improvement of the HARD parcels as well as the loss of habitat on the proposed site. See Vegetation and Wildlife Section (IV B) and Appendix B, the habitat evaluation conducted for the HARD and Marathon parcels.

Alameda County. The 32 acres of the site within unincorporated Alameda County are designated for industrial use according to the County's General Plan. The site area is also zoned for light industrial use (M1). The County's M1 zone allows manufacturing, processing, assembling, research, wholesale, storage or utility use (when conducted in an enclosed building). The proposed development would contain light manufacturing uses consistent with the County's General Plan and Zoning Ordinance.

Alameda County Flood Control and Water Conservation District. The District is responsible for review of storm water drainage plans and operation of drainage facilities in the County. The proposed project would require a permit from the District to discharge storm drainage into the lift station currently under construction south of the site at Tract 4975. The District will ultimately be responsible for maintenance of the storm drainage system for the site.

Alameda County Local Agency Formation Commission (LAFCO). Alameda County LAFCO is responsible for determining city boundaries and local city spheres of influence and for planning for the rational expansion of necessary public services and facilities in unincorporated areas. The northeast corner of the site is in unincorporated Alameda County.

The proposed development requires approval from LAFCO for annexation of the northern portion of the site to the City of Hayward and removal of the entire site from East Bay Municipal Utility District and Oro Loma Sanitary District. The portion of the site within Alameda County is also outside of Hayward's sphere of influence. LAFCO will review the annexation request to

determine its consistency with annexation goals and rules. If approved by LAFCO, the site would be wholly within the City of Hayward and would be provided sewer and water service by the City.

III. ALTERNATIVES INCLUDING THE PROPOSED ACTION

Corps regulations on EIS preparation state that an in-depth evaluation will normally be limited to those reasonable alternatives which are both practicable and are:

i. Within the capability of the applicant and the jurisdiction of the Corps

ii. Within the capability of the applicant but outside the jurisdiction of the Corps

iii. Reasonable, foreseeable but outside the capability of the applicant and within the jurisdiction of the Corps

iv. Reasonable, foreseeable but outside the capability of the applicant and outside the jurisdiction of the Corps.

In examining alternatives for non-water-dependent activities, the Corps must presume that practicable alternatives that do not involve special aquatic sites (including wetlands) are available, unless it is clearly demonstrated otherwise. Reasonable alternatives include those that are practicable or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant. There is, however, no need to disregard the applicant's purposes or needs and the common sense realities of a given situation in the development of alternatives (CEQ FR Vol. 46, No. 55, Monday, Mar 23, 1981, #2a, p.10827 & FR Vol. 48, No. 146, Thursday July 28, 1983, p.34267).

The term practicable as used in the legislation is defined as "available and capable of being done after taking into consideration costs, existing technology, and logistics in light of overall project purposes."

In order to determine the practicability of an alternative, it is important to have a defined project purpose. The purpose of the proposed development project is to provide a master-planned, rail-served, light industrial park for a mixture of tenants in accordance with the highest and best use of the subject property. The highest and best use in real estate terms is that use that will provide the greatest net return to the land over a given foreseeable period of time. The defined market area of the development includes the Oakland Airport area south through Union City. The development will provide finished sites at a cost competitive in the market area, currently within the range of $3.50 to $4.50 per square foot.

This section describes several practicable alternatives to

the proposal which would generally meet the applicant's project purpose, though not all would maximize the profitability or result in the highest and best use of the property. These include:

Alternative 1 - Project as proposed by applicant

Alternative 2 - Project as proposed by applicant with alternative mitigation

2 a. No off-site mitigation; payment in-lieu to a land bank fund

2 b. Improve one of the two mitigation parcels and provide payment in-lieu to a land bank fund

Alternative 3 - Develop east of proposed loop road

Each of these alternatives, however, involves development on portions of the on-site wetlands. Alternatives which would not affect the wetlands on-site are the following:

Alternative 4 - Acquisition of the site by a public agency

Alternative 5 - No action

Neither of these alternatives would meet the applicant's project purposes. In terms of Corps regulations, Alternatives 1, 2a, 2b, 3, and 5 fall within category i; Alternative 4 could fall within category iii or iv depending on what the purchasing agency decided to do with the site. Other alternatives which would potentially fall within categories ii or iv were considered but were deemed impracticable. These included:

. Development on uplands only

. Alternative non-aquatic sites.

These two alternatives were deemed impracticable for reasons described below.

Develop on uplands only. Under this alternative, only the areas identified as uplands (i.e., areas not within the Corps 404 jurisdiction shown in Figure 5) or approximately 44 acres would be developed. This alternative would reduce the project by 77% in acreage, number of businesses to locate on-site, the square footage of buildings, and the number of employees. The road system would have to be built along the eastern edge of the property to avoid intruding into the wetland areas. Since the area along the eastern edge is relatively narrow (approximately 20 - 30 feet), it would be extremely difficult to leave the wetlands unaffected. Therefore, a Corps 404 permit would likely be required to build the roadway.

The applicant has indicated that a reduction of the scale of the project by 77% (90 non-developable acres) would not be economically feasible because of the costs associated with construction of the bridge over Sulphur Creek in relation to project size and because of the site configuration.

Alternative Sites. An alternative site analysis was completed by Mills-Carneghi Bautovich, Inc. and is on file with the City of Hayward and the Corps. The summary section of the report is included as Appendix G of this EIR/EIS.

The report examined whether or not other practicable non-aquatic alternative sites were available. The criteria for practicable alternatives fall within three categories: a) the project purposes, (b) physical characteristics and logistics as defined by the proposed development requirements, and (c) availability.

The subject market area includes the industrial districts of Union City, Hayward, San Leandro and the Oakland Airport area, and the unincorporated community of San Lorenzo. The study of 15 "relevant" sites concluded that no practicable or suitable alternative sites exist within the defined market area for the subject development based on the criteria.

The San Francisco District has determined that, based on the assumptions about market area provided in the alternative site analysis; there are no practicable alternatives to the proposed fill. The assumptions are as follows:

"An industrial market area is defined as that geographical area within which industrial parks compete for the same prospective buyers and tenants. From the point of view of industrial firms, the market area is that area within which the firm will search for an acceptable building site or leasable space. The subjects project's market area is defined as the Oakland airport area south through Union City." Therefore, alternative sites are not further examined in this EIR/EIS.

The following Alternatives are discussed in detail in this EIR/EIS.

A. ALTERNATIVE 1 - PROJECT AS PROPOSED BY APPLICANT

Marathon U.S. Realties, Inc. (Marathon) is proposing development of a 134-acre site for industrial/commercial business uses and enhancement of two nearby sites as seasonal wetlands to mitigate the loss of wetlands on-site.

To provide flood protection on-site, approximately 34,000 cubic yards of fill would be placed along the western site border to create a levee connecting to the Bockman and Sulphur Creek

levees. The 134-acre site would also require 540,000 cubic yards of fill to bring the site to finished grade. The site would be subdivided into 65 lots ranging in size from 1.1 to 5.4 acres. Lots could be grouped or purchased separately by contractors or builders. Marathon would provide all infrastructure necessary to serve the 134 acres within the rights-of-way. Individual lot owners would be responsible for the infastructure improvements on their lots. The development would provide sites for builders at $3.50 to $4.50 per square foot.

Land uses expected at the site would be industrial and commercial oriented toward rail service. It is anticipated that the industrial activities would include warehouse/distribution, light manufacturing, and potentially research and development (R & D) companies. The trend in industrial users in this area has been toward more R & D companies and this trend may be reflected in the proposed development as well. Commercial users would include businesses which support the industrial users and serve employees and the general public.

The City of Hayward would provide sewer, water, police, and fire protection service for the site. The Alameda County Flood Control and Water Conservation District would maintain the storm drainage system of the development.

The proposed mitigation parcels (A and B shown in Figure 1) are also included as part of the proposal. Ten-foot-wide channels would be dug to a bottom elevation of 0.0 ft. NGVD in parcel A, to drain the interior of the parcel. A 30-foot wide ditch would route stormwater from the northeastern corner of the site to the south end and then to the outlet at the northwestern corner of parcel A. Three islands would be built and covered with sand and fine gravel. An inlet structure at the northeast corner of parcel A, opening into Sulphur Creek, would be controlled by a screwgate and flashboards. Water would flow into parcel A for a short period each day, during the higher high tide, and flow out when the tide drops below 3.0 ft. NGVD. Margins of the old landfill would be covered with new fill and graded to a slope of 10:1.

Parcel B would be maintained as an open water area through the summer. This would require excavation of about 15 acres to an elevation of 0.0 ft. NGVD. The eastern edge of the parcel, which abuts an old landfill site, would be covered and graded to a maximum slope of 10:1 and merge gradually with a gently sloping shelf 150 feet wide at an elevation of 2.75 to 3.25 NGVD. One island of about 0.4 acres would be built in the ponded area. A 48" culvert with slide flapgate would be located at the upper end of the ditch which connects parcels A and B. It would remain open most of the time, but could be used to control drainage in either parcel without affecting the other. A 48" box culvert with drop-box flashboards and flapgate would be located at the northeast corner of parcel B. The outlet would drain into Sulphur Creek.

B. ALTERNATIVE 2 - PROPOSED PROJECT WITH ALTERNATIVE MITIGATION

2a. No Off-Site Mitigation; Payment In-Lieu to a Land Bank

There are currently three entities potentially capable of facilitating a payment in-lieu mitigation plan: the Coastal Conservancy; the East Bay Regional Parks District; and the Trust for Public Lands.

The Coastal Conservancy was authorized in 1976 to implement a program of agricultural protection, area restoration, and resource enhancement in the Coastal Zone consistent with the 1976 Coastal Act. The Conservancy can aquire coastal and Baylands which could be restored to or held as wetlands and can hold them in a land bank. The Conservancy can authorize grants to local governments for the purpose of restoring wetland properties. Currently the Conservancy is working with the Mitigation Bank Working Group, a coalition of public and private agencies and interest groups, to develop the criteria and implementation measures for the Land Bank restoration project.

The East Bay Regional Parks District (EBRPD) also facilitates off-site mitigation projects. For example, the California Department of Transportation (CalTrans) was required to provide mitigation on lands north of the San Mateo Bridge. CalTrans paid EBRPD $550,000 and the District created 200 acres of marshland.

The Trust for Public Lands (TPL) is a national non-profit land conservation organization. One of TPL's efforts in coordination with the Coastal Conservancy is to establish a land bank that would secure lands primarily for mitigative purposes in four regions around the San Francisco Bay (i.e., Contra Costa County, Alameda County, Marin County, and the Monterey Peninsula). At this time, no mitigation sites are available in the south and east Bay (K. Zavitz, pers. comm., September, 1985).

Under this alternative, the project applicant would not improve the two off-site wetland parcels as proposed but instead would provide funds to the Coastal Conservancy, EBRPD, or TPL for enhancement or purchase of other wetlands. This alternative would generally meet the applicant's project purpose. The location of lands which might be enhanced or purchased is not known at this time, nor is the exact amount of funds. However, the off-site mitigation plan for the two Hayward Area Recreation and Park District (HARD) parcels is estimated to cost approximately $5,000 per acre. Therefore, an appropriate fee in-lieu payment might range between $400,000 and $500,000.

2b. Improve One HARD Parcel and Provide Payment In-Lieu.

Under this alternative only one of the two HARD parcels

would be used for mitigation as proposed and funds would be provided to a land banking agency for off-site mitigation elsewhere. As with Alternative 2a, the location of enhancement lands and exact funds would have to be negotiated between the project sponsor and the appropriate agency handling the mitigation funds. This alternative would also generally meet the applicant's project purpose.

C. ALTERNATIVE 3 - DEVELOP EAST OF THE WESTERN ALIGNMENT OF THE PROPOSED LOOP ROADWAY

Under this alternative approximately 30 acres west of the western part of the loop road would remain as undeveloped wetland and about 104 acres would be developed as industrial business park (see Figure 3). The proposed levee along the western site boundary would not be built; instead, the western loop of the roadway would be designed to function as the levee for the development east of the roadway.

Off-site mitigation would be reduced and might consist of enhancement of one of the HARD parcels and/or payment in-lieu to a land bank fund.

This alternative would generally meet the applicant's project purpose; however, it would not result in the highest and best use of the entire 134-acre tract.

D. ALTERNATIVE 4 - ACQUISITION OF THE SITE BY A PUBLIC AGENCY

Under this alternative the applicant would sell the property, "as is", to a public agency at a fair market value. The Trust for Public Lands has indicated potential interest in the purchase of the property for a mitigation land bank (K. Zavitz, pers. comm., May, 1985). No other agencies have expressed interest in purchasing the site. It is assumed, for purposes of environmental analysis in this EIR/EIS, that the site would remain undeveloped wetlands. However, enhancement might be provided by a public agency or it could be developed as a park or recreation use depending on which agency purchased the site.

The two mitigation parcels would not be enhanced under this alternative and would likely remain in their existing condition for the foreseeable future.

This alternative would not require a Corps or City permit. It would not meet the applicant's purpose.

E. ALTERNATIVE 5 - NO ACTION

Under this alternative the industrial/commercial development

and enhancement of the HARD parcels would not be undertaken. The site and mitigation parcels would remain in their current state for the foreseeable future. This alternative would not meet the applicant's purpose but is required under both NEPA and CEQA Guidelines.

IV. AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND RECOMMENDED MITIGATIONS (ENVIRONMENTAL SETTING, IMPACTS, AND RECOMMENDED MITIGATIONS)

IV A. LAND USE

Affected Environment

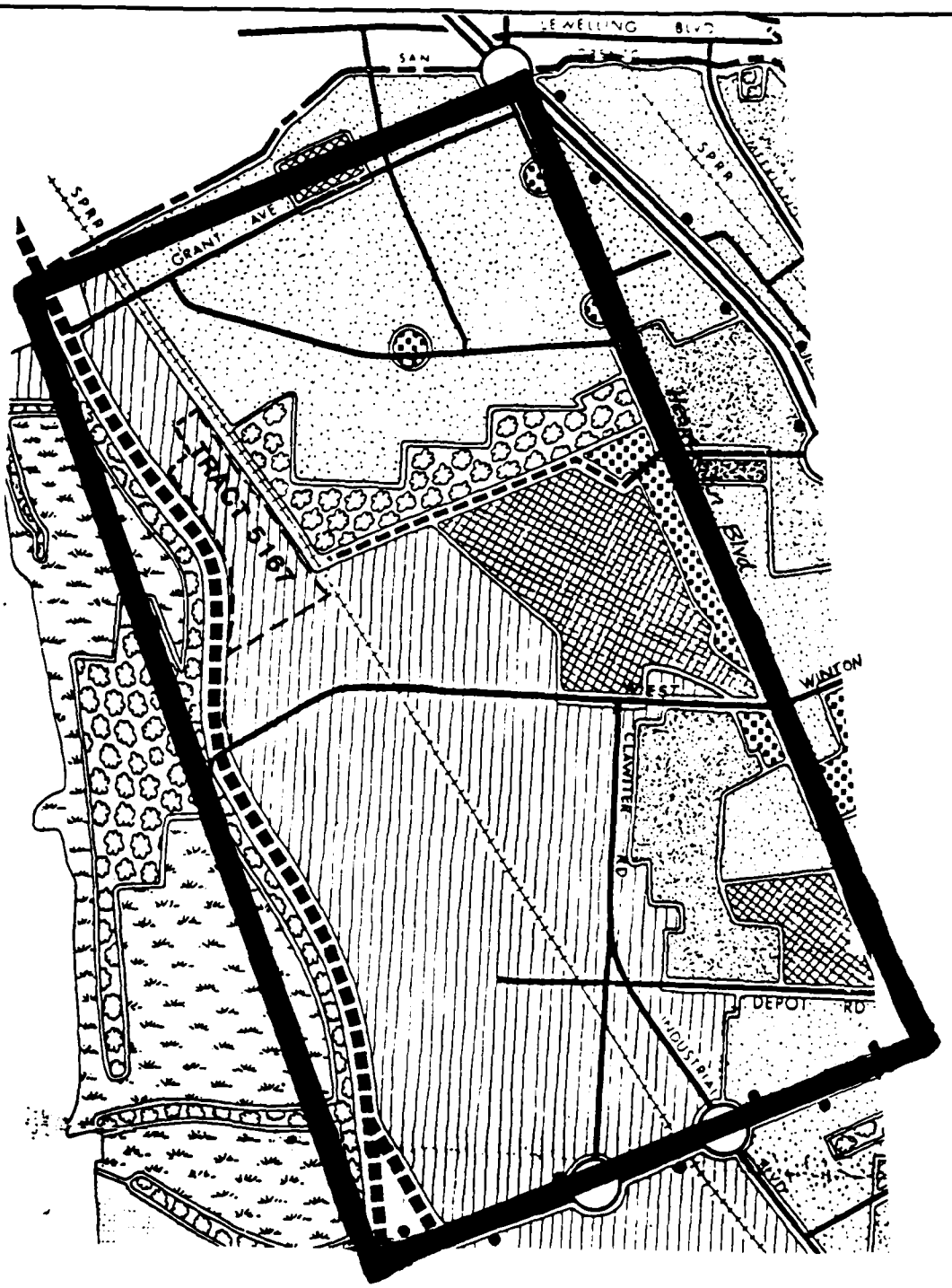
Proposed Site and Mitigation Parcels. Tract 5167 is located within the Shoreline Planning Area of the City of Hayward. The site is currently undeveloped grassland and marshland and is used by an adjacent property owner for cattle grazing. The site is bordered on the east by the Southern Pacific Railroad (SPRR), on the south by Sulphur Creek, on the west by the proposed Alameda County Industrial Transportation Corridor alignment, and on the north by the Bockman Canal. The site is designated and zoned for industrial uses according to Hayward's General Plan and Zoning Ordinance (see Figure 6). Approximately 32 acres of the northern portion of the site are within unincorporated Alameda County. This area is also designated and zoned for industrial uses according to the County's General Plan and Zoning Ordinance.

Both of the proposed HARD mitigation parcels are currently undeveloped wetlands and are designated Marsh and Fresh Water Habitat and Parks and Recreation in Hayward's General Plan (1980).

Surrounding Land Uses. The site is surrounded by various activities and uses. The Hayward Air Terminal and support activities are located east of the site, just east of the SPRR. The area south of the site includes developed industrial parks and business centers (see Figures 1 and 6) and west of the site is undeveloped marshland. The western area is designated as the Hayward Shoreline recreation area and extends from the proposed Alameda County Industrial Transportation Corridor alignment to the San Francisco Bay. This area is planned for park and recreational uses including bicycling, hiking, and a possible educational study center. North of the site is the Bockman Canal and some vacant land, with industrial uses at the west end of Grand Avenue in San Lorenzo. An area northwest of the site is used by the Oro Loma Wastewater Treatment Plant for settling ponds.

The nearest residential and recreational uses are located east of the SPRR and include the Skyway Golf Club and detached single family homes.

The City of Hayward has a total of 3,416 acres zoned for light and medium industry. Within the study area shown on Figure 6, there are approximately 1,700 acres of industrially zoned



Residential- Low Density

Residential- Medium Density

Industrial

Commercial

Marsh and Fresh Water

Parks and Recreation

Public and Semi-Public

STUDY AREA

FIGURE: 6

Source: City Of Hayward, General Policies Plan 1990 (1980)

Scale: 1" = 2000"

zoned land. Of this, approximately 1,360 are currently developed and another 110 acres are currently being developed and/or have development permits pending City review and approval (excluding the proposed Tract 5167). This leaves a total of 230 undeveloped acres of industrially zoned land in the study area including the 134-acre proposed Tract 5167.

Environmental Consequences

Alternative 1 - Project as Proposed. Approval and ultimate development of the proposed project would change the 134-acre tract from undeveloped partially grazed land to a combined light industrial/commercial business center. This change is considered permanent for at least several generations. The proposed development is consistent with the City of Hayward and Alameda County's General Plans and zoning ordinances for the site.

The proposal would also change the existing characteristics of both the HARD parcels. The plan proposes changing these parcels through regrading their edges, providing drainage ditches, and discharging water; all this is intended to improve the surface water flows through both parcels and enhance them as wetland habitats. While these activities would improve the biological characteristics of the parcels, their land uses would not be affected as they would both remain as undeveloped marsh areas.

The proposal is consistent with other industrial land uses south and west of the site. This 134-acre tract represents 60% of the available 230 acres of undeveloped industrially zoned land in the study area. Approval of this project is not expected to result in cumulative development pressure on other parcels in the study area, since they are already planned and zoned for similar development.

Alternatives 2a and 2b. Land use impacts of both these alternatives would be the same as those of the proposed project except for the mitigation parcels. Under this alternative the land use on the mitigation parcels would remain the same, however Alternative 2a (Payment In-Lieu to Land Bank) could result in land use modifications to another site elsewhere in the Bay Area. For example, if the money were used to purchase lands elsewhere it might guarantee that another site would remain as wetland or be converted to wetland ultimately. (See Alternatives discussion in Section III).

Alternative 3. Land use impacts of this alternative would be similar to those of the proposed project (Alternative 1). The main difference would be that the area west of the proposed loop road would remain undeveloped. Approximately 104 acres east of the road would be developed with the same type of uses as the proposed plan. The 104 acres represents about 45% of the undeveloped industrially zoned land in the study area.

Alternatives 4 and 5. The No Action and Acquisition by a Public Agency alternatives would result in a continuation of the status quo for both Tract 5167 and the mitigation parcels. However, the site represents 60% of the total undeveloped industrially zoned land in the study area; therefore, if it were not developed, increased development pressure on the remaining 96 undeveloped acres in the study area and perhaps other undeveloped parcels within the City could result. This might lead to more intensive development proposals elsewhere in the City to accommodate the demand for industrial sites.

Recommended Mitigation None are required.

Significant Impacts None.

IV B. VEGETATION AND WILDLIFE

Affected Environment

The study area has been evaluated by scientists from the following firms and agencies: TRS Consultants, Inc., 1984; Harvey and Stanley Associates,Inc., 1983; Shapiro and Associates, Inc., 1984; U.S. Fish and Wildlife Service (FWS), 1983; Phil Williams and Associates, Inc., 1984; the U. S. Army Corps of Engineers, 1983-84; and the California Department of Fish and Game (DFG), 1982-84. This report integrates and summarizes the salient results of each of these evaluations and all field observations made from 1981 to the present. A 1984 habitat evaluation, included as Appendix B of this report, provides background data for the conclusions in this document.

Proposed Site

Vegetation. Of the 134 acres proposed for development, approximately 90 acres (68 %) are wetlands and 44 acres are uplands. Wetland boundary determinations have been done by TRS, Shapiro and Associates, Harvey and Stanley, and the Corps. These analyses each resulted in slightly different wetlands/uplands ratios. The figures presented above are the best approximation of the habitat acreages from an in-depth analysis of the various methods of habitat evaluation. The difficulty in delineating wetland habitat lies in the interpretation of the definition of a wetland and the seasonal nature of the ponding of the water on the site.

For this study, the Federal Corps of Engineers wetlands definition was used:

> The term "wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency or duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions - Federal Register, 22 July 1982.

Vegetation that is typically adapted for life in saturated soil conditions should be further defined for the purposes of this analysis, because the vegetation is the primary key to boundary delineation. The FWS has prepared a list of species with their indicator status for wetlands. In that list, some plants are wetland obligates or always found in wetlands, while some are facultative. Within the facultative category, there are three degrees of wetland dependency: those that are usually found in wetlands, those sometimes found in wetlands, and those occasionally in wetlands. An obligate wetland species defines a wetland habitat, because it is not found in any other habitats; while facultative suggest various levels of wetland environmental

parameters. Factors such as abundance must be considered in determining the nature of the habitat. The species observed on-site will be discussed in terms of their indicator status where appropriate throughout this report.

Wetlands on the site are historic baylands that have been diked for many years. Approximately two-thirds of the proposed site is situated within the area identified as the historic margin (ca.1850) of marshland around San Francisco Bay (Nichols, D. R. and Wright, N. A., 1971). Although removed from daily tidal action by levees, these lands are now subject to seasonal flooding from winter rains and storm water runoff and, for the lands near the Bay, to periodic inundation from storm tides as well

The wetlands on-site are called seasonal marshes and they consist of a mosaic of salt marsh vegetation and open ponds that remain flooded from 2 to 7 months of the year depending on the annual precipitation patterns. Observations by CFG personnel and historical photographs indicate that the wet season on the site varies significantly from year to year although the water remains ponded at a depth higher than the emergent vegetation for at least one month and the site remains wet for up to 7 months in a wet year. The dominant vegetation is wetland indicator plants, two species of pickleweed (Salicornia virginica and S. europaea) (40% cover). The floral species brass buttons (Cotula coronopifolia) (20% cover) is associated with the pickleweed in these sites designated as salt marsh (SM) on Figure 7. In other areas, the codominant is a facultative species, beard grass (Polypogon monspeliensis). Another grass species, foxtail (Hordeum hystrix), is associated with the pickleweed and the beard grass in this habitat type labelled as Salicornia-Polypogon (Sa-Po) on the habitat map. Foxtail (39%) codominates with pickleweed and brass buttons mix in other wetland areas indicated as Transition Zone (Tz). Other forbs are present in addition to the pickleweed (10%) and brass buttons (13%) (Harvey and Stanley, 1984). Although the transition zone is somewhat drier and contains more grass species than the salt marshes, the presence of pickleweed, an obligate and indicator species, defines it as a wetland.

Approximately 44 acres of the site are ruderal upland (indicated by U on Figure 7), characterized by a prevalence of foxtail and alkali heath (Frankenia grandifolia). Much of this habitat is on the dikes (indicated as D on Figure 7) and it forms linear trail-like habitats dispersed across the property.

The salt marshes are the most valuable habitats on the site for the following reasons:

- they provide protection, feeding areas, and resting sites for a wide variety of wildlife

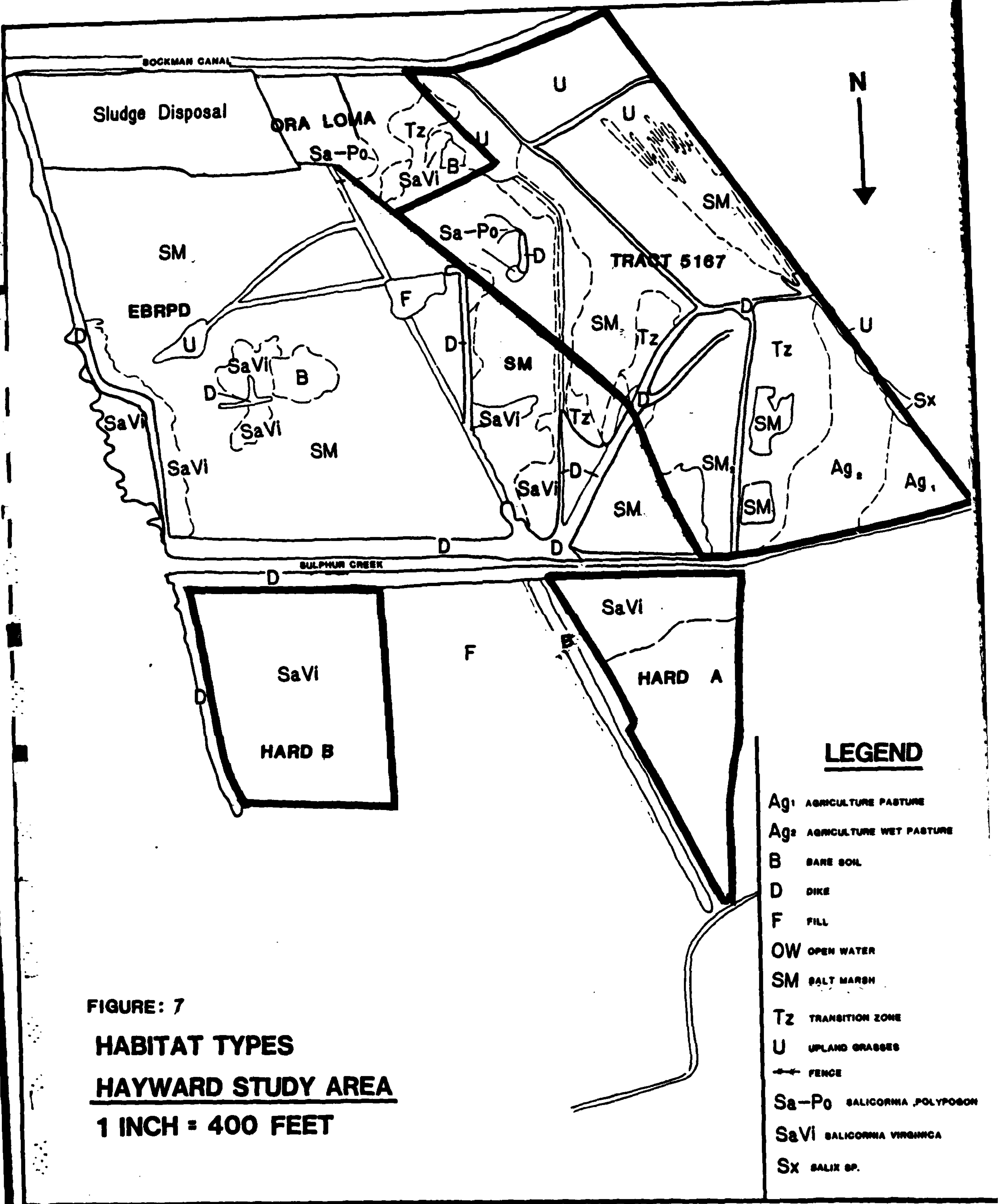


FIGURE: 7

HABITAT TYPES

HAYWARD STUDY AREA

1 INCH = 400 FEET

- they are biologically productive

- their native plant species represent stable forms whose long-term presence in the region has allowed them to integrate into complex ecological associations

- they function as a filter for selected pollutants found in the urban storm water runoff primarily through a variety of biological and chemical mechansims (ABAG, 1984)

- they are relatively scarce compared to upland or tide flat habitats

The diked areas are also important when associated with open water because they are used by gulls as night time roosts, shorebirds gather on them at high tide while they are not feeding, and avocets, terns, and stilts nest on them.

Wildlife. There are essentially two wildlife habitats on the Marathon property: the wetlands or seasonal salt marsh and the uplands or fields and grass-covered dikes. The value of any habitat to wildlife is reflected in the number and variety of wildlife that use the site.

Most of the upland is highly disturbed by overgrazing of livestock. The most common bird species using the upland are western meadowlarks, savannah sparrows, several owl species, rock doves, horned larks, and water pipits. The mammals that use the upland areas extensively include: beechey ground squirrel, black-tailed hares, pocket gophers, field vole, and field mice. The gopher snake and western fence lizard were both found in protected areas at higher elevations (Harvey and Stanley, 1984).

Seasonal marsh habitats in the Southeast Bay are integral to the estuarine system because of their relative scarcity in relation to other wetland types and their primary role in providing a transitional habitat between daily inundated tidal wetlands and drier non-wetland habitats. That transitionary role enables them to provide resources for a wide variety of bird life both migratory and resident species. They provide resting, feeding, and breeding areas that are protected from storm tides and also from urban intrusion because they are wet for several months of the year. During the winter when an influx of birds from the north increases the numbers and demands for feeding and resting areas, use in these wetlands is very heavy.

For example, in March through May 1982 at high tide censusing, the highest use was by shorebirds and dabbling ducks. Flocks of over 2,000 dowitchers, over 400 black-bellied plover, and nearly 3000 other small shorebirds were observed in one day in April. There was consistent use of the site by black-necked stilt, willet, yellowlegs, great egret, and American avocet although their numbers were generally less than 100 per

observation. The primary duck species using the site during the same time period were: pintail (>200) and cinnamon teal (>100). The bird use in January to May 1983 reflected a similar pattern of high use by a variety of shorebirds and dabbling ducks. Shorebird counts, including dowitcher, willet, yellowlegs, black-bellied plover, killdeer, black-necked stilt, and American avocet, were greater than 4,000. Ducks species included pintail (>300), shoveler (100), and cinnamon teal (>300). Selected observations in winter 1984 revealed high use by pintail, shoveler, cinnamon teal and egrets and herons. Two pair of cinnamon teal were observed nesting on the upland dike area near the railroad tracks north of Sulphur Creek (R. Pratt, 1984). Shorebird use was highest for flocks of small sandpiper-like species; however, long-billed curlews, willets, plovers, and yellowlegs were also frequent users.

During the drier times of the year, there are also many birds using the site. In September 1984, 15 killdeer, 7 dunlin, 6 greater yellowlegs, 13 black-shouldered kites, 6 snowy egrets, 2 American avocets, 10 gulls, 2 terns, 2 great egrets, and 7 long-billed curlews were observed on the site. The water in livestock ponds was at least five inches deep at this time as well. Egrets and herons use both the wetlands and the fields to fulfill their appetite for fish, insects, gophers, and other small animals. Raptors such as the red-tailed hawk, American kestrel, Northern harrier, black-shouldered kites, short-eared owl, burrowing owl, and barn owl were all observed foraging throughout the site in late spring of 1983. Both the upland and wetland habitats on the Marathon site serve a wide variety of bird species in the present condition; although the wet portions of the site are clearly more valuable for a greater number and variety of wildlife species (See Appendix B, Tables 4 and 5).

The FWS places the wetlands of the proposed site in Resource Category 2 which indicates that the habitat is of "high value to wildlife and it is relatively scarce on a national basis." Their mitigation policy for Resource Category 2 habitats is to "prevent any net loss of in-kind habitat values", that is, to compensate for any loss of the habitat by replacing it with similar habitat.

Mitigation Parcels A and B

Both mitigation parcels belong to the Hayward Area Recreation and Parks District (HARD). The existing habitat on both the east (HARD A) and west (HARD B) is either seasonal salt marsh or bare disturbed soil (Figure 7). The outboard parcel, HARD B, is a homogeneous stand of perennial pickleweed. Since the eradication of the vegetation in 1983, the pickleweed has reestablished as a dense stand averaging 5 inches tall. The land between the two parcels, now owned by Alameda County Flood Control District, was used as a garbage dump until the early 1970's and the dump was never properly sealed. Therefore some leachate emerges onto the HARD parcels from this property (Phil Williams and Associates,

1984).

The inboard parcel, HARD A, receives surface runoff from a ditch on the north side of Winton Avenue and from a ditch on the east side of the parcel. Runoff to these ditches comes from the wrecking yards, from the cattle feedlot on the south side of Winton, and from an undetermined area along Winton Avenue. This runoff may contribute to the poor value of the vegetative growth in HARD A. Fifteen acres in the north half of HARD A is sparse pickleweed marsh that is seasonally flooded by stormwater runoff while the south half has been graded recently and the bare soil is still uncompacted. There is also a linear portion of habitat along the west side that is unvegetated.

HARD A (indicated as HARDE in the Habitat Evaluation, Appendix B) ranked lowest in existing habitat value of the six sites examined, whereas HARD B (HARDW) was found to be more valuable in its existing condition. Both were less valuable than the existing site proposed for development; therefore, an enhancement plan was designed by Phil Williams and Associates, Inc. (1984) to create more valuable habitat in the HARD parcels.

Both HARD parcels are heavily used by wintering and migratory water birds and especially during high precipitation years. As seasonal wetland habitats, they provide resting and feeding areas for a variety of birds: ducks, herons and egrets, sandpipers, curlews, and yellowlegs. Over 33 species of birds were noted during frequent censusing in March 1983 in HARD A (Phil Williams and Associates, 1984). The ponded water during winter on these sites draws numerous birds and provides shelter from the winter storms on the open Bay waters. Over 1,000 shovelers were observed using the ponded waters on HARD B during the wet season of 1984.

City of Hayward

The shoreline of the City of Hayward is a mosaic of industrial uses, parks and reserves, and agricultural uses (see Section IVA. Land Use). Most of Hayward's shoreline habitats lie within the historic boundary of the baylands including about two thirds of the proposed site (Nichols, D. R. and N. A. Wright, 1971). The north boundary of the City of Hayward is approximated by Bockman Canal whereas the south boundary is Coyote Hills Slough. Within those boundaries, about 4076 acres are in salt ponds, 650 acres are park, 3000 acres are diked agricultural land, 200 are in landfill, and 50 acres are sewage disposal. The park land is a combination of open space, seasonal salt marsh, open ponds, and restored tidal marsh.

The Hayward Area Shoreline Planning Agency (HASPA) is responsible for designing and implementing plans and programs for Hayward's eight miles of San Francisco Bay frontage. Comprised of five major district agencies [East Bay Regional Park District

(EBRPD), City of Hayward, Hayward Area Recreation and Park District (HARD), Hayward Unified School District, and San Lorenzo Unified School District], HASPA has created guidelines for Hayward's shoreline management. Their purpose is to effectively evaluate the need for preserving open space and natural resources versus developing the shoreline for industry (current zoning). They have many marsh restoration, park, and open space plans to be implemented during the next decade. At present, they are changing priorities in some of their original plans based on recent findings of the value of the seasonal wetlands in the diked Baylands.

The EBRPD owns about 12% of the shoreline area of Hayward including the 200-acre property adjacent to Marathon. Some has already been restored to tidal action, while some is under consideration for restoration, according to HASPA. The EBRPD system is a valuable part of the undeveloped wetlands of Hayward and the southeast Bay.

Hayward's marshes represent approximately 10% of the total diked baylands of the San Francisco Bay (total 80 square miles). Most of the wetlands are dominated by halophytes such as pickleweed, salt grass, cord grass, or alkali heath because the soil has residual salinity from the history of tidal influence and there is probably some salt water intrusion. These habitats hold much water and act to store flood waters or seasonal precipitation. The seasonally ponded water creates brackish to freshwater habitats useable by a variety of wildlife. The wildlife uses in the wetland habitats are similar to those described for the proposed site. Urban habitats have limited value to wildlife; however, some small mammals and birds that have adapted to human activity would be found on those sites.

The BCDC recommends that future development in the diked baylands be for agricultural or open space uses. BCDC is concerned about the importance of human safety in areas where earthquakes and ground liquifaction are likely and with the preservation of habitat value in and around the entire Bay.

Regional Context

San Francisco Bay has extensive tidal marshes bordering the diked baylands: seasonal salt marshes, brackish marshes, wet agricultural lands, and salt ponds. This study examines the wetlands in the southeast Bay region between the north and south Alameda County borders and inland to State Highway 17.

Alameda County's salt ponds, tidal marshes, seasonal salt marshes, and agricultural fields south of the San Mateo-Hayward Bridge represent an extensive wildlife use area. There are few developments to the south of the bridge along the Bay and none for 2.25 miles east of the shoreline. There are extensive tidal

marshes and salt ponds in this area. Leslie Salt owns most of the old salt pond and the FWS manages much of it as a wildlife refuge.

North of the San Mateo-Hayward Bridge and south of Estudillo Canal, the marshland narrows to an average of 3/4 mile. The habitat types are similar to those to the south; however, there are only 170 acres of salt pond, while 669 acres are seasonal salt marsh similar to that on the proposed site, and 278 acres are tidal marsh. Other habitats are higher elevation baylands that are naturally drier. About half the area has been cultivated or filled and used for industrial or commercial purposes. Most of the agricultural land is extremely overgrazed pastureland or feedlots.

North of the Estudillo Canal to the Oakland Airport, the historic baylands narrow to less than 1/4 mile and the land is primarily urban industrial/commercial uses. Only small portions of the tidal or seasonal salt marsh remain around the shorelines of airport and marina facilities.

The eastern diked agricultural and seasonally ponded baylands provide excellent habitat for migrating and resident waterfowl and shorebirds. The restored salt ponds provide an unusual habitat that serves many life requirements for a variety of dabbling ducks, diving ducks, shorebirds and salt pond "specialists." These "specialists" are birds that have not been observed using other non-tidal habitats. They include phalaropes, grebes, Bonaparte's gulls, and white pelicans. Recently, there has been an increase in distribution and abundance of birds in the South Bay in response to the restoration of the salt ponds (R. Lowe, FWS, pers. comm., 1984).

Rare and Endangered Species

The critical habitats of rare and endangered species are protected by Federal and State legislation including: the Federal Endangered Species Act of 1973 and 1978 Amendments, the California Endangered Species Act of 1970 and the California Native Plant Protection Act of 1977.

Soft bird's beak (*Cordylanthus mollis* ssp. *mollis*) and Jepson's pea (*Lathyrus jepsonii* ssp. *jepsonii*) are on the California Native Plant Society list for sensitive plant species of salt marshes. The transition zone between typical wetland and upland communities is the habitat where the two plant species are often found. It is unlikely that these plants occur on the project site; they were not found during the field observations. Also, they require frequent inundation by tidal or brackish water for proper growth and reproduction.

The animal species recognized as endangered by both the state and the federal governments is the salt marsh harvest mouse

(Reithrodontomys raviventris ssp. raviventris). It frequents both salt and brackish water habitats and both diked and non-diked areas. High quality pickleweed marshes are its preferred habitat and the Mitigation Parcels A and B have the potential to produce pickleweed dense and high enough to provide mouse habitat in the future, given they are supplied with sufficient moisture and left undisturbed. No salt marsh harvest mice were observed throughout all of the field visits performed by the biologists on the site and mitigation parcels. The possibility that this species currently inhabits the project development site or mitigation parcels HARD A and HARD B is slight, because the pickleweed habitat is sparse and widely scattered (H. T. Shellhammer, 1984).

Environmental Consequences

Proposed Site and Mitigation Parcels. Alternative 1 (proposed action) would fill approximately 44 acres of upland and 90 acres (68%) of seasonal salt marsh and transition zone on the 134-acre Tract 5167 property. The entire site would be filled, graded, and surfaced in preparation for the construction of an industrial development. As part of the proposed action (Alternative 1), the water regime and contours of the mitigation parcels HARD A and B would be modified to increase their habitat value. According to the habitat evaluation (Appendix B), the net decrease in habitat value would be approximately 20% over the existing conditions.

Alternative 2a. The impact to the Marathon site would be similar to Alternative 1; however, no enhancement value of the mitigation parcels A and B would occur. The loss of habitat value would be compensated for by the payment to a land banking agency for habitat replacement in-kind.

Alternative 2b. The impacts would be similar to those of Alternative 1 except that only one of the mitigation parcels (most likely HARD A) would be modified. The other parcel would be left in its present condition and some payment would be made to an agency, for habitat replacement in-kind.

Alternative 3. This alternative would result in less impact on the habitat and thus would affect the fish and wildlife resources to a lesser degree. This alternative would develop only the eastern portion of the site. It would result in the loss of approximately 41 acres of seasonal salt marsh, 44 acres of uplands, and 19 acres of transitional wetland/upland habitat. The western third of the property would be left intact as seasonal salt marsh. The western bank of the loop road would act as a levee that would effectively separate the wetlands and uplands. The salt marsh (EBRPD property) adjacent to the Marathon site would remain a continuous wetland habitat with the Marathon salt marsh enhancing its value as habitat for waterfowl

and shorebirds. This alternative was found to have the least significant adverse effects on habitat values of any of the scenarios examined in the habitat evaluation; it was approximated by the 75% development with and without the Transportation Corridor (see Appendix B) . The habitat value would decrease from between 9 and 14 percent depending on whether the Transportation Corridor is constructed (Appendix B).

Alternatives 4 and 5. For these alternatives, no major changes would occur in the habitat, and the site would remain undeveloped. The habitat would go through a natural successional change over time.

Cumulative Wetland Losses - Local and Regional

City of Hayward. Development of the project site would contribute to the loss of seasonal salt marsh habitat. The EBRPD property, the Marathon site, and the two HARD parcels represent one of the large contiguous areas (approximately 380 acres) of seasonal salt marsh remaining in the southeast Bay. The impact would be loss of approximately 24% of the total remaining seasonal salt marshes in that part of the shoreline. This loss would represent 1% of all wetland types, but 20% of all seasonal salt marshes in Hayward's shoreline.

Regional Context. The regional study examined the shoreline from Oakland Airport to the Alameda-Santa Clara County line. To assess the cumulative impact of all proposed developments in the region, the following factors have been examined for each of the wetland areas in the region:

- the habitat types within each wetland area
- the wetland size (acres)
- the current use of the wetland
- the planner, owner, or manager of the wetland
- the potential for future development

These elements are summarized in Table 1. Additional wetland areas, not currently proposed for development, are also included in the table.

Development of the Bay shoreline (Oakland Airport to the Alameda-Santa Clara County line) has been toward water-dependent or water-oriented uses such as ports, airports, salt works, marinas, and enhanced marshes for wildlife refuges and parks. There are 236 acres of diked baylands that have been restored to tidal action and 245 acres that are proposed for such within the next two decades. Additional changes proposed for the wetlands include the filling of approximately 1,161 acres of seasonal wetlands for residences, industry, and commercial establishments.

There has been much concern over the preservation and restoration of seasonal salt marsh in the Bay. The major thrust

TABLE 1

WETLANDS IN SOUTHEASTERN SAN FRANCISCO BAY:
Current use, size and type of wetland and
their respective development potential.

Location	Wetland Type	Wetland Size (Acres)	Current Use	Planner	Development Potential
akland					
Airport	BM	43	I	City of Oakland	Undeveloped - no plans
	TM	40	0		
Port	SM	250	I	Port of Oakland	High (2-10 yrs.) 60 Ac already filled
an Leandro					
Citation Homes	SM	189	Ag	City of San Leandro/Citation	High - residential
Transporation Corridor	SM	3	Ag	Alameda Co.	Low
Hayward					
Marathon	SM	90	Ag	City of Hayward/ Marathon	industrial use
EBRPD	TM	36	I	EBRPD/	developed as waste water
	EM	135	I	HASPA	treatment facility
EBRPD	SM	200	P	EBRPD/ Coastal Conserv.	Low (>10 yrs.) - restore to tidal action
EBRPD	TM	200	P	HASPA	developed as a restored tidal marsh
HARD	SM	89	0	Marathon (mitigation parcel)	Enhance for wildlife
HARD	TM*	75	0	USFWS	High-restore to full tidal action
Oliver Bros.	SP	170	SP	Port of Oakland (mitigation parcel)	High-Restore tidal action
Shoreline	TM	42	0		undeveloped - no plans
Alameda Creek	TM	560	0		undeveloped - no plans
Leslie Salt	SP	3,017	SP		undeveloped - no plans
Baumberg Tract	SP	736	SP	Shorelands	2-50 yrs. pending USCOE approval
nion City					
Area 511 Plan	SM	113	0	Ponderosa/ Duck Club	2-10 yrs. developed as residential and golf course

TABLE 1
(Continued)

Location	Wetland Type	Wetland Size (Acres)	Current Use	Planner	Development Potential
Newark					
Mt. Wildlife Refuge	SP	13,000	0	USFWS	None
Hickory Street Industrial Park	TM SM	4 53	 SP	Lincoln Properties Co.	EIR is on hold pending new mitigation plan
Fremont					
Durham Road Dump (proposed expansion)	SP	15	I	Oakland Scavenger	High
Industrial Redevelopment	SP	400	I	City of Fremont	
Airport		250	0	City of Fremont	

TM=tidal marsh; SM=seasonal saltmarsh; SP=salt ponds; I=industrial; Ag=agriculture; P=park; EM=effluent marsh; O=open space

*some tidal influence in a seasonal marsh

Estimated change if all proposed projects were developed:

Existing Wetlands (acres)		Habitat Types in Future (acres) SM	TM	SP	EM	Developed
SM	1,030	132	200	0		698
TM	957	0	953	0	0	4
SP	17,588	0	170	16,017		1,401
EM	135	0	0	0	135	0
	6,710	132	1,323	3,017	135	2,103

behind this action came from BCDC and the Save San Francisco Bay Association. Their original purpose and emphasis was to save the baylands by restoring tidal action wherever possible. In recent years, the value of seasonally ponded water and salt ponds as habitats that serve as a boundary layer between the open Bay and urban habitats has also been recognized and documented. High quality wildlife habitat lies in preserving the natural diversity that occurs in an untouched system.

The East Bay represents an area that potentially simulates the original Bay ecosystem where the Bay waters were bounded by tidal marshes and vast areas of transitional habitats where the freshwater streams entered the Bay via the valleys in the East Bay hills. Of concern is that with filling all the seasonal marsh (i.e., dried unvegetated habitats through much of the year), the integrity of the Bay estuary would be significantly damaged. Before the BCDC was formed, over 225 square miles of the Bay wetlands had been filled or destroyed (BCDC, 1983). Today over 40,000 acres of the Bay wetlands are still not protected by BCDC jurisdiction; therefore, there is concern by the Resources Agency that guidelines be established for the protection of the remaining wetlands (Marathon Development Corporation DEIS, 1982).

Virtually every privately owned seasonal salt marsh habitat in the Fremont and Newark vicinity is proposed for development (P. Kelly, DFG, pers. comm., 1984). Three major development proposals would eliminate approximately 550 acres of seasonal salt marsh habitat in this area.

The probability of all the proposed projects (Table 1) being permitted and constructed is very low. Each project has a unique set of significant issues that must all be approved or mitigated prior to project approval. If the project is limited in scope, it has few significant environmental impacts, and the project design and mitigation plan are held in a favorable light by the resource agencies and the public, the project would likely be permitted. Pending permit approval and the availability of funds a project may be constructed within 1 - 5 years. Any of the above factors may act to delay project construction for a number of years or to stop it altogether. The resource agencies and the public have in some cases required more extensive fish and wildlife studies or alternative mitigation plans prior to permitting; such studies can delay the permitting process for 1 to 3 years or more. Given these factors, it is unlikely that all the projects would be approved. Any approved projects would take from 2 to 10 years to complete following permit approval.

Rare and Endangered Species

The potential impact to Salt Marsh Harvest Mouse (SMHM) is uncertain at this time. Although, no SMHM have been found on the site or the mitigation parcels, the FWS recognize the mitigation

parcels as essential habitat for the mouse. No trapping has been done on the site as it was determined that it was unlikely that SMHM exist there (H. T. Shellhammer, pers. comm., 1984).

A SMHM population could be established on the HARD parcels. If the pickleweed is allowed to flourish and a breeding pair is introduced or available to the site from adjacent habitats, it is expected that this would provide good habitat for the SMHM (H. T. Shellhammer, 1984).

More information regarding the potential for SMHM should be available following the FWS Fish and Wildlife Coordination Report and which includes biological data and an opinion on the status of the SMHM in the project area. These comments will be included in the final EIR/EIS.

Recommended Mitigation

Mitigation for loss of resources is a requirement under the Federal Fish and Wildlife Coordination Act, the Corps of Engineers Policies on Wetlands, and the California State Wetland Policy. There is no documented consensus on implementation of the mitigation guidelines; however, the resource agencies generally agree to the following priorities for mitigation:

1. On-site mitigation with no net loss of habitat value,

2. Off-site mitigation if on-site mitigation is not feasible

In-kind replacement of habitat is preferred over out-of-kind, although both are acceptable providing there is no net loss of habitat value. Careful analysis of the habitats and the proposed enhancement activities is necessary to arrive at a satisfactory solution to the compensation requirements.

Alternative 1. The restoration and enhancement of mitigation parcels HARD A and B are included in the proposed action as off-site mitigation for the loss of on-site seasonal wetlands. As proposed by Phil Williams and Associates, Inc., HARD A would be treated as a brackish marsh with shallow water (0-1 feet). Three sand-covered or vegetated islands would be built to provide isolated resting and feeding areas for shorebirds and waterfowl. The western parcel, HARD B, would be maintained as an open water area with one small island. The water level would be maintained at a constant level of 2 to 3 feet and the sides of the pond would be gentle 10:1 slopes. The benefits from this off-site development include:

- enhanced shorebird habitat on HARD A because of longer wet periods on the site

- enhanced nesting success for waterfowl, due to protection provided by islands and reduced salinity in the spring

- creation of habitat for the salt marsh harvest mouse on HARD A

- increased duration of open water for ducks and other birds on HARD B the outboard parcel

- increased vegetative cover around the perimeter and on the islands for wildlife oriented toward fish and wildlife
- increased diversity of habitats, including deep water, shallow water, islands, and vegetated slopes

- increased water circulation and dilution of summertime seepage from the adjacent landfill

- biological filtering of urban surface water runoff during the storm season

- removal or burial of old refuse presently exposed on the surface around the margins of the parcels

Alternative 2a. The mitigation would be payment to an appropriate agency or organization that could implement a land banking program or other such protection measures.

Alternative 2b. The loss of habitat value would be compensated by the combined actions of enhancement of one HARD parcel and payment in-lieu for habitat replacement in-kind at a later time. Details of mitigation banking are currently being worked out by the various land-banking agencies such as Trust for Public Lands, Coastal Conservancy, and EBRPD.

Alternative 3. Some on-site mitigation is allowed in this alternative. The eastern two-thirds of the property would be developed and one-third would be restored or enhanced as a seasonal wetland. Approximately 30 acres west of the proposed western loop road would remain undeveloped. The road would act as a levee and the wetlands of the site would be contiguous with the EBRPD wetlands (until such time that the Alameda County Transportation Corridor is developed). The habitat value of the wetlands on Marathon's site would be improved by creating water-filled channels, mudflats, and seasonal salt marsh habitat.

Alternative 4. No mitigation would be required assuming the purchasing agency left the site in the existing condition. No Corps permit would be required and neither of the mitigation parcels would be developed.

Alternative 5. None required.

Significant Impacts

Alternatives 1, 2a, and 2b. Each of these alternatives would result in the loss of 90 acres of seasonal wetland habitat.

Alternative 3. This alternative would eliminate approximately 60 acres of seasonal wetland habitat.

Alternatives 4 and 5. None.

IV C. SOILS, TOPOGRAPHY, GEOLOGY, AND SEISMICITY

The soils, topography, geology, and seismic factors of the Hayward area and the Marathon site are described in two reports: "Hayward Conservation and Environmental Protection Study" (May 1975) by the Hayward Planning Department and "Soil Investigations 182-Acre Marathon Development Site" (November, 1981) prepared by Harding-Lawson Associates (Appendix D). The report was general in nature and is not intended to provide formal foundation recommendations for buildings that will be constructed on site. Site-specific soil investigations should be performed to develop foundation recommendations for each building when applying for individual building permits.

Soils and Topography

Affected Environment

Regional. Most of the surface layer of soils in the shoreline area of Hayward is made up of grey, saline, silty clays. When drained these soils usually exhibit strongly acidic conditions and subsidence. The acid condition occurs only in those areas that contain high levels of sulfide in the subsoil. Several places along the Hayward shoreline have been used for sanitary land fills. These areas are not considered suitable for development and the soils used to cover these fills are varied and shallow.

The primary soil series in the shoreline area of Hayward have the following characteristics: high clay content, high moisture content throughout much of the year, poor subsoil permeability, acid or saline topsoil conditions, and high shrink-swell potential.

Local. The site slopes gently downward toward the north and west with surface elevations ranging from 3 to 7 feet above Mean Sea Level (MSL). The southern half of the site is bordered by Sulphur Creek, a channelized flood control canal approximately 10 feet wide and 5 feet deep. The top of the dike ranges from about 2 to 5 feet above adjacent ground levels.

The soils on the site range from soft, compressible clays to firm alluvial deposits. The firm clayey alluvial soils consist of Holocene and late Pleistocene alluvial deposits and they contain some interlayered sand and gravel below the water table.

In the northwest portion of the property, soft to medium stiff, compressible clayey soils exist. The upper 1 to 2 feet are dessicated and form a firm crust; the entire thickness of these soft soils varies from 6 to 7 feet deep. These soft soils are Holocene estuarine muds.

Nearly all of the clayey soils on the rest of the site are expansive and have a high shrink-swell potential. The surface clay layer is highly expansive and it extends to depths of at least 4 feet.

No large gravel or deep sandy deposits are found on either the proposed development site or the enhancement parcels. Soils on both the HARD enhancement parcels may be contaminated with pollutants and salt from the past uses of the sites and adjacent properties as a sanitary landfill and salt pond (Phil Williams and Associates, 1984).

Environmental Consequences

Alternatives 1, 2a, 2b, and 3. Expansive surface soils result in high shrink-swell conditions that may cause foundation, slab and pavement shifting and cracking unless measures are taken to prevent or limit the effect on these structures (see Recommended Mitigation).

The soils report indicates that ground settlement is estimated at about 1 to 2 inches compaction for 4 feet of soft soil after placement of about 3 feet of fill. Consolidation should be complete within 6 months of fill placement. The soils are firm in the areas proposed for the sewer pump station, storm drain lift stations, and the Sulphur Creek crossing. Excavations extending below the ground water table would need to be dewatered.

Alternatives 4 and 5. Existing surface soils and topography would remain unchanged into the foreseeable future on the proposed site and HARD parcels A and B.

Geology and Seismicity

Affected Environment

Regional. Several active and numerous inactive earthquake faults are located within the Bay Area. Faults which have been mapped as being active during Quaternary and recent times (within the last 2 million years) are the San Andreas, Hayward, Rodgers Creek, Calaveras, and Concord/Green Valley faults.

The Hayward Fault is located three miles east of the site and the San Andreas Fault is 15 miles to the west.

Local. There are no known faults or extensions of active faults passing through or near the proposed site. The nearest fault line, the Hayward Fault, is located three miles east of the site.

Environmental Consequences

All Alternatives. Strong groundshaking would occur at the site during large earthquakes on the Hayward or San Andreas Faults. All structures should be designed to resist the lateral loads generated by seismic shaking. Some of the sandy soils on the site are susceptible to liquefaction; however, the clay overburden may be thick enough to limit any surface expression and effects of liquefaction on surface structures. The risk of soil densification or lurching during earthquake shaking is considered remote. Since there are no known faults on the site, ground rupture as a result of an earthquake is considered unlikely.

Recommended Mitigation

Although the soft soils and seismic activity are not expected to be serious problems, the following mitigating measures are recommended to limit potential adverse effects (Appendix D). Alternatives 4 and 5 are essentially no action alternatives, therefore, they do not require mitigation.

Soils and Topography

Alternatives 1, 2a, 2b, and 3. During site preparation and grading, the upper few inches of soil containing vegetation should be stripped from all areas to be graded. In soft soil areas, care should be taken during construction not to disturb the crust. In all fill areas, the upper 6 inches of soil should be scarified, moisture conditioned to 3 to 6 percent above optimum moisture, and compacted to at least 90 percent relative compaction (HLA, 1981). Approved fill should then be placed in layers 8 inches or less in loose thickness, moisture conditioned, and compacted to at least 90 percent relative compaction. Where the expansive clayey soils are used for fill, they should be conditioned to 3 to 6 percent above optimum before being compacted. Imported fill material should be of low expansion potential with a plasticity index less than 15 and liquid limit less than 40.

All cut and fill slopes should be no steeper than 2 horizontal to 1 vertical (2:1) (HLA, 1981). Fill slopes should be compacted or overbuilt and cut back to expose firm compacted soil. The surfaces in all graded areas should be sloped to drain away from the tops of the slopes to minimize erosion.

The Sulphur Creek bridge site is proposed on stiff clayey soils. A relatively lightweight bridge should be sufficiently supported on shallow spread footings bottomed on the natural soils. Deeper foundations such as drilled or driven piles may be required if the bridge is relatively heavy. Piles would gain support through skin friction in the firm natural soils.

Geology and Seismicity

The resonance set up between structures and fill deposits can be limited if low, rigid structures are built rather than tall, flexible structures that tend to sway and torque under these conditions. The potential hazards from liquefaction of loose, water-saturated silt and sand can be limited by building low structures, as proposed (HLA, 1981; Appendix D).

Significant Impacts None are anticipated.

IV D. HYDROLOGY AND WATER QUALITY

Affected Environment

Surface Water

Proposed Site. The site lies 4,000 feet east of San Francisco Bay between Bockman Canal on the north and Sulphur Creek on the south.

The proposed site is flat and drains primarily from east to west. The site is divided by a number of dikes and ditches which redirect the flow either toward Bockman Canal to the north or Sulphur Creek to the south. In the northeast corner of the property is a rectangular 13-acre parcel bordered by a drainage ditch to the south and west, and railroad tracks to the east; all drainage is routed through the ditches to Bockman Canal. The 25-acre portion just to the south is low-lying, varying from 3 to 5 feet (NGVD), and drains south and west to drainage ditches behind low dikes. These ditches consolidate near the center of the tract and drain southwest on to the EBRPD property near Sulphur Creek.

The southeast corner of the property drains westward to a large ditch and dike; the ditch is almost level, with less than a 0.5-foot change in elevation over its 1800-foot length. Although the ditch is high at both ends, when it is overfilled, it drains to the north and empties into the major collection ditch just described near the center of the property.

The southwest portion of the property drains generally to the south into a large ditch which parallels Sulphur Creek. This in turn empties onto the EBRPD property. Given the flat gradient of the land and poor condition of the ditches, it appears much of the runoff ultimately leaves the property by evaporation rather than drainage.

No runoff from the site currently enters Sulphur Creek due to its levees which range in height from 2 to 5 feet above the surface of the site. The channel of the Creek lies 3 to 8 feet below the top of the dikes, which are approximately 10 feet high. The creek bank consists of stiff clay and erosion occurs in insignificant amounts.

The creek carries runoff from the area east of the site including the Skyway Golf Course, Hayward Municipal Airport, and residential development. Flows in the creek are typically low velocity except during storm events. The Alameda County Flood Control and Water Conservation District (ACFCWCD) has identified the following ultimate flows for Sulphur Creek based on maximum development potential within the creek's drainage basin:

- 15-year peak flow: 706 cubic feet per second
- 100-year peak flow: 1,070 cubic feet per second.

Both Bockman Canal and Sulphur Creek are designed to contain the 100 year flood (Johnson, 1984).

Mitigation Parcels. The proposed enhancement/mitigation parcels are located south and west of the proposed industrial business park site Tract 5167 (see Figure 1). Both parcels are below tidal levels between 65 and 90 percent of the time. They are protected from tidal flows by a levee along the western edge of parcel B and by the levee along the property south side of Sulphur Creek.

Surface water and groundwater enter the parcels from several sources. Surface runoff enters parcel A from two sources: a ditch on the north side of Winton Avenue, at the southern tip of the parcel, and a ditch at the east side of the parcel. Runoff entering parcel A comes from leachate from the adjacent garbage dump, the wrecking yards, and an undetermined area along Winton Avenue.

Parcels A and B are connected by a ditch just south of the levee on the south side of Sulphur Creek. Surface water enters both parcels A and B from the Alameda County Flood Control District property located between the two parcels. Tidal waters also enter parcel B during extreme high tides, when the western levee is overtopped by waves.

Environmental Consequences

Alternatives 1 and 3. The proposed project and reduced scale alternatives would both result in increased impervious surface coverage for roofs, sidewalks, and parking areas. At about 40 to 50% coverage by impervious surfaces for such development, Alternative 1 would result in 54-67 acres of impervious surface, while Alternative 3 would have 42-52 acres covered by impervious surfaces. After development, the increase in impervious surface area would decrease the amount of percolation and time of concentration, thereby producing more runoff from less intense storms.

The existing drainage patterns would be modified by the construction and operation of an underground drainage system. Storm water would be collected by a gravity system on a lot-by-lot basis in 15" to 48" pipes, then drained to approximately the central north-south axis of the site to a point between lots 1 and 2. From there it would be fed under Sulphur Creek to the lift station for the development south of Sulphur Creek (Marathon's Phase 1). This lift station is sized to handle the flows from the proposed development as well as those from the Phase I development of Tract 4975.

From the lift station, the runoff could be pumped over the levee on the south side of Sulphur Creek into the creek channel. However, under the proposed plan some of the storm water runoff from the proposed site would be diverted to the two mitigation parcels. There would be some increased flows from the development into Sulphur Creek.

Potential users of the site would have to apply for a use permit from the City of Hayward. Any waste discharge other than surface water would be discharged into the sewer system rather than the storm drainage system and would be subject to applicable permits. Such users would have to obtain permits for discharge from the Bay Area Water Quality Control Board. Therefore, it is assumed the only drainage off-site onto the mitigation parcels would be storm runoff from parking areas and roadways.

The proposed mitigation parcels would be graded and the surface water characteristics of both parcels would be altered as a result of Alternative 1. Parcel A would contain shallow surface water 1 foot deep year round with three new islands covered by sand or gravel. Parcel B would be maintained as open water, at a depth of 2 to 3 feet, through the summer and would contain one island. The proposed changes in surface water flows of parcels A and B would require inflow from the lift station serving the proposed site and from Sulphur Creek during summer and fall of most years (see description of Alternative 1 for a discussion of control structures proposed for water management of parcels A and B).

Alternative 3 would result in 23% less impervious surface coverage and consequently less surface water runoff. Offsite mitigation would involve less acreage under Alternative 3 (perhaps only parcel A or B but not both). The creek channel was designed to handle drainage flows from maximum development in the drainage basin, which includes the proposed site (Johnson, 1984). Therefore, there would be no significant effects on the carrying capacity of the creek.

Alternatives 2a and 2b. Surface water runoff from the site would be the same under both these alternatives as with the proposed project (Alternative 1); however, under Alternative 2a no storm water runoff would be pumped to the mitigation parcels, while under Alternative 2b water would be pumped to only one of the two parcels. Therefore drainage into Sulphur Creek would be greater than under the proposed plan because there would be little or no diversion. Existing drainage patterns on mitigation parcels A and B would remain the same under Alternative 2a and would be modified on only one parcel under Alternative 2b.

Alternatives 4 and 5. Existing surface water drainage characteristics would remain unchanged into the foreseeable future on the proposed site and parcels A and B.

Ground Water

Affected Environment

The San Leandro Cone underlies the site area and contains water-bearing strata at various depths and locations. Aquifers in the San Leandro and San Lorenzo cone can be divided into two zones. The aquifer sequence to a depth of 400 feet contains water-bearing deposits derived from San Leandro and San Lorenzo Creeks. The three confined aquifers in this zone are equivalent to the Newark, Centerville, and Fremont aquifers under the Niles Cone to the south. The aquifers consist of discontinuous beds of sand and gravel which extend westward under San Francisco Bay and are capped by confining clay layers.

The lower zone, which occurs below a depth of 400 feet, contains considerably more water-bearing deposits than the upper zone.

Recharge of the higher aquifer occurs through permeable beds in the local streams, mainly San Leandro and San Lorenzo Creeks; recharge of the lower aquifers is by leakage and subsurface inflow.

The Newark aquifer does not appear to be a single continous layer, but rather several interfingering sand and gravel lenses separated by thin clay beds 5 to 10 feet thick. These lenses may be hydraulically connected near the upper reaches of the San Leandro and San Lorenzo alluvial cones. Lower on the cones the lenses are most likely separate hydraulic units. The yields of wells tapping the Newark aquifer are typically 20 to 100 gpm.

Groundwater in the Newark aquifer moves toward San Francisco Bay and is believed to be replenished principally by the infiltration of streamflow in the upper part of the alluvial cones and by leakage through the confining clay bed. Provision was made for recharge from the concrete-lined channel portion of San Lorenzo Creek.

The soils on the project site are predominantly uniform clay deposits and do not provide substantial surface infiltration. The site has some sand and gravel interbeds between the clay deposits; however, they do not provide substantial recharge to the upper aquifer due to the predominant clay deposits. The northwest portion of the site contains soft muds occurring as a 6-7 foot deep layer of compressible clay. These soils are not very permeable, so water percolation is slow; free groundwater is located near the surface. Groundwater was found to be 1.5 feet below the ground surface in the northwest portion of the site and 6.5 feet in the southeast corner of the site; the overall average was 2 to 4 feet. (Harding-Lawson Associates, 1981).

The ACFCWCD has records of wells in the Hayward and San Leandro areas, although not all the wells in the area may be on

file (ACFCWCD, 1985). The records show that since 1900, 78 wells have been constructed for various uses in the area. The area covered for this table is the land west of the Southern Pacific railroad tracks, south of the Estudillo Canal, and north of the West Jackson Highway (Table 2). Further detailed information is on file with the Corps.

TABLE 2

WELL INVENTORY

Year Built	Uses						
	Unk.	Mun.	Ind.	Dom.	Irr.	Ab./Des.	Liv.
1900-1940	0	2	1	3	1	13	0
1940-1960	0	0	2	9	2	1	0
1960 +	2	0	1	0	3	0	0
unknown date	5	0	1	13	1	15	3
Total	7	2	5	25	7	29	3

Total Recorded Wells = 78

Unk. = unknown
Mun. = municipal
Ind. = Industrial
Dom. = domestic
Irr. = irrigation
Ab./Des. = abandoned or destroyed
Liv. = used to water livestock

Source: Alameda County -- Bay Plain Groundwater Study Well Inventory Report, 14 January 1985

Hydrographs for wells producing from the Newark aquifer show virtually no change in water levels over a 30-year period. Hydrographs for wells tapping the lower aquifers indicate that water levels have been gradually rising in the last twenty years.

Groundwater in the San Lorenzo alluvial cones is used mainly for industrial water supply and for irrigation purposes. The chemical quality of the groundwater is good for most uses and is of a calcium bicarbonate to calcium-sodium bicarbonate type. Saltwater intrusion is a problem only in localized portions of the Newark aquifer.

With the exception of several private wells in the Mt. Eden

area and several manufacturing/industrial wells, the City no longer uses well water for domestic water supplies; it now uses the Hetch Hetchy system. Therefore the groundwater aquifers are considered primarily as potential sources of City water in the event of an emergency.

Environmental Consequences

Alternatives 1, 2a, 2b, and 3. Much of the existing ground surface would be replaced with impervious surfaces, thus reducing recharge of the near-surface groundwater on the site; however, this would have an insignificant effect on the Newark aquifer. Storm water that would normally infiltrate into the soils would be diverted off the site. The placement of 3-5 feet of structural fill on-site, to bring the site to finished grade, would allow upper groundwater flows to move more freely than the natural clay soils.

During construction appropriate dewatering (elimination of groundwater) would be necessary to control groundwater and to ensure stabilized final grades. These temporary dewatering measures would result in a localized drawdown of the upper groundwater table. Upper groundwater levels would stabilize after construction. The dewatering measures would not affect lower groundwater tables.

Alternatives 4 and 5. No changes in existing groundwater characteristics would occur.

Flooding

Affected Environment

The site and mitigation parcels A and B are located entirely within Zone A-1 of the National Flood Insurance program established by the Federal Emergency Management Agency (FEMA). Lands in this category are subject to deep flooding during the 100-year higher high tide, the tide with a one percent chance of occurrence in any given year (FEMA, National Flood Insurance Program, 1981).

The City of Hayward participates in the National Flood Insurance Program and enforces the Federal Flood Disaster Protection Act. That Act requires that non-residential structures must have their lowest floor elevation above the base flood elevation or be floodproofed to or above that level. Flood protection can be accomplished through levee channels, pumps, membrane waterproofing of floors and perimeter walls, and/or raising buildings. If flood protection is accomplished with levees, FEMA requires the levees to be 3 feet higher than their estimated highest tide. The estimated 100-year highest tide set by FEMA at the proposed site is +7.0 ft. mean sea level (MSL).

The ACFCWCD also requires projects in this area to be protected from their estimated highest tide, which is about +8.5 ft. MSL at the site. The ACFCWCD requires protecting levees to be one foot higher than their estimated highest tide.

Environmental Consequences

Alternatives 1, 2a, and 2b. All alternatives would require flood protection measures. The proposed alternative would raise the existing site elevation to +8 ft. MSL. New levees on the north bank of Sulphur Creek and along the western site boundary would be constructed to elevation +10.0 ft. MSL. The southern bank is currently undergoing levee reconstruction to protect the area south of Sulphur Creek (Marathon's Phase 1 development) from flooding. The levees would require engineering approval from the Corps and the ACFCWCD.

Overbank tidal flooding on mitigation parcel B would still occur as no improvements are proposed for the levee on the western edge of parcel B.

Alternative 3. This alternative would have a levee different from that in the proposed plan. Under this Alternative the western loop of the roadway would be constructed as a combined roadway/levee. Otherwise, the site would be protected from flooding in the same way as under the proposed plan.

Alternatives 4 and 5. Current conditions would remain unchanged.

Water Quality

Affected Environment

In 1974 ACFCWCD instituted a surface water quality sampling program in major channels in the project area. An estimate of expected water quality was derived from samples taken from the major channels, including Sulphur Creek, at points near the channel outfalls to the Bay, but upstream from tidal action. The mineral quality of all waters tested generally satisfied U.S. Public Health drinking water standards. The waters were classified as "very hard" (Marathon Industrial Development Tract 4975 EIR, 1982). The ACFCWCD has no more recent data on water quality in Sulphur Creek.

Currently, any surface runoff from the proposed development site will have characteristics similar to those of agricultural runoff: higher nutrient levels, higher suspended solids, and higher coliform counts (ABAG, 1982).

Water quality was sampled on the two mitigation parcels A and B, because of concern about leachate from the landfill. Two significant water quality problems occur at the sites:

1) leachate from the old landfill (now inactive) between the two parcels is discolored and contains oil and grease, and 2) oil from the wrecking yards contaminate waters on HARD parcel A (Phil Williams and Associates, 1984).

Samples were taken at ten locations around the two parcels and were analyzed for pH, specific conductance, total organic carbon (TOC), total organic halides (TOX), lead, arsenic, cadmium, chromium, copper, mercury, and zinc. The values for pH, specific conductance, and TOC indicate that the samples are brackish, contain high concentrations of dissolved organic matter, and are not contaminated with strong acids. None of the heavy metal concentrations were high enough to cause concern. The TOX concentrations are appreciable; however, without specific analysis of the compounds there is no way to assess their significance. Where dissolved organic carbon is high, organic halides are also high.

Since the water quality samples were taken, the pump station for Marathon Phase I has been completed and now handles the drainage from the wrecking yards. Therefore, the water quality on parcels A and B is probably slightly better than previously reported.

Salinity of the parcels exceeds that of Bay Water during a dry year and during summer months of a median year.

Affected Environment

Alternatives 1, 2a, and 2b. The creation of impervious surfaces such as roads, parking lots, and roof tops that accompany development would create new "source areas" for direct storm water runoff. This runoff would pick up pollutants generated on-site. Potential water quality impacts associated with this development include: erosion/siltation during construction; increase in temperatures; and storm water pollutants such as oil, grease, and heavy metals from parking lots, roadways, and impervious surfaces. Elimination of the cattle from the site could reduce total coliform bacteria in Sulphur Creek.

During site preparation when soils are exposed, sediment could enter surface and storm runoff. The potential for erosion and subsequent sedimentation during site preparation would be affected by factors such as the timing and phasing of construction, the degree of vegetation removal, and the effectiveness of erosion control measures. Sediment would largely be restricted to the site vicinity due to the very shallow slope of the property.

Table 3 shows the pollutant levels in storm water runoff from light industrial development, as defined by monitoring in

the 1976-1977 rainy season in Santa Clara County. In general, runoff from light industrial development is of higher quality than that from commercial, heavy industrial, or medium to high density residential development and is in fact similar to runoff from low-density residential neighborhoods (ABAG, 1982). Trace element concentrations in urban runoff (lead, zinc, etc.) are generally low (less than one mg/l) while hydrocarbons (oil, grease) average 10 mg/l (ABAG, 1982).

TABLE 3

POLLUTANT LEVELS IN STORM WATER RUNOFF FROM LIGHT INDUSTRIAL DEVELOPMENT

Pollutant	Average Concentration (mg/l)
Biological Oxygen Demand (BOD)[5]	38.1
Suspended Solids	72.0
Volatile Suspended Solids	21.0
Total Nitrogen	3.1
Total Phosphorus	0.4

Source: The Use of Wetlands for Water Pollution Control, ABAG, 1982.

The change from grazing/open space to light industrial development on the site would mean a change from agricultural runoff to urban runoff characteristics. Thus, higher concentrations of oil/grease and metals and lower concentrations of nutrients and suspended solids would be expected in the runoff after development.

The project's proposed underground storm water collection system would drain some of the runoff from new roadways and paved areas into Sulphur Creek and into San Francisco Bay. This may increase the level of urban pollutants in the Bay. However, due to the size of the proposed development and the characteristics of light industrial runoff, none of these alternatives (1, 2a, and 2b) is expected to significantly increase the quantity of urban runoff pollutants in San Francisco Bay.

The proposed mitigation parcels A and B would receive runoff from the proposed site via the lift station. This runoff would be supplemented by flows from Sulphur Creek from May to October (during the median year). The salinity of the water on parcels A and B would remain below that of Bay water from January through May (of a median year).

In terms of water quality there are several benefits

associated with routing the storm runoff to Parcels A and B. First, the increased water circulated through the parcels could help dilute the summertime seepage from the adjacent landfill. Second, the wetlands would provide natural marsh treatment of the urban runoff during the storm season. And thirdly, the fill placed on the dump site should reduce and/or eliminate the existing seepage onto the parcels from the old landfill. (See the discussion of recommended mitigation below.)

Alternative 2b would not have as much of a beneficial effect on water quality because only one parcel would receive storm runoff and act as a natural marsh treatment system. Alternative 2a would not provide natural marsh treatment of storm runoff from the proposed development site.

Alternative 3. This alternative would reduce the size of development, thereby reducing the urban pollutant loads from the site concomitant with the reduction in size. Some off-site area (Parcel A or B) would be used for storm runoff and wetland enhancement purposes and the effects would be similar to those of Alternative 2b.

Alternatives 4 and 5. No significant changes to current water quality characteristics would occur unless under Alternative 4, a public agency acquiring the site eliminated the current cattle grazing. In this event, levels of suspended solids and coliform in the runoff would decrease. Mitigation parcels A and B would remain in their current unflushed states. Leaching from the old landfill site would continue, and the leachate would not be diluted through the addition of storm water from the site or Sulphur Creek.

Recommended Mitigation

Although urban runoff is not expected to be a significant problem, the following mitigation measures are recommended for all alternatives except 4 and 5 (which are essentially no action and require no mitigation). These mitigation measures will minimize water quality impacts:

- sediment and oil/grease traps in the drainage system to reduce pollutant levels in the runoff

- routine street sweeping and the location of trash disposal facilities in public areas.

The proposed action includes the discharge of storm runoff into wetlands on Parcels A and B. This aspect of the desgin is in itself a mitigating measure, for the natural treatment capabilities of wetlands have been extensively documented (ABAG, 1982). Wetlands natural water treatment capability is related to four principal features of these habitats:

- dispersion of surface water over a large area through intricate channelization of flows
- use and transformation of elements by micro-organisms
- physical entrapment through adsorption in the surface soils and organic debris
- uptake and metabolism of pollutants by plants.

An example of wetland stormwater treatment is the Palo Alto marsh/flood basin, a brackish marsh formed by a series of levees and tide gates surrounding a pre-existing bayside marsh area. The marsh contains a mixture of salt and fresh water vegetation and upland grasses and has mainly channelized flow.

This wetland showed the following removal efficiencies: total nitrogen, 37%; suspended solids, 87%; volatile suspended solids, 85%; and BOD, 54%. In addition, a consistent decrease of lead was measured across the marsh (ABAG, 1982). Pickleweed, which predominates at the lower elevations of the marsh, showed the ability to extract heavy metals (particularly zinc and cadmium) more than mixed marsh vegetation or upland vegetation. As the soil pH increased, the adsorption of lead, zinc, and copper to soil surfaces increased.

The proposed mitigation parcel A would be designed as a highly channelized brackish marsh similar to the Palo Alto marsh. Although it is not known if the treatment characteristics of the Parcel A site would be similar to the of the Palo Alto marsh; it would certainly be expected to have a beneficial effect on water quality.

IV E. TRAFFIC AND CIRCULATION

This section summarizes the traffic study prepared by John J. Forristal which is included in Appendix E of this EIS/EIR.

Affected Environment

The major street system and average daily traffic volumes are shown on Figure 8.

The intersections of West Winton Ave-Hesperian Boulevard and Depot Road-Clawiter Road are currently operating at Level of Service E. All other intersections are at Level D or better (see Table 3, column 1).

Environmental Consequences

Alternative 1, 2a, and 2b. The proposed project and alternatives 2a and 2b are each estimated to generate an additional 8170 average weekday trips (AWT) to the current road system. This assumes a "worst case analysis" in which 35% of the site is occupied by R and D users. If no R & D users occupy the site, then there would be an additional 5,120 average weekday trips.

Level of Service impacts are shown in Table 3. The Level of Service would be reduced at all intersections with or without the proposed project except for two; the intersection of W. Winton Ave-Corsair Blvd, and Depot Road-Hesperian Blvd. Both these intersections would remain the same without the project but would be reduced with the project.

Alternative 3. This alternative would generate an additional 6,760 AWT to the street system (or 3,980 without any R & D users). Due to the reduction in developable area, the level of service would be slightly better at some of the intersections than under Alternative 1 as shown in Table 3.

Alternatives 4 and 5. Both these alternatives would result in no action or a continuation of existing conditions into the future (column 5, Table 3). The level of service at most intersections would be reduced even without the proposed project due to current traffic conditions, general growth in the area, and other currently planned projects.

Recommended Mitigations

All Alternatives. The traffic study included in Appendix E suggests specific measures to mitigate traffic impacts which are applicable to all alternatives. The possible mitigation measures for traffic impacts are listed on page 74.

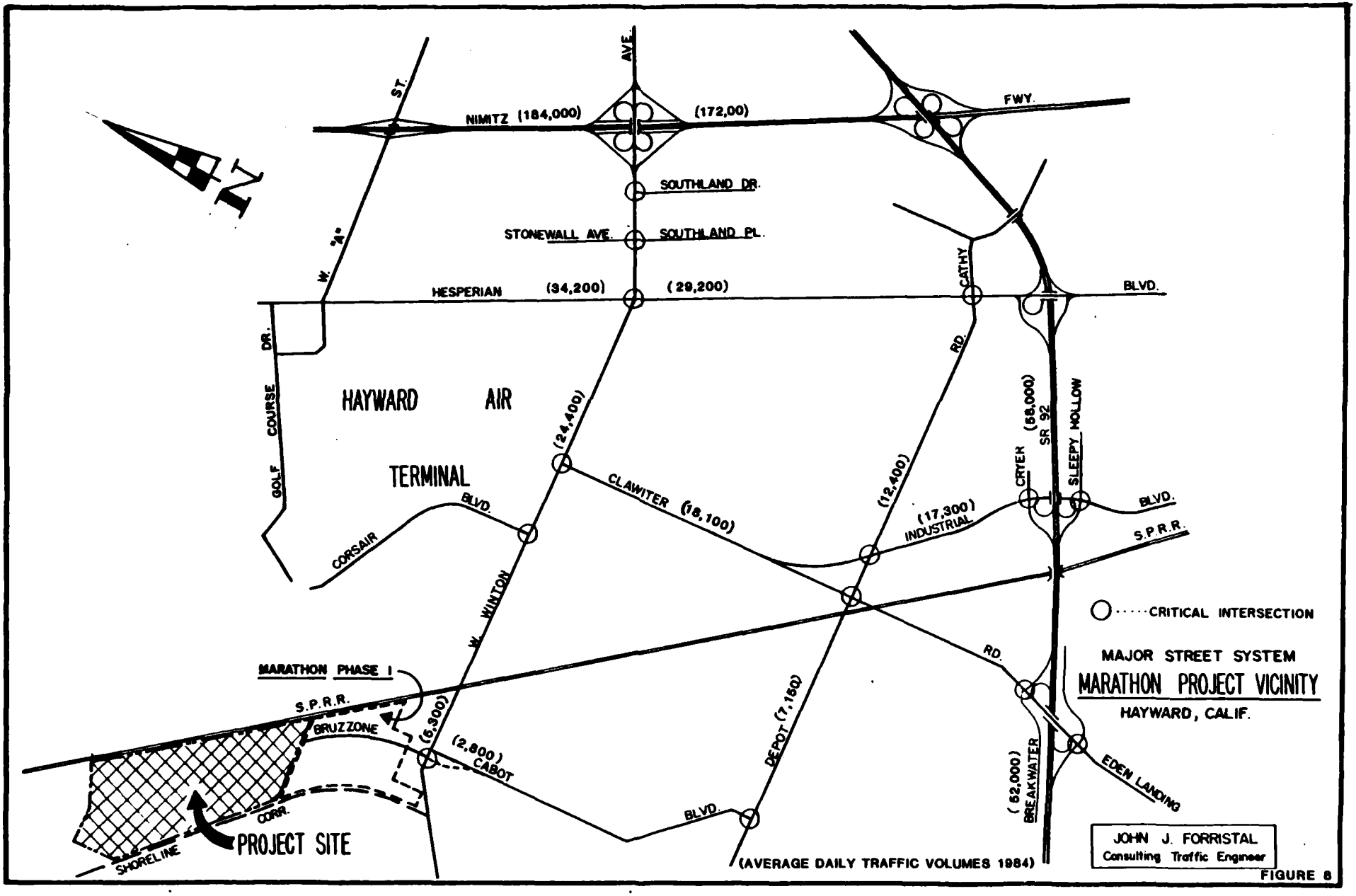

N
NIMITZ (184,000)
(172,00)
FWY.
AVE.
ST.
SOUTHLAND DR.
STONEWALL AVE.
SOUTHLAND PL.
W. "A"
HESPERIAN
(34,200)
(29,200)
CATHY
BLVD.
RD.
HAYWARD AIR TERMINAL
GOLF COURSE DR.
(24,400)
CLAWITER (18,100)
(12,400)
(17,300) INDUSTRIAL
CRYER
(58,000) SR 92
SLEEPY HOLLOW
BLVD.
S.P.R.R.
CORSAIR BLVD.
W. WINTON
MARATHON PHASE I
S.P.R.R.
BRUZZONE
(6,300)
(2,800) CABOT
DEPOT (7,150)
RD.
(52,000) BREAKWATER
EDEN LANDING
BLVD.
CORR.
SHORELINE
PROJECT SITE
CRITICAL INTERSECTION
MAJOR STREET SYSTEM
MARATHON PROJECT VICINITY
HAYWARD, CALIF.
JOHN J. FORRISTAL
Consulting Traffic Engineer
(AVERAGE DAILY TRAFFIC VOLUMES 1984)

FIGURE 8

TABLE 4

PM PEAK HOUR VOLUME/CAPACITY RATIOS AND LEVELS OF SERVICE

Intersection	Existing	Existing + Marathon Phase 1 + Marathon Phase 2 Alt. 1 + Other Projects	Existing + Marathon Phase 1 + Marathon Phase 1 Alt. 3B + Other Projects	Alt. 4 & 5 + Existing + Marathon Phase 1 + Other Projects
W. Winton Avenue - Cabot Blvd./Bruzzone St.	0.11 - A	0.67 - B	0.57 - A	0.64 - B
W. Winton Avenue - Corsair Blvd.	0.32 - A	0.72 - C	0.68 - B	0.54 - A
W. Winton Avenue - Clawiter Rd.	0.43 - A	0.83 - D	0.79 - C	0.67 - B
W. Winton Avenue - Hesperian Blvd.	0.96 - E	1.24 - F	1.23 - F	1.14 - F
W. Winton Avenue - Southland Pl/Stonewall Ave.	0.67 - B	0.87 - D	0.86 - D	0.81 - D
W. Winton Avenue - Southland Drive	0.70 - C	0.85 - D	0.84 - D	0.80 - D
Depot Road - Clawiter Road	0.97 - E	1.73 - F	1.67 - F	1.62 - F
Depot Road - Industrial Blvd.	0.67 - B	0.87 - D	0.86 - D	0.82 -D

Depot Road - Hesperian Blvd.	0.67 - B	0.72 - C	0.69 - B	0.67 - B
SR 92 WB Ramps/Breakwater Ave. Clawiter Road	0.71 - C	0.89 - D	0.88 - D	0.84 - D
SR 92 EB Ramps/Eden Ldg. Rd. Clawiter Road	0.82 - D	1.01 - F	1.00 - E	0.97 - E
SR 92 WB Ramps/Cryer St. Industrial Blvd.	0.66 - B	0.92 - E	0.91 - E	0.89 - D
SR 92 WB Ramps/Sleepy Hollow Industrial Blvd.	0.55 - A	0.73 - C	0.73 - C	0.72 - C

- Construction of the Alameda Industrial Transportation Corridor.

- The addition of a third eastbound lane on West Winton Avenue from Hesperian Blvd. to Southland Place/Stonewall Avenue.

- Conversion of the existing through lane on the northbound Clawiter Road approach to an optional right turn-through lane. This would require removal of the right turn channelization island and relocation of the signal.

- A 4-lane section with a 64 foot curb-to-curb for Depot Road between Cabot Blvd. and Clawiter Road.

- Clawiter Road is also proposed for an ultimate 4 lane section.

- Formation of an assessment district by the property owners in the industrial area for implementation of roadway improvements in the site area (this is currently in process).

- Encouragement of car and van-pooling and transit ridership by the various industrial users locating at the site.

Significant Impacts

All alternatives would result in increased traffic and a decrease in the Level of Service on some area roadways.

IV F. AIR QUALITY

An air quality analysis was completed by M O'C Physics Applied and is contained in Appendix H of this EIR/EIS. The following summary is taken from the report contained in Appendix H.

Affected Environment

The air quality of Hayward is now characterized by the annual occurrence of only a few exceedences of State or Federal standards. Emissions of pollutants from the light industrial areas of the City west of Hesperian Boulevard are principally those of vehicular traffic, in contrast to the emissions of heavier industries a few miles to the north in San Leandro which are primarily from industrial processes.

Environmental Consequences

If the new developments which would be located on the site and elsewhere west of Hesperian Boulevard and north of SR 92 conform to the existing pattern of industrial development in Hayward, vehicular travel would be the primary source of new pollutant emissions in the area.

With the notable exceptions of locations along congested segments of SR 17 and near congested intersections at W. Winton Ave/Hesperian Boulevard and Depot Road/Clawiter Road, concentrations of carbon monoxide would be expected to decline in spite of the project and other proposed development in the area, provided that the reductions of automobile emissions mandated by the Clean Air Act continue as scheduled. Emissions of other automotive pollutants associated with travel to and from the area, including those principally responsible for smog formation, would also abate if controls are maintained.

Odors from the Oro Loma Sanitary District's sewage treatment plant could prove to be a nuisance for users of the project site.

Recommended Mitigation

Alternatives 1, 2a, and 3. Measures taken to reduce the number of vehicle trips to and from the site would reduce pollutant emissions. Basic improvements of the sewage treatment facilities could be required, should odor from the plant prove to be a nuisance. The production of dust by construction activities could be reduced by periodic watering and street sweeping.

Alternatives 4 and 5. None is required.

Significant Impacts

None.

IV G. NOISE

This noise analysis was completed by M O'C Physics Applied.

Affected Environment

The proposed project site is exposed to noise from three main sources: the Southern Pacific Railroad on the eastern boundary, the Metropolitan Oakland International Airport (MOIA) about five miles northwest, and the Hayward Municipal Airport, southeast of and adjacent to the site. The nearest roadways are West Winton Avenue and Cabot Blvd., both south of the site, and several local streets north of Bockman Canal that serve the industries north of the site. The proposed Alameda County Industrial Transportation Corridor, if approved and constructed, would run along the western site boundary and would substantially add to the existing noise levels at the site.

The Southern Pacific Railroad line immediately east of the site is used by 16 trains per day (2 passenger trains and 14 freight trains) (Cogswell, 1984). There are no plans for increased use of this line in the near future.

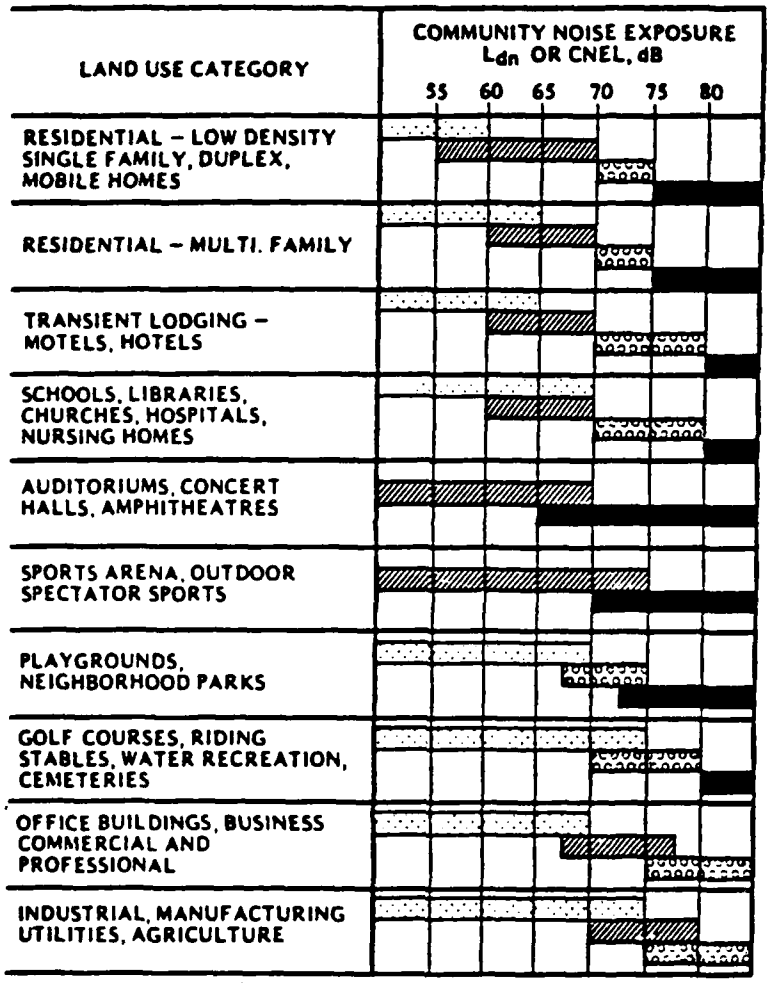
The Hayward Municipal Airport operates 24 hours per day and is used only by general aviation aircraft. The types of aircraft range from single seat aircraft to corporate jets. All planes leaving the main runway make a left turn approximately over the site. This turn is made to help minimize noise impacts on the residences in San Lorenzo Village. At the site area the planes are approximately 800 to 1500 feet above the site (Mendez, 1984).

The City of Hayward has adopted Land Use Compatibility Standards for Community Noise Environments from the California Office of Noise Control (Figure 9). The existing CNEL levels at the site are between 65 and 75 dB on the eastern side of the property and less than 65 dB on the western half of the property. Industrial developments are generally acceptable in areas having a Community Noise Exposure Level (CNEL) of 70 dB or less, and conditionally acceptable in areas with a CNEL between 70 and 75 dB.

Environmental Consequences

Alternatives 1, 2a, and 2b. It is not anticipated that local noise levels would be significantly increased as a result of the proposed project. Long term noise increases would be due primarily to auto and truck traffic associated with site development. The project would generate approximately 8,200 trips per day and an average daily traffic increase about 34 % over the existing conditions in traffic on West Winton at Hesperian Blvd.

Land Use Compatibility Standards for Community Noise Environments



INTERPRETATION

NORMALLY ACCEPTABLE

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

CONDITIONALLY ACCEPTABLE

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

NORMALLY UNACCEPTABLE

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE

New construction or development should generally not be undertaken.

SOURCE: CITY OF HAYWARD (1977)

FIGURE: 9

On-site traffic and other on-site activities are not expected to cause significant impacts at existing residencies. The closest residential areas are located 550 feet from the nearest site roadway. Trucks typically produce a dBA of 85 at a distance of 50 feet. Noise levels diminish by 4-6 dB per doubling of distance away from the machinery. Therefore at a distance of 550 feet, noise levels from truck traffic would be diminished by 17-21 dB. In addition, there would be buildings and landscaping between the roadway and the nearest residences, which would further reduce noise levels. Typical residences provide exterior-to-interior noise reductions of 15 dB with windows open and 25 dB with windows closed. Therefore, a residential unit located 550 feet from the site, at "worst case" (assuming no reductions for landscaping or buildings on site), would experience noise levels of 49 to 53 dBA with windows open and 39 to 43 dBA with windows closed. These levels are within the acceptable range for residential units as shown in Figure 9.

Construction and site preparation would also create noise impacts; however, these are considered short-term and temporary (until construction is completed).

Future users of buildings at the site would be subject to noise created on-site by industrial uses as well as noise from existing vehicle, airport, and railroad traffic.

Alternative 3. Noise impacts would be similar in type to those described for the proposed Alternative 1, but overall levels would be less due to the reduction in acreage and consequently less traffic. Impacts are not expected to be significant.

Alternatives 4 and 5. None are anticipated.

Recommended Mitigation

All Alternatives (except 4 and 5). No mitigating measures are required; however, the following measures could be implemented to minimize noise levels during construction:

- The use of electric equipment in preference to gas, diesel, or pneumatic machinery.
- Locating construction equipment as far from nearby noise-sensitive receptors as possible.
- Limiting hours of construction to between 7am and 6pm.
- Requiring all loading areas for lots 17 to 20 to be located west of the buildings to provide a buffer between the loading areas and residential units east of these lots.

Significant Impacts None.

IV H. PUBLIC SERVICES AND UTILITIES

Police

Affected Environment.

Police protection is provided by the City of Hayward Police Department, located at 300 West Winton Avenue. The site currently demands little to no police service.

Environmental Consequences

Alternatives 1, 2a, 2b, and 3. The proposed development and all alternatives resulting in site development would create additional demands for police service. However, industrial parks typically do not place much demand on police services (Cpt. Detmar, 1984). The types of calls which are associated with industrial development include vandalism and burglary both during construction and after project completion. The increased traffic generated by the site would add demands on existing traffic control personnel. These impacts are not expected to be significant.

Alternatives 4 and 5. These alternatives would not result in site development and therefore would not create new police service demands.

Recommended Mitigation

Alternatives 1, 2a, 2b, and 3. Proper lighting and burglar alarms both during and after construction would help deter burglaries and vandalism.

Alternatives 4 and 5. None are required.

Significant Impacts. None.

Fire

Affected Environment

The nearest fire station to the proposed site is located at 1401 West Winton Avenue, approximately 1.2 miles east of the site. The station maintains a staff of 6 firefighters, 7 days per week, 24 hours per day. Equipment at the station includes a 1250 gallon pumper and a ladder truck. Response time to the site is about 5 minutes. The backup station closest to the site is located at approximately Harder and Santa Clara Roads.

The Fire Department has a total of six stations within the City, with 30 personnel on duty at all times. Total staff for

the Department fluctuates around 120.

Environmental Consequences

Alternatives 1, 2a, and 2b. The proposed development would result in a increase in demand for fire protection and aid car responses from the West Winton and other nearby stations. The increased demand is not anticipated to be significant nor would it require additional equipment or personnel, according to the Fire Department (Baykin, 1984).

Alternative 3. The impacts of this alternative would be similar to those of the proposed action. Because of its reduced scale, it could require less service.

Alternatives 4 and 5. No impacts.

Recommended Mitigation

Alternatives 1, 2a, 2b, and 3. The water system would be sized to meet fire flow requirements. All buildings over 24,000 square feet are required by code to have sprinkler systems. The City is reviewing a proposed ordinance that would require all buildings over 10,000 square feet to have a sprinkler system. If the ordinance passes, the Department believes it will help to reduce fire damage.

Alternatives 4 and 5. None required.

Significant Impacts. None.

Maintenance

Affected Environment.

The City of Hayward provides roadway maintenance in the site area. Street cleaning occurs once every week or two.

Environmental Consequences

Alternatives 1, 2a, 2b, and 3. The on-site looped roadway would place additional demands on the City for maintenance service.

Alternatives 4 and 5. No impacts.

Recommended Mitigation.

None is required.

Significant Impacts. None.

Sewer

Affected Environment

The site is entirely within the Oro Loma Sanitary District. It does not currently generate sewage effluent and is not connected to the existing Oro Loma system.

The City of Hayward serves the area south of Sulphur Creek. The City has an 8-inch line extending beneath West Winton Avenue that serves Tract 4975 development just south of Sulphur Creek. The City's wastewater treatment plant is located at the west end of Enterprise Avenue, approximately one mile south and west of the proposed site. The plant is currently being upgraded with a new fluidized bed reactor process which is expected to be completed in the spring of 1985.

The plant does not currently meet federal and regional treatment standards and is operating under a modified discharge requirement permit until the fluidized bed reactor process is completed. When the upgrading is completed, the plant will be capable of processing 13.1 million gallons per day (mgd) without violating the federal and regional treatment standards.

The average daily flows in 1984 have been 10.5 mgd. The highest recorded peak flows occurred in January of 1983, when early flows reached 28 mgd. During peak months flows generally range between 11 and 12 mgd.

Environmental Consequences

Alternatives 1, 2a and 2b. The site would be served by a looped gravity system with 8- and 10-inch lines. The lines would cross Sulphur Creek at Cabot Blvd. and extend to the sewer lift station located south of Sulphur Creek (part of Tract 4975 development) where it would feed into the force main on West Winton Ave. The lift station has been sized during Phase 1 development to handle the sewage effluent from the Phase 2 development as well. Assuming an average industrial sewage generation factor of 2,100 gallons per acre per day and infiltration inflow at 500 gallons per acre per day, the completed development would generate approximately 348,400 gallons of effluent per day (City of Hayward, 1984). The entire site would be served by the City of Hayward and would therefore require annexation from the Oro Loma Sanitary District to the City. (See Section II C. of this EIR/EIS which discusses annexation review procedures).

The City's sewage treatment plant will be upgraded by spring of 1985. The proposed development could be completed by 1992. At that time the plant will have an excess capacity of 2.3 mgd during average flows. The completed project would constitute 2.6

percent of the plant's 13.1 mgd operating capacity. During peak flows the plant would be operating just under its capacity. The City has no plans for plant expansion beyond the fluidized beds and does not anticipate having any problems serving the proposed site (Lundgren, 1984).

Alternative 3. This reduced-scale alternative would require annexation to the City of Hayward for sewer service. It would result in 270,400 gpd of effluent. This alternative would use less of the reserve capacity of the treatment plant than the proposed plan.

Alternatives 4 and 5. No impact.

Recommended Mitigation

All Alternatives. None are necessary.

Significant Impacts None.

Water

Affected Environment

The proposed site is entirely within the East Bay Municipal Utility District (MUD) and does not currently have water service.

The City of Hayward serves the area just south of Sulphur Creek. The City has a supply contract in perpetuity for water from the San Francisco Hetch Hetchy System. The City also maintains a well field in its industrial area as an emergency reserve. The nearest lines are along Cabot Blvd. south of Sulphur Creek.

The East Bay Dischargers Authority (EBDA) maintains lines immediately northeast of the site which transport reclaimed wastewater to the Skywest Golf Course for irrigation. The reclaimed water has been treated to a coliform level of 23 mean particulate number (mpn) per 100 milliliters which complies with the State of California standards for landscape irrigation. No reclaimed water is currently used on-site.

Environmental Consequences

Alternatives 1, 2a, and 2b. The proposed site would require annexation from the East Bay MUD to the City of Hayward. (See Section II C. of this EIR/EIS which discusses annexation requirements.)

The site would be served by a 12-inch looped system which would cross Sulphur Creek at Cabot Blvd. and connect with the 12-inch line serving Tract 4975 development and currently

terminating at Cabot Blvd. and Sulphur Creek. With an average usage factor of 2100 gallons per acre per day (City of Hayward, 1984), the proposed development would require approximately 281,400 gallons of water per day. The City does not anticipate any problems with serving the site (Lundgren, 1984).

Reclaimed water from the EBDA would not be used on-site. It might be used, however, to supplement the water flows into the two mitigation parcels A and B. (See storm drainage discussion, below)

Alternative 3. This alternative would also require annexation. It would require 218,400 gallons of water per day. No problem in meeting this level of service is anticipated.

Alternatives 4 and 5. No impacts anticipated.

Recommended Mitigation

All Alternatives (except 4 and 5). Water conservation fixtures should be installed at the time of project construction.

Alternatives 4 and 5. None are required.

Significant Impacts None.

Storm Drainage

Affected Environment

The City of Hayward and the Alameda County Flood Control and Water Conservation District (ACFCWCD) are responsible for storm drainage in the site area. The site does not contain improved storm drainage lines. Sulphur Creek on the southern site boundary is part of the county flood control system and carries runoff from the Municipal Airport and residential areas east of the site, as well as from areas south of the site including the Tract 4975 development.

Environmental Consequences

Alternative 1. The proposed plan would include 15- to 48-inch storm drainage lines which would be gravity-fed to the southwest part of the site where one line would cross Sulphur Creek to an existing lift station on the south side of the creek. This lift station is part of Tract 4975 development and is sized to serve the proposed Tract 5167 site as well. As part of the proposed action, the lift station would be retrofitted to divert water to both of the proposed mitigation sites. During winter months, stormwater would be pumped from the lift station onto the two mitigation parcels. During the summer and fall, inflow of water from Sulphur Creek would be needed to maintain the

mitigation sites at the same water levels as during the winter months.

The project sponsor has an optional agreement with EBDA to use reclaimed wastewater for the HARD parcels if necessary, (particularly in the low flow months to maintain the projected water levels on both parcels). The project sponsor does not propose to use reclaimed water for irrigation purposes on the proposed Tract 5167 site. (See Description of Proposal, Hydrology section, and Appendix C of this EIR/EIS for a discussion of the proposed drainage plan for the two mitigation parcels).

Maintenance of the system would be the responsibility of the ACFCWCD. The ACFCWCD would collect a one-time maintenance fee of $150,000 from the project proponent. The District would then assume full ownership and maintenance responsibilities associated with the storm drainage system in perpetuity.

Alternative 2a. This alternative would divert storm runoff to one of the two mitigation parcels. This would result in a modified water regime on one of the two mitigation parcels and a payment in-lieu fee. The system on the proposed site would be the same but the off-site system would depend on which mitigation parcel were selected for enhancement.

Alternative 2b. Under this alternative, only the proposed Tract 5167 development site would be served with a drainage system. The mitigation parcels A and B would remain unchanged.

Alternative 3. The impacts of this alternative would be similar to those of Alternative 1; however, the pump station would not require retrofitting to divert the storm runoff to the mitigation parcels.

Alternatives 4 and 5. None are anticipated.

Recommended Mitigation

Alternatives 1, 2a, 2b, and 3. The proposed enhancement plan for the two mitigation parcels A and B would route storm drainage through these parcels and reduce the levels of pollutants discharged into the Bay.

Significant Impacts None.

IV I. SOCIOECONOMICS

Business and Employment

Affected Environment

The proposed site is within one of Hayward's predominantly industrial areas, removed from the City's residential and retail areas. The City of Hayward has experienced rapid industrial growth over the past 20 years. Since 1965 the number of industrial firms located in the City increased by nearly 300% (as of 1978). The proposed site is in the industrial area west of Hesperian Blvd. which generally includes Census Tracts 4371 and 4372. The average annual industrial growth rate in the area west of Hesperian Blvd. was about 63 acres per year between 1966 and 1971, and almost 58 acres per year between 1971 and 1978.

The City's industrial base includes a wide range of wholesale trade, services, construction, transportation and miscellaneous manufacturing industries. There are over 300 manufacturing plants in the City. Leading classes of products include: computers, electronics, bus manufacturing, can and glass containers, postal meters, beverages, and machine equipment. Approximately one quarter of the industrial work force is employed in the manufacture of electronic equipment, instruments and chemicals (R & D firms) (City of Hayward, 1981). This is comparable to Alameda County's work force distribution which also shows that approximately 20% of the employment was in business services (including R & D firms).

The City experienced a large and rapid population growth rate between 1960 and 1970 of 2.8% per year but growth has slowed in recent years to 1% per year between 1980 and 1984. Current population is estimated at 98,000 and the labor force is estimated at approximately 53,500. In July of 1984 approximately 50,800 residents of Hayward were employed and 3900 were unemployed, for a 7.1% unemployment rate. (Actual employment and unemployment figures may be higher as these numbers reflect only those persons reporting to Employment Security.) The City's unemployment rate has fluctuated slightly over the past four years from 6.7% in 1980 to 9% in 1983 and to 7.1% for the first half of 1984. The City's unemployment rate has been higher than that of Alameda County as a whole over the past 5 years.

Environmental Consequences

Alternative 1, 2a, and 2b. The proposed project is estimated to result in approximately 4,040 employees. This estimate was derived using the assumption that 35% of the site would be developed with research and development companies (R & D), and 65% of the site with manufacturing and light industry.

In an industrial development and employment survey conducted by the City of Hayward in 1981, the City found that about one quarter of the work force was R & D, with an average employment density of 62 employees per acre. Without R & D industries the average density was about 13 employees per acre (Hayward Industrial Commission, 1981).

Recent surveys of "high tech" (R & D) industries in the Santa Clara and San Jose areas indicate that new R & D industries range in employment densities from 60 to 200 persons per acre (Dave Powers, 1984). The high figure of 200 employees per acre is a result of several recently proposed mid-rise structures (6 - (6 - 10 stories) in San Jose which would be occupied by R & D users. In the past most R & D users have been in 1- to 2-story structures. The mid-rise R & D structures appearing in the San Jose market are not expected on the proposed site due to site characteristics such as fill requirements and the nature of surrounding comparable land uses.

The City of Hayward will be experiencing more R & D development in the future than the current 25% of the industrial market. It was therefore assumed for a "worst case" analysis that 35% of the proposed site would contain R & D type users and 65% would be general light industrial users. Using the City's estimate of 13 employees per acre for light industrial and 62 employees per acre for R & D, the proposed site would result in 2,908 R & D and 1,132 light industrial jobs. This is an average of about 30 employees per gross acre. (Without R & D users the site would generate approximately 1,716 employees).

This mix of manufacturing and R & D users is comparable to Alameda County's labor force projections by employment type which indicate that of all new jobs in manufacturing and business services (R & D) between 1984 and 1985, 30% will be in business services (R & D) and 70% in other manufacturing.

The proposed development is expected to attract the majority of its employees from the City and County as a whole. Given the number of unemployed persons within the County (56,000 in 1982, 51,700 in 1983 and an estimated 38,500 in 1984), the County's labor force is expected to be adequate to supply the labor for this development. In 1980 approximately 75% of employed Alameda County residents worked in Alameda County. With the same commuting pattern, this development would result in approximately 3,030 employees who would live within the County and 1,010 who would commute from other counties in the Bay Area to the site.

This development is expected to place some demand on the local housing market from those commuters who might eventually relocate closer to their jobs; however, such demand is not expected to be significant. Ultimate development of the project could help to reduce the City's and County's unemployment rates.

Alternatives 2a and 2b would result in virtually the same impacts as would the proposed plan.

Alternative 3. This alternative is a reduced-scale proposal that would result in fewer employees than the proposed project. It would result in 2,257 R & D employees and 879 other industrial employees for a total of 3,136 employees. Again, the County's labor supply should be adequate to fill these jobs, and no significant impact on the local housing supply is expected.

Alternatives 4 and 5. Under alternatives 4 and 5 (purchase by a public agency and no action), the site would remain undeveloped. There would be no employment opportunities created and no change in the local labor market or housing demand. These alternatives would not assist in reducing the City's or County's unemployment rates.

Fiscal

Affected Environment

Currently the proposed site is partly within the City and partly within the County. The property is within 3 tax code areas: one within the unincorporated area, and two within the City. In 1984-85 the property will generate $20,970 in property taxes. The property is currently undeveloped and requires virtually no public services or utility costs.

Environmental Consequences

Alternatives 1, 2a, and 2b. Assuming the northern portion of the site would be annexed to the City of Hayward, the property taxes would be assessed at a rate of about 1.165% (1984 rate for tax code area 25-060). The project sponsor estimates the assessed land value of the site at $23.7 million after the infrastructure improvements are completed, or approximately $176,000 per acre. The land value alone would generate $276,105 in property tax revenues. The project sponsor would sell the lots to builders; the types of buildings and projected assessed values are not known at the present time.

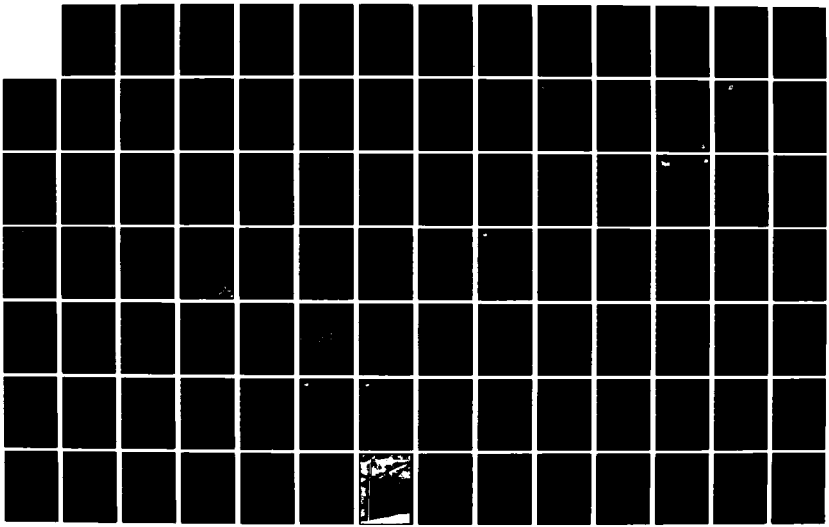
Other revenues generated by site development would include: business licenses, utility franchise tax, utility users tax, motor vehicle in-lieu tax, and permit fees.

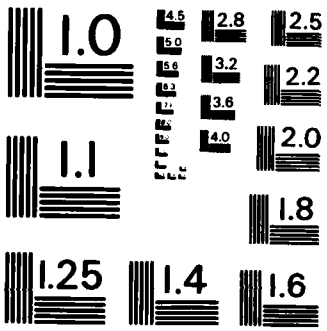
The proposed project would create an incremental increased demand for services and utilities; however, as discussed in the Services and Utilities Section (IV H) of this document the demands are not expected to be significant. Industrial parks do not typically generate high service demands.

The property tax revenues of the proposed development plus

AD-A161 404 DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT PROPOSED..(U) CORPS OF ENGINEERS SAN FRANCISCO CA SAN FRANCISCO DISTRICT OCT 85 2/4

UNCLASSIFIED F/G 6/6 NL





MICROCOPY RESOLUTION TEST CHART

NATIONAL BUREAU OF STANDARDS - 1963 - A

other fees should more than cover service costs associated with site development and long term maintenance.

In addition to property tax revenues, the proposed development would also enhance the two mitigation parcels A and B. The enhancement plan is estimated at $450,000. Without this funding source, it is unknown whether either parcel could ever be enhanced using public money.

Alternatives 2a and 2b would result in slightly different fiscal effects. Under these alternatives the developer would improve one or neither of the mitigation parcels and would instead pay a fee in-lieu to the Coastal Conservancy or other agency capable of using the funds for a mitigation land bank or other wetland enhancement elsewhere. (See discussion in the alternative section under Alternative 2a and 2b).

Alternative 3. This alternative would result in the same types of fiscal effects as Alternative 1; however, revenues from property and building taxes would be lower due to the smaller gross acreage of development which would generate approximately $214,300 in property tax revenues. This alternative is not expected to result in significant fiscal effects.

Alternatives 4 and 5. No effects would result from either of these alternatives. The current property taxes would likely remain the same and could actually decrease under Alternative 4 if the site were bought by a tax-exempt public agency.

Recommended Mitigation. None is required.

Significant Impacts None.

IV J. CULTURAL RESOURCES

Affected Environment

The proposed site is located wholly within an area surveyed as part of the Historic Property Survey Report for the Alameda County Industrial Transportation Corridor. An archaeological and historical literary search and site survey were performed in 1978 as part of this survey effort. The entire site was covered by an archaeological reconnaissance crew who walked transects of the site and other sites in the proposed road corridor. No prehistoric remains of significance were encountered during the course of the survey and no record was found of historic or prehistoric sites within the survey area.

In January of 1985, the Northwest Information Center at Sonoma State University conducted an archaeological records search for the proposed site. The search results were that there were no National Register Properties, California Inventory of Historic Resources sites or California Historical Landmarks within or adjacent to the project area. The site is therefore determined to be of low archaeological sensitivity and further archaeological study is not recommended.

Environmental Consquences

Alternatives 1, 2a, 2b, and 3. No impacts are expected for any of the alternatives because archaeological and/or historic resources are not expected on the site.

Alternatives 4 and 5. Under these alternatives the sites would remain in their current undeveloped states and no impacts would occur to unknown archaeologic or historic resources.

Recommended Mitigations

Alternatives 1, 2a, 2b, and 3. In the event that archaeological and/or historical remains are found during construction, work in the immediate vicinity should be temporarily discontinued and a qualified archaeologist should be notified to examine the find and recommend appropriate action.

Alternatives 4 and 5. None are required.

Significant Impacts

None.

V. SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Significant environmental effects which can be reduced to a level of insignificance through mitigation have been identified in sections IV A - I of this EIR/EIS.

The proposed project (Alternative 1) and Alternatives 2a, 2b, and 3 would result in some unavoidable significant adverse impacts which cannot be mitigated to a level of insignificance, as follows:

Vegetation and Wildlife

Alternatives 1, 2a, and 2b. 90 acres of seasonal salt marsh habitat and 44 acres of grassland habitat would be eliminated. This loss would result in reduction of the capacity of the land to support the diverse and abundant wildlife that currently uses the property.

Alternative 3. The effects under this alternative would be similar to Alternative 1 except that about 60 acres of seasonal marsh would be eliminated.

Alternatives 4 and 5. None are anticipated.

City of Hayward. The cumulative impact of the development would be a reduction of the Hayward shoreline wetlands by approximately 2% (Section IV B). The destruction of wetlands would subsequently eliminate a portion of the habitat available to the wildlife in the area.

Regional Context. The cumulative impact of this development combined with the other proposed projects in the region (Table 1) would substantially alter the Southeast Bay shoreline and would reduce the remaining wetlands by approximately 65% (Section IV B)

Traffic

All Alternatives. All alternatives would result in an increase in traffic levels on surrounding roadways. Alternatives 1, 2a, 2b, and 3 would result in slightly more traffic on area roadways than Alternatives 4 and 5.

VI. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Land Use

Alternatives 1, 2a, 2b, and 3 would all result in a commitment of the site or portions of the site to industrial uses, which would, for the short-term, preclude any other land uses on the site.

Vegetation and Wildlife

The proposal (Alternative 1) and Alternatives 2a, 2b, and 3 would result in short-term use of the site for industrial purposes. Alternatives 1 and 2b could also improve long-term productivity by enhancing the wetland habitat on one or both HARD parcels.

Alternatives 2a and 2b could result in the purchase of wetlands elsewhere through payment in-lieu to a land bank. This could result in long-term productivity of a wetland site elsewhere.

Water Quality and Storm Runoff

Surface water runoff would contain pollutants typical of urban development including oil and grease. These water quality impacts could be considered long-term.

Traffic

Alternatives 1, 2a, 2b, and 3 would contribute to the long-term cumulative impacts of increased traffic and congestion.

Air Quality

Short-term air quality pollutant levels would increase during site preparation and construction of Alternatives 1, 2a, 2b, and 3. However, regional long-term pollution concentrations are not expected to be significantly increased as a result of the project.

Socioeconomics

The advantage or short-term gains of Alternatives 1, 2a, 2b, and 3 can be expressed in terms of increased revenues and marginal operating profit to the City of Hayward, increased employment opportunities, and fees to improve the two HARD parcels and/or fees-in-lieu paid to an agency for a land bank fund.

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES RESULTING FROM APPROVAL OF THE PROPOSED ACTION

The following irreversible commitments of resources would be involved in implementing Alternatives 1, 2a, 2b, and 3.

- Construction would require a commitment of natural resources, manpower, energy resources, and capital.
- Resources specific to the site (i.e., undeveloped wetland, wildlife habitat) would be lost for the life of the development.
- The potential for tidal marsh restoration of the entire site (approximately 134 acres) would be lost (for Alternatives 1,2a, and 2b).

Tidal marsh restoration would entail acquisition of the site by a public agency (Alternative 4) and would result in the commitment of considerable funds for acquisition.

VIII. GROWTH INDUCING IMPACTS

The proposed development is within an area zoned and designated for industrial use by both the City of Hayward and Alameda County. Development of the site would result in an incremental demand on commercial facilities which would serve the site employees, (i.e., restaurants, delicatessens, and gas stations). This may result in some new commercial uses in the general site area, however, a significant change is not expected.

As discussed in the Socioeconomic Section (IV H) of this EIS/EIR, the local labor force is expected to be sufficient to fill most employment created on site. There may be some employees who would move into the area to be close to their employment and thus induce housing growth. However, this number is not expected to be a significant growth-inducing factor.

IX. PUBLIC INVOLVEMENT AND DISTRIBUTION LIST

A. Public Involvement

Public involvement in the preparation of the EIR/EIS has been solicited by the Corps of Engineers and the City of Hayward through the actions described below.

March 13, 1984	Notice of Preparation of a Draft EIR issued by the City of Hayward inviting participation in the scoping process.
June 7, 1984	Public Notice No. 1548E49 issued by the Corps of Engineers for the Marathon U.S. Realties Permit application.
June 27, 1984	Notice of Intent to prepare a Draft EIR/EIS published in the Federal Register by the Corps to invite participation in the scoping process.
July 18, 1984	Joint Corps of Engineers/City of Hayward public meetings held in Hayward City Hall at 2:00 p.m. and 7:00 p.m.

B. Distribution List

<u>Federal</u>

Department of Agriculture, Soil Conservation Service
Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service
Department of Energy
Department of Health and Human Services
Department of Housing and Urban Development
Department of Interior, Fish and Wildlife Service
Department of Interior, Geological Survey
Department of Interior, Heritage, Conservation and Recreation Service
Department of Interior, Office of Environmental Project Review
Department of Transportation, Coast Guard Twelfth District
Environmental Protection Agency
Navy Department, Mare Island Naval Shipyard

State

State Clearinghouse, for

Office of Planning and Research
Resources Agency
Department of Fish and Game
Department of Transportation, CalTrans
Water Quality Control Board, San Francisco Bay Region
Air Resources Board
Department of Boating and Waterways
Office of Historic Preservation

Regional and County

Alameda County Flood Control and Water Conservation District
Alameda County Health Department
Alameda County Local Agency Formation Commission
Alameda County Mosquito Abatement District
Alameda County Planning Department
Association of Bay Area Governments
Bay Area Air Quality Management District
Bay Conservation and Development Commission
East Bay Dischargers Authority
East Bay Regional Parks District
Metropolitan Oakland International Airport
Oro Loma Sanitary District
Regional Water Quality Control Board, San Francisco Bay Region

Local

Hayward Planning Commission
Hayward City Council
Hayward Chamber of Commerce
Hayward Metropolitan Airport
Hayward Area Recreation and Park District
Hayward Area Shoreline Planning Agency
Pacific Telephone, Hayward Area Office
Pacific Gas & Electric Company, Hayward Area Office
San Lorenzo Unified School District

Groups

California Waterfowl Association
Citizens for Urban Wilderness Areas
National Audubon Society - Olhone Chapter
San Francisco Chronicle
San Lorenzo Homeowners Association
Save San Francisco Bay Association
Skywest Golf Course
Southern Pacific Transportation Company

Private Parties

Marathon U.S. Realties, Inc.

Copies are available at the following places:

City of Hayward Planning Department, City Hall
City of Hayward Public Library
San Francisco Public Library
University of California at Berkeley Library
U. S. Army Corps of Engineers, San Francisco District Library

X. LIST OF PREPARERS

Lead Agencies

U.S. Army Corps of Engineers
Ken Maynard, District Engineer
Les Tong, EIS Coordinator
Vicki Reynolds, Biologist

City of Hayward
Ron Gushue, EIR Coordinator

EIR/EIS Consultants

TRS Consultants, Inc.
(Prime Consultant: Authors)
Jill Shapiro, Ph.D.: Principal-In-Charge
Ellen LaPorte: Project Manager
Nancy Olmsted: Natural Resource Manager

Shapiro and Associates, Inc.
(Habitat Evaluation and Wetlands Analysis)
Marc Boule: Wetlands Biologist

John J. Forristal, Inc.
(Consulting Traffic Engineer: Traffic Analysis)

Harvey and Stanley Associates, Inc.
(Habitat Evaluation Assistance and Wetlands Analysis)
H. Thomas Harvey, Ph.D.: Wetland Ecologist
Ronald Duke: Wildlife Biologist

M O'C Physics Applied
(Air Quality Analysis)
Michael J. O'Connor, Ph.D.

Project Engineers and Consultants

M & M Consultants
The SP Group
(Site Layout, Storm Drainage, Utilities)

Philip Williams & Associates
(Hydrology and Wetland Enhancement of HARD Parcels)

XI. REFERENCES

Personal Communications

Alameda County Flood Control and Water Conservation District. Mr. Fred Wolin and Mr. Ralph Johnson.

Alameda County Local Agency Formation Commission. Mr. Bruce Kern.

Alameda County Planning Department. Mr. William Allen, Planner.

Bay Area Air Quality Management District. Ms. Sally Freedman and Mr. Irwin Mussin.

Bay Conservation and Development Commission. Ms. Nancy Wakeman.

Bay Planning Coalition. Ms. Ellen Johnck, Executive Director.

California Department of Fish and Game, Region III. Mr. Paul Kelly, Wildlife Biologist for the San Francisco Bay Area.

California State University at Hayward. Dr. Howard Cogswell, Professor of Biology.

East Bay Regional Parks District. Mr. Peter Koos, Director.

_____. Mr. Tom Lindenmeyer, Senior Biologist.

Hayward Air Terminal. Mr. Dave Mendez, Operations Director.

Hayward Area Shoreline Planning Agency. Ms. Barbara Schockley.

Hayward Chamber of Commerce. Mr. Jim Aruajo, Manager.

Hayward Fire Department. Mr. John Baykin, Assistant Fire Marshall.

Hayward Planning Department. Mr. Ron Gushue, Civil Engineer.

Hayward Police Department. Captain Detmar.

Hayward Public Works Department. Mr. Jim Lundgren, Director.

Marathon U. S. Realties, Inc. Mr. Jim Christian.

Port of Oakland. Mr. Keith Quan, Planning Division - Environmental Section.

Powers, Mr. David, Industrial Development and Environmental Specialist.

San Francisco Bird Observatory. Mr. Peter Perrine, Director.

San Jose Planning Department. Mr. Sam Jones, Planner.
San Leandro, City of. Mr. Martin Vitz, Planning Department.

Save San Francisco Bay Association. Mr. Barry Nelson, Director.

Southern Pacific Railroad Company. Mr. W.B. Cogswell, Superintendent.

_____. Mr. Bob McLaughlin.

Trammel Crow. Mr. Peter Snug.

The Trust for Public Lands. Kathyrn Zavitz.

U.S. Army Corps of Engineers - San Francisco District. Ms. Vicki Reynolds, Regulatory Functions.

U.S. Fish and Wildlife Service. Ms. Margaret Kohl, Permitting Director. Sacramento, CA.

_____. Mr. Roy Lowe, Wildlife Biologist. National Wildlife Refuge, Newark, CA.

_____. Ms. Ruth Pratt, Wildlife Biologist, Sacramento, CA.

Documents

Adamus, P.R., 1982. A Method for Wetland Functional Assessment U.S. Department of Transportation. Federal Highway Administration, Washington D.C.

Alameda County Planning Department, 1981. General Plan, Alameda County, CA.

Alameda County Public Works Department, 1979. Historic Property Survey Report for the Alameda County Industrial Transportation Corridor Environmental Impact Statement.

Association of Bay Area Governments, 1977. Water Quality Management Plan.

_____, 1982. The Use of Wetlands for Water Pollution Control. National Technical Information Service, U.S. Department of Commerce, Springfield, VA.

_____, 1982. Bay Area Air Quality Plan.

Bay Conservation and Development Commission,1983. San Francisco Bay Plan.

_____, 1982. Diked Historic Baylands of San Francisco Bay: Findings, Policies, and Maps.

California Employment Development Department, 1984. Annual Planning Information Alameda County 1984-1985.

Hayward, City of, 1975. Hayward Conservation and Environmental Protection Study.

_____, 1976. Shoreline Planning Program.

_____, 1977. Noise Element Policies Document. City of Hayward Planning Department.

_____, 1980. General Policies Plan.

_____, 1982. Marathon Industrial Development Draft and Final Environmental Reports.

_____, 1984. Community Economic Profile for Hayward.

Hayward Industrial Commission, 1981. Hayward Industrial Development and Employment Survey.

Jones and Stokes, 1979. Protection and Restoration of the San Francisco Bay for California Department of Fish and Game.

Josselyn, M. (ed.), 1982. Wetland Restoration and Enhancement in California. California Sea Grant College Program, La Jolla, CA.

Josselyn, M.N. and B.F. Atwater, 1982. "Physical and Biological Constraints of Man's Use of the Shore Zone of the San Francisco Bay Estuary" from San Francisco Bay Use and Protection. Pacific Division of the American Association for the Advancement of Science, Golden Gate Park, CA.

Mills-Carneghi-Bautovich, Inc., 1985. Alternative Site Study Marathon Industrial Park. Hayward, CA.

U.S. Fish and Wildlife Service - U.S. Department of the Interior, 1981. U.S. Fish and Wildlife Service Mitigation Policy - Federal Register. Vol. 46, No 15, Friday, January 23, 1981.

_____, 1984. Letter to Jim Christian of Marathon U.S. Realties, Inc. dated April 17, 1984, regarding Regional Wetland Planning Alameda County.

APPENDIX A:

COMMENTS RECEIVED ON THE PUBLIC NOTICE

Ken

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

JUL 17 1984

District Engineer
San Francisco District
U. S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

Re: Public Notice No. 15483E49 7 June 1984
Marathon U. S. Realties, Inc.

Dear Sir:

This is in response to the Corps of Engineers Public Notice referenced above, pertaining to an application to the Department of the Army for a permit to discharge dredged or fill material into waters of the United States in accordance to Section 10 of the River and Harbor Act and Section 404 of the Clean Water Act.

The proposed project is to develop an industrial-commercial business center in the City of Hayward. The public notice states that approximately 80% of the 134-acre site are wetlands. We have reviewed the proposed activities in accordance with the regulations 40 CFR 230 promulgated pursuant to Section 404(b)(1) of the Clean Water Act, and have determined that they do not meet the guidelines for discharge of dredged or fill material at 40 CFR 230.10(a)(3). The regulations require that the discharge of dredged or fill material into wetlands shall not be permitted unless: 1) the activity associated with the discharge is water dependent (i.e., require access or proximity to or siting within the wetland in order to fulfill its basic purpose), or 2) the applicant demonstrates that there are no practicable alternatives to the proposed discharge.

Mitigation for adverse impacts are considered only after the above noted demonstration has been made. The public notice states that the applicant proposes to mitigate for adverse impacts by enhancing two nearby sites as seasonal wetlands. Based on our site visit and our discussions with state and federal resource agencies, we understand that the proposed mitigation sites are already functioning as valuable seasonal wetlands. As such, the mitigation proposal does not appear to be adequate to offset the adverse impacts that would result from the project and therefore does not comply with the regulations at 40 CFR 230.10(d).

Based on our review of this public notice and our determination that the project, as proposed, does not comply with the 404(b)(1) guidelines, we recommend that the permit be denied. We understand that an Environmental Impact Statement (EIS) will be prepared for this project. EPA will provide additional comments following our review of the EIS which satisfactorily addresses all of the factors identified in the 404(b)(1) guidelines at 40 CFR 230.

Questions on this matter should be directed to Ms. Lily Wong at (415)974-8310 or FTS 454-8310.

Sincerely yours,

Richard A. Coddington

Frank M. Covington
Director, Water Management Division

cc: CDFG - Yountville
CRWQCB - San Francisco
USFWS - Sacramento
NMFS - Tiburon

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

24 SEP 1984

Edward M. Lee, Jr., Colonel
District Engineer
San Francisco District, Corps of Engineer
211 Main Street
San Francisco, California 94105

Dear Colonel Lee:

The Environmental Protection Agency (EPA) has reviewed the Notice of Intent for the project titled MARATHON DEVELOPMENT PROJECT, REGULATORY PERMIT APPLICATION NO. 15483E49, ALAMEDA COUNTY, CALIFORNIA.

Our review is based on the Council on Environmental Quality (CEQ) Regulations (40 CFR Parts 1500-1508). We have the enclosed comments to offer at this time.

We appreciate the opportunity to comment on the proposed project. Please send five copies of the Draft Environmental Impact Statement (DEIS) to this office at the same time it is officially filed with our Washington, D.C. office. We also request notification of any public hearings to be held on this project. If you have any questions, please contact Patrick J. Cotter, Federal Activities Branch, at (415) 974-0948 or FTS 454-0948.

Sincerely yours,

Loretta Kahn Barsamian, Chief
Federal Activities Branch

Enclosures (6 pages)

404(b) Permit Comments

As stated in the NOI, a Section 404 permit will be required. EPA will review the project for compliance with Federal Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR 230), promulgated pursuant to Section 404(b)(1) of the Clean Water Act. Our evaluation would focus on the maintenance of water quality and the protection of wetlands, fishery and wildlife resources. If applicable, the results of further study should indicate the amount of dredging required, potential disposal sites, types of fill material to be utilized, and quantities to be discharged into waters and wetlands that fall under Section 404 jurisdiction.

Please see the enclosed letter from Frank M. Covington, dated 7/17/84, that is addressed to the District Engineer expressing EPA's initial concerns regarding this project.

General Comments

1. The DEIS should rigorously explore and objectively evaluate all reasonable alternatives and, for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated (40 CFR 1502.14).

2. The DEIS should clearly explain the relationship between the project's cost benefit analysis and any analyses of unquantified environmental impacts, values, and amenities. (40 CFR 1502.23).

Water Quality Comments

For each alternative the DEIS should:

1. Demonstrate the proposed project's consistency with Executive Order 11988 titled "Floodplain Management," dated May 24, 1977.

2. Completely describe current drainage patterns in the project locale.

3. Assess how altering drainage patterns and characteristics will affect drainage hydrology, surface runoff, erosion potential, soils, vegetation, and therefore water quality of the Bay.

4. Discuss the project's conformity with state and local water quality management plans and Federal-state water quality standards.

5. Evaluate likely changes in the salinity of ground water or surface water resulting from this project.

6. Evaluate the potential for increased toxicity in the Bay due to either discharge to the streams or runoff from surrounding areas.

7. Discuss the present capacity of the existing sewage conveyance and treatment system and the potential sewage flow increases as a result of the project. Assess the impact of increased flows on the existing system, especially on the system's ability to meet National Pollutant Discharge Elimination System (NPDES) or state-issued permit conditions.

8. Identify appropriate mitigation measures to protect water quality both during and after project construction.

Ground Water Comments

For each comment the DEIS should:

1. Describe current ground water conditions in the project locale. Assess all likely changes in ground water resulting from this project, such as water table or chemical composition changes, and provide appropriate mitigation measures.

2. Address primary and secondary impacts to soils, riparian habitat and other vegetation resulting from ground water withdrawal.

3. Identify any potential impacts to surface and ground water quality as a result of construction-related activities. Special attention should be given to erosion problems.

Air Quality Comments

The DEIS should provide the following information for each alternative:

1. Based on current emissions inventory, provide worst case ambient air quality levels for carbon monoxide, nitrogen dioxides, ozone, and total suspended particulates.

   Ambient air quality levels shouls be compared to the NAAQS including data for the following:

   a. Existing conditions,

   b. Conditions at the estimated time of completion (ETC),

   c. Conditions from ETC until the predicted year of attainment of the National Ambient Air Quality Standards (NAAQS).

2. Discuss the likelihood of toxic air emissions from the "high tech" firms expected to locate in the project area and mitigation proposed to eliminate possible problems.

3. Provide the following information for all major access roads and intersections in the project vicinity from ETC until the predicted year of NAAQS attainment:

   a. Projected average daily traffic (ADT),

   b. Projected volume to capacity ratios,

   c. An evaluation of the potential for violation of CO National Ambient Air Quality Standards (NAAQS) using techniques given in Carbon Monoxide Hot Spot Guidelines EPA-450/3-78-033, -034, -035, -036, -037, -040 (August, 1978). Where these procedures are inappropriate or where further analysis is warranted, use Guidelines for Air Quality Maintenance Planning and Analysis Volume 9 (Revised): Evaluating Indirect Sources EPA-450/4-28-001 (September, 1978). In most cases the 8-hour standard is the controlling factor.

4. Alameda County has been designated as a nonattainment area for carbon monoxide and ozone. The DEIS should document contact with the Association of Bay Area Governments (ABAG) regarding:

   a. Whether project emissions have been considered in formulating the Nonattainment Area Plan (NAP), and are consistent with emission reduction requirements of the State Implementation Plan (SIP),

   b. Whether the project is consistent with the transportation control measures in the SIP and the Regional Transportation Plan,

   c. Whether project-associated population growth is consistent with the population projections in the NAP.

   Since conformity procedures (Section 176(c) of the Clean Air Act) have been adopted by ABAG, the conformity finding should be presented in the DEIS.

5. Discuss the existing mass/public transit available in the project area. Also, analyze potential mass/public transit options and identify means to encourage their use.

Endangered Species Comments

EPA recommends that the DEIS discuss the project's impact on State and Federally listed rare, threatened and endangered species and species proposed for such listing. The impacts of the project on the designated critical habitat of any listed or candidate species should also be addressed, i.e., whether critical habitat would be degraded, harmed or destroyed.

Hazardous Waste Comments

1. The DEIS should determine if any hazardous wastes, as defined in 40 CFR 261, are generated as a result of this project. If so, the generation and transportation, as well as the treatment, storage or disposal of those wastes, are regulated under the Resource Conservation and Recovery Act (RCRA). RCRA regulations are detailed in 40 CFR 260-267, 270-271 and 124. The DEIS should discuss means to comply with RCRA regulations.

2. New facilities used for treatment, storage or disposal of wastes must obtain a permit prior to construction. Such facilities would be required to comply with applicable design standards (40 CFR 264) in order to obtain a permit. The DEIS should indicate how this project will meet permit requirements.

3. The DEIS should indicate that in the event of a release of a hazardous material into the environment, including air, water, soil, or groundwater, or of an oil spill to waters of the U.S. or tributaries thereto, the responsible party shall immediately inform the National Response Center at 800-424-8802, providing details of the incident and responsive measures taken. Local U.S. Coast Guard or Environmental Protection Agency offices may be notified in lieu of the National Response Center.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Division of Ecological Services
2800 Cottage Way, Rm. 1803
Sacramento, California 95825

June 26, 1984

District Engineer
Corps of Engineers, San Francisco District
211 Main Street
San Francisco, California 94105

Subject: PN No. 15483E49, Marathon U.S. Realties, San Francisco, CA; South San Francisco Bay

Dear Sir:

We have reviewed the public notice dated June 7, 1984 regarding a proposal by Marathon to fill a 134-acre site for the development of an industrial-commercial center and to develop two nearby sites (90 acres) as seasonal wetlands. An Environmental Impact Statement will be prepared for this project.

These comments have been prepared under the authority, and in accordance with the provisions, of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended, 16 U.S.C. 661 et seq.).

The 134-acre project site contains a minimum of 90 acres of seasonal saltmarsh of high wildlife value. The site provides feeding and resting habitat for migratory shorebirds and waterfowl and nesting habitat for several of these species including black-necked stilts, killdeer, mallards and cinnamon teal. Seasonal wetlands, such as occur on the project site, are an integral part of the overall Bay wetland ecosystem. They provide wildlife values that most Bay tidal marshes do not have, such as feeding habitat for shorebirds during high tides, shelter for all wildlife during high tides and storms, and, as mentioned above, nesting habitat for waterfowl and shorebirds.

Seasonal wetlands also provide an abundance of food resources for waterfowl and shorebirds when migratory birds are wintering or traveling through the Bay area. These seasonal resources supplement food resources found in tidal wetlands at a time of year when additional food resources are critical to supporting higher numbers of resident wildlife. Although these wetlands may fluctuate in value from year to year depending on rainfall, their value over time may play a distinct role in long-term maintenance of population levels of some species of migratory birds.

The 35- and 55-acre parcels that the applicant proposes to enhance to offset project impacts are owned by the Hayward Area Recreation District (HARD), a public agency. It is our understanding that both parcels are already dedicated as permanent open space. Similar to the project site, the HARD parcels are also seasonal wetlands with high existing wildlife values. Improvement of habitat values on these parcels (totaling 90 acres) will not adequately offset the direct loss of 90 acres of valuable seasonal wetland on the project site and the indirect effects of the project on adjacent wetlands. We also question the value of the applicant's proposal to pump storm water runoff from the project site business center to the 35-acre HARD parcel. Stormwater from developed areas, roads and parking are frequently high in heavy metals and hydrocarbons which are toxic to fish and wildlife.

Both the project site and the HARD parcels may be habitat for the endangered salt marsh harvest mouse. We recommend, therefore, that you initiate a Section 7 endangered species consultation with our Sacramento Endangered Species Office by contacting Mr. Ralph Swanson at (916) 440-2791.

Because the proposed project represents a nonwater dependent fill in biologically productive wetlands, our preliminary recommendation is that no Corps permit be issued for the work described in the public notice. Considering the high value of the project site to migratory birds and other wildlife, we recommend that the Environmental Impact Statement (EIS) prepared for the project consider alternatives such as upland sites for industrial development and development of only upland portions of the project site to avoid habitat losses associated with the project. Our final recommendations on the project will be formulated after review of the EIS.

The above views and recommendations constitute the preliminary report of the Department of the Interior on this public notice.

If you have any questions on these comments, please contact Peggie Kohl at (916) 484-4108

Sincerely,

James D. Carson

for James J. McKevitt
Field Supervisor
(for) U.S. Department of the Interior
Coordinator

cc: RD (AHR), FWS, Portland, OR
Dir., CDFG, Sacramento, CA
Reg. Mgr., CDFG, Reg. III, Yountville
NMFS, Tiburon
CA Waterfowl Association
Save San Francisco
PCCF, Attn: Emily Renzel, Palo Alto
RWQCB, Oakland
HARD, Hayward
SESO, Sacramento
Applicant

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
300 South Ferry Street
Terminal Island, CA 90731

June 28, 1984 F/SWR33:TGY

Lt Colonel Edward M. Lee, Jr.
District Engineer
San Francisco District
Corps of Engineer
211 Main Street
San Francisco, CA 94105

Dear Colonel Lee:

We have reviewed Public Notice No. 15483E49 (Marathon U.S. Realties, Inc., 6/7/84) to fill a 134-acre site for the development of an industrial-commercial business center and to develop two nearby sites as seasonal wetlands. We have inspected the project site and the sites proposed for mitigation. Inasmuch as the proposed mitigation sites are already functioning as valuable seasonal wetlands, we do not believe that they could be enhanced to offset the loss of 90 acres of wetlands at the 134-acre project site. We would oppose, therefore, a permit for this project as proposed.

We note that an Environmental Impact Statement (EIS) will be prepared for this project. This document should evaluate the need to place the proposed (non-water dependent) project in a wetland area. The EIS should also develop an adequate mitigation plan to offset any unavoidable wetland losses. The National Marine Fisheries Service will present further concerns during the EIS scoping process and will review the draft EIS when it becomes available.

If you have further questions on this matter, please direct comments to Mr. Thomas Yocom at: National Marine Fisheries Service, 3150 Paradise Drive, Tiburon, CA 94920; telephone (415) 556-0565.

Sincerely yours,

E. C. Fullerton
Regional Director

cc: CDFG, D. Lollock
FWS, J. McKevitt
EPA, L. Wong
BCDC, B. Hickman

U.S. Department of Transportation
United States Coast Guard

Commander
Twelfth Coast Guard District

Government Island
Alameda, CA 94501
Staff Symbol: (dpl)
Phone: 415-437-3198

16591
7 July 1984

District Engineer
U.S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

Dear Sir:

I have reviewed Public Notice 15483E49 regarding the proposal of Marathon U.S. Realties, Inc. to fill a 134-acre site for the development of an industrial-commercial business center, and to develop two nearby sites as seasonal wetlands. These plans may require construction of bridges over Bockman Canal and/or Sulphur Creek. No formal Coast Guard permit will be required for bridges over these two waterways provided they are built high enough to pass the 100 year flood criterion. Such bridges are authorized under 33 CFR 155.70.

A copy of Coast Guard Public Notice 12-141a has been sent to the applicant explaining the advance approval of bridges crossing minor waterways. Questions concerning bridge approvals may be referred to Wayne Till of the Coast Guard Bridge Section at (415) 437-3514.

Sincerely,

J. David SPADE
Commander, U.S. Coast Guard
Twelfth District Planning Officer
By direction of the District Commander

Copy: Marathon U.S. Realities Inc. w/copy of USCG PN 12-141a

Resources Building
1416 Ninth Street
95814

(916) 445-5656

Department of Conservation
Department of Fish and Game
Department of Forestry
Department of Boating and Waterways
Department of Parks and Recreation
Department of Water Resources

GEORGE DEUKMEJIAN
GOVERNOR OF
CALIFORNIA

AUG 14 REC'D

Air Resources Board
California Coastal Commission
California Conservation Corps
Colorado River Board
Energy Resources Conservation and Development Commission
Regional Water Quality Control Boards
San Francisco Bay Conservation and Development Commission
Solid Waste Management Board
State Coastal Conservancy
State Lands Commission
State Reclamation Board
State Water Resources Control Board

THE RESOURCES AGENCY OF CALIFORNIA
SACRAMENTO, CALIFORNIA

Colonel Edward M. Lee, Jr.
Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

July 19, 1984

Public Notice 15483-E49 (Marathon U.S. Realties)
Fill 134 acres and create 90-acre wetland, Alameda County.

Dear Colonel Lee:

The State agencies listed below have reviewed the subject public notice and have provided comments used in writing this response. The Resources Agency concurs in these findings.

We understand that the Corps does not intend to issue a permit for this project until an EIR/EIS has been prepared and circulated for review and the concerns expressed in the public meeting of July 18, 1984, have been resolved. The comments received from the Department of Fish and Game (DFG) and the San Francisco Bay Regional Water Quality Control Board support such an intention on the Corps's part, especially since the mitigation proposed in the Corps public notice has been criticized as inadequate by Federal, State, and local agencies and groups.

The comments of DFG are attached for your consideration in the preparation of the project's EIR/EIS. The main points of these comments are that the proposed project would result in a permanent reduction in migratory shorebird and waterfowl populations in San Francisco Bay, and that the proposed 90-acre mitigation area is already a good seasonal wetland that needs no modifications.

The San Francisco Bay Regional Water Quality Control Board supports DFG's position, and further comments that it cannot determine the need for water quality certification until the EIR/EIS and its specific mitigation measures to offset the loss of significant wetlands is completed and circulated for review. The Board is quite concerned, however, with the cumulative loss of this important habitat due to projects of this type. Use of Bay waters for wildlife habitat is a significant beneficial use in the Board's Basin Plan.

Sincerely,

Gordon F. Snow, Ph.D
Assistant Secretary for Resources

Attachment

State of California | The Resources Agency

Memorandum

To : Honorable Gordon K. Van Vleck
Secretary for Resources
1416 9th. Street
Sacramento, California 95814

Date: June 29, 1984

Attention: Dr. Gordon F. Snow
Projects Coordinator

From : Department of Fish and Game

Subject: U. S. Corps of Engineers, Public Notice No. 15483E49 by Marathon U. S. Realties, Inc. for development in Hayward and San Lorenzo, Alameda County

Our personnel have reviewed Corps Public Notice No. 15483E49 and we have the following comments. This proposal would fill about 100 acres of wetland (or about 80%) of a 134 acre property, for industrial development, on the Hayward Shoreline north of Sulphur Creek, Alameda County.

We learned of this proposal about 3½ years ago when we met with the City of Hayward, U. S. Fish and Wildlife Service, Marathon and the San Francisco District Corps staff. At that time this Department and the USFWS informed Marathon representatives that we opposed the destruction of these wetlands. In the fall of 1983 Marathon presented plans to the interagency meeting at the Corps San Francisco District office including a proposal to fill all wetlands on the project site. The reaction from the agencies represented including this Department was uniformly negative. Marathon is currently developing a 65 acre parcel of adjoining upland south of Sulphur Creek.

We have found over the past four years that the Marathon property and adjoining East Bay Regional Park District lands are the finest remaining examples of seasonal wetlands on the east bay shoreline (north of the San Mateo Bridge). This land is flooded or ponds water for about 7 months of the year. It contains a desirable mix of vegetated and open water areas and supports a diverse assemblage of wetland indicator plant species.

Such seasonal wetlands are an integral component of the bay ecosystem supporting large numbers and many species of migrating waterbirds. Our evaluation of this property is consistent with that of Harvey and Stanley Associates who reported to the applicant in May 1983 that "Wildlife use is seasonally high". We have collected wildlife use data for the Marathon property since 1981 and for the HARD properties since 1983 and will make this information available to the preparators of the DEIR/EIS.

Many shorebirds must move between tidal and non-tidal seasonal wetlands to fulfill their food requirements and other species such as greater yellowlegs, snipe, and cinnamon teal use seasonal wetlands predominately or exclusively. We believe therefore, the loss of these wetlands would result in a permanent reduction in migratory shorebird and waterfowl populations in San Francisco Bay and California. For additional information on the values and status of seasonal wetlands on the east bay shoreline refer to the USFWS letter of April 17, 1984 addressed to all concerned agencies.

During the past year we have closely studied the two nearby wetland sites (totaling about 90 acres) which the applicant proposes to enhance to mitigate the loss of about 100 acres of seasonal wetland described above. These public lands owned by the Hayward Area Recreation Department possess good existing seasonal wetland values and no modifications are necessary to sustain significant existing wildlife use. Our staff and those of other agencies, for example, regularly observed over 1000 dabbling ducks on the outer HARD 55 acre parcel this spring.

Given the circumstances described above we believe the applicants proposal and mitigation plan will result in significant losses of wetlands and wetland values. We recommend that the DEIR/EIS consider project alternatives which would protect wetland resources on site. A successful development in Fremont, the Warm Springs Project, is such an example. In this case wetland portions of the property were designated for protection. Earth was removed from the wetland for enhancement and utilized as fill in the developed upland.

Department of Fish and Game personnel are available to discuss our concerns in more detail. To arrange a meeting, the project sponsor or applicant should contact Paul Kelly, telephone (415) 376-8892; or Mr. Theodore W. Wooster, Environmental Services Supervisor, Region 3, Department of Fish and Game, P.O. Box 47, Yountville, California 94599, telephone (707) 944-2011.

Robert C Fox
for Jack C. Parnell
Director

cc: BCDC
City of Hayward Planning Dept.
U.S. Fish & Wildlife Service, Sacramento
East Bay Regional Park District, Oakland

STATE OF CALIFORNIA—STATE LANDS COMMISSION

GEORGE DEUKMEJIAN, *Governor*

STATE LANDS COMMISSION
1807 13TH STREET
SACRAMENTO, CALIFORNIA 95814

June 27, 1984

File Ref.: W 23043

Marathon U.S. Realties, Inc.
595 Market Street, Suite 1330
San Francisco, CA 94105

Attn: Mr. James E. Christian

Gentlemen:

Subject: U.S.C.E. Public Notice No.15483 E49, Dated 7 June 1984, Fill 134 Acres, and Develop 90 Acres as Seasonal Wetlands, Hayward, Alameda County

The staff of the State Lands Commission has reviewed the proposed project, and interposes no objection to the fill on 134 acres, nor to the construction of industrial-commercial buildings at that location.

The mitigation parcels, approximately 90 acres in total, appear to include historic sloughs. Since the work would return that property to wetland status, the Commission Staff concludes that no permit on lease is needed for the mitigation element.

Thank you for your past cooperation. If further information is needed, please feel free to call me at telephone No. (916) 322-7822.

Sincerely,

HERBERT A. MARICLE
Land Agent

HAM:bj

cc: U.S. Army Corps of Engineers
attn: Ken Maynard

Resources Agency
attn: Gordon F. Snow
Project Coordinator

Fred Sledd

bcc: Dave Plummer

STATE OF CALIFORNIA—THE RESOURCES AGENCY

GEORGE DEUKMEJIAN, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
POST OFFICE BOX 2390
SACRAMENTO, CALIFORNIA 95811
(916) 445-8006

DATE: July 18, 1984
REPLY TO: COE840703A

Mr. Les Tong
US Army Corp of Engineers
211 Main Street
San Francisco, CA 94105

RE. 134 Acre Industrial-Commerical Business Center/Marathon US Realties

Thank you for requesting our comments on the NOP cited above.

The DEIR should:

(1) Describe actions taken to identify historic, archeological, architectural or other cultural resources located in the project area, and should present results obtained. Only those resources likely to be affected by the project need be identified.

(2) Include a physical description of identified cultural resources and their setting supplemented by clear photographs.

(3) Contain a documented evaluation of the importance of any cultural resources identified, indicating what standards or criteria were used, how they were applied and by whom, and what conclusions were reached and why.

(4) Describe and analyze as precisely as possible any adverse impacts to important cultural resources using the definition of effect contained in Sections 15382 and 15126 (a) of the EIR Guidelines. The focus should be on how and to what extent those qualities that make these resources important may be adversely affected by the project.

(5) Discuss reasonable alternatives that would avoid any adverse effects to the qualities that make these resources important. Familiarity with current preservation techniques in architecture, land use planning, public policy development, preservation law and cultural resource management should be clearly evident in the choice and discussion of alternatives.

(6) Propose reasonable mitigation measures to minimize adverse effects to the important qualities of these resources in accordance with Section 15126 (c) of the EIR Guidelines. Familiarity with current preservation techniques in architecture, land use planning, public policy development, preservation law and cultural resource management should be clearly evident in the choice and discussion of mitigation measures.

(7) Conform to the requirements of Sections 15126 (b), (e), (f) and (g) of the EIR Guidelines if applicable.

As part of the data gathering effort, it is generally advisable to:

(1) Consult one of the Regional Archeological Information Centers listed on the back of this letter for current archeological resource data.

(2) Refrain from dealing with sites, buildings, structures or objects less than fifty years of age unless they appear to be of exceptional importance.

(3) Consult with historical societies, archeological societies, preservation organizations, landmark commissions or boards, county or city planning departments and redevelopment agencies, all of whom may have information about cultural resources in a particular project area.

(4) Consult with particular cultural or ethnic groups if there is any reasonable possibility that a resource of interest to them might be affected by the project.

Please note that if any federal agency, board or commission is involved in this project, compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, is required. The DEIR should be drafted to reflect compliance with the requirements of this Act.

If you have any questions, please call Dwight Dutschke of this office at (916) 322-9624.

Sincerely,

Knox Mellon

Dr. Knox Mellon
State Historic Preservation Officer

cc: State Clearinghouse

INFORMATION CENTERS	COUNTIES
Dr. David A. Fredrickson, Coordinator Northwest Information Center Department of Anthropology Sonoma State University Rohnert Park, CA 94928 Attn: Allan Bramlette (707) 664-2494; ATSS 568-2494	Alameda, Colusa, Contra Costa, Del Norte, Humboldt, Lake, Marin, Mendocino, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, Yolo
Dr. Mark Kowta, Coordinator Northeast Information Center Department of Anthropology California State University, Chico Chico, CA 95926 Attn: William Dreyer (916) 895-6256, ATSS 459-6256	Butte, Glenn, Lassen, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama, Trinity
Dr. Jerald J. Johnson, Coordinator North Central Information Center Department of Anthropology California State University, Sacramento 6000 J Street Sacramento, CA 95819 Attn: Marianne Russo (916) 454-6217; ATSS 433-6217	Amador, El Dorado, Nevada, Placer, Sacramento, Sutter, Yuba
Dr. L. Kyle Napton, Coordinator Central California Information Center California State College, Stanislaus Turlock, CA 95380 Attn: Ms. E. Greathouse (209) 667-3307; ATSS 427-3307	Alpine, Calaveras, Mariposa, Merced, San Joaquin, Stanislaus, Tuolumne
Dr. Jane Granskog, Coordinator Central San Joaquin Valley Information Center Department of Sociology/Anthropology California State College, Bakersfield 9001 Stockdale Highway Bakersfield, CA 93309 Attn: Catherine Lewis (805) 833-2289	Fresno, Kings, Madera
Dr. Robert Schiffman, Coordinator South Central Information Center Bakersfield College 7001 Panorama Drive Bakersfield, CA 93305 (805) 395-4391 or 395-4011	Kern, Tulare

INFORMATION CENTERS	COUNTIES
Dr. Michael A. Glassow, Coordinator Central Coastal Information Center Department of Anthropology University of California, Santa Barbara Santa Barbara, CA 93106 Attn: Larry Wilcoxon (805) 961-2474; ATSS 649-2474	San Luis Obispo, Santa Barbara
Dr. Larry L. Leach, Coordinator South Coastal Information Center Department of Anthropology San Diego State University San Diego, CA 92182 Attn: Fred Kidder (619) 265-6300; ATSS 636-6300	San Diego
Dr. Gerald A. Smith, Coordinator San Bernardino Information Center San Bernardino County Museum 2024 Orange Tree Lane Redlands, CA 92373 Attn: Michael Lerch (714) 793-6345	San Bernardino
Dr. Phillip J. Wilke, Coordinator Eastern Information Center Archeological Research Unit University of California, Riverside Riverside, CA 92521 Attn: Daniel McCarthy (714) 787-3885; ATSS 651-3885	Inyo, Mono, Riverside
Mr. Jay Von Werlhof, Coordinator Southeast Information Center Imperial Valley College Museum 442 Main Street El Centro, CA 92243 Attn: G. Edward Collins (619) 352-1667	Imperial
Non-affiliated Archeological Data Repository:	
Ms. Susan Coby Archeological Survey Institute of Archeology University of California, Los Angeles Los Angeles, CA 90024	Los Angeles, Orange, Ventura

F/F

ABAG

ASSOCIATION OF BAY AREA GOVERNMENTS

Ken

MetroCenter
Eighth & Oak Streets
Oakland
(415) 464-7900

Mailing Address:
P.O. Box 2050
Oakland, CA 94604

July 25, 1984

Colonel Edward M. Lee, Jr.
District Engineer
Regulatory Functions Branch
U.S. Army Corps of Engineers
San Francisco District
211 Main St.
San Francisco, CA. 94105

Re: Public Notice No. 15~~8~~483E49
Public Notice No. 13199-75
Public Notice No. 15510S41

Dear Colonel Lee:

Thank you for the opportunity to review these documents. The following staff comments reflect general concerns expressed by many locally elected Bay Area officials as embodied in ABAG's Regional Plan 1980. ABAG's Executive Board has not taken a position on these documents, nor on the proposed projects.

ABAG's Regional Plan 1980 contains policies on preserving and enhancing the wetlands and marshes in the region and on controlling surface run-off pollution problems. These three projects all contain filling of natural or diked wetland areas. The following policies and actions are pertinent to projects that impact this valuable regional resource.

Critical areas policies recommend preserving lands with valuable resources including:

- Land areas associated with fish and wildlife having key roles in a regional scale ecosystem
- Habitats of rare or endangered fish and wildlife that contribute to diversity of species
- Lands containing vegetative resources that are elements of an ecological zone of recognized importance or uniqueness.

Water quality policies in the Regional Plan recommend establishing programs of surface runoff controls that emphasize low cost measures such as wetlands to reduce the pollutant loads from this source.

Finally, ABAG's Environmental Management Plan as amended in 1980 and ongoing work in water quality have produced these policies and actions on wetland enhancement and their use as urban runoff control measures, which are pertinent to the above three projects:

- Wetlands are important for water quality protection among other ecological benefits, and should be preserved and enhanced: new wetlands should be created for urban runoff control as appropriate and feasible.

- Implement wetland treatment systems for polluted waters, where appropriate and economically justified.

- Consider wetlands enhancement or creation projects as alternative mitigation measures offsetting negative environmental impacts of development projects.

Based on these regional concerns, ABAG staff recommends that all efforts be made in these three projects to ensure that there is no net loss of wetland acreage. The Mayhews Landing Association project, in particular, does not have adequate mitigation for loss of wetlands. Also, the alternative of using wetlands for surface runoff treatment should be considered where appropriate.

If you have any questions regarding these comments or need information on wetlands creation or treatment criteria, please contact Linda Morse of our staff at (415)464-7932.

Sincerely,

Yvonne San Jule

Yvonne San Jule
Budget and Planning Officer

Save San Francisco Bay Association

P.O. Box 925 • Berkeley, California 94701 • (415) 849-3053 • 849-3044

HONORARY ADVISORY BOARD

Ansel Adams
Mrs. Harmon C. Bell
Mrs. Murray R. Benedict
David R. Brower
Paul Covel
Rodney J. Diridon
Barbara B. Eastman
George Ellman
Douglas P. Ferguson
Francis P. Filice
Harold Gilliam
Mrs. Ralph Jacobson
Thomas S. Jordan, Jr.
George R. Kane
T.J. Kent, Jr.
A. Starker Leopold
Irwin Luckman
William Penn Mott, Jr.
Julius von Nostitz, Jr.
Mrs. Henry T. Read
Frank M. Stead
Sherwood Sullivan
Fred H. Tarp
Georg Treichel
John Tuteur, Jr
Donald Vial
Mel Wax
Warren B. Wilson

BOARD OF DIRECTORS

William E. Siri
PRESIDENT
Michael E. Belliveau
Barry L. Bunshoft
VICE PRESIDENT
Dexter S. Chan
Mrs. Jack C. Chapman
David Fogarty
Philip E. Gordon
Sylvia M. Gregory
Mrs. Charles A. Gulick
TREASURER
Mary Lee Jefferds
Mrs. Clark Kerr
VICE PRESIDENT
John Krautkraemer
R. Burton Litton, Jr.
Lisa McGimsey
Mrs. D. H. McLaughlin
SECRETARY
Kurt Rademacher
Laura L. Rogers
Doris Sloan
Susan M. Smith
Jean Starkweather
Dwight C. Steele
VICE PRESIDENT
Barbara Vincent
Richard L. Wade
Donald R. Weden

July 6, 1984

Lt. Col. Andrew Perkins
District Engineer, San Francisco District
U.S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

Subject: Public Notice 15483E49 (Marathon U.S. Realties)

Dear Col. Perkins:

Thank you for the opportunity to review the above Public Notice. The Association will participate in the scoping session for the Environmental Impact Statement on July 18. We would appreciate receiving a copy of the Draft EIS when it is available. In addition, we have the following general comments.

The Association does not believe that a non-water dependent project should be authorized for a marsh site at the edge of the Bay. Since the vast majority of the Bay's historic marshes have already been lost, it is important to fully consider the consequences of any further losses before any permit is issued. Of particular importance are those ares which could be restored to tidal action through future mitigation requirements.

Any mitigation for the loss of marsh should consist of restoration so that additional wetlands are created. Existing marshes are already protected, so mitigation should insure that when the project is complete there is not a net loss of marsh around the Bay. Such losses are not acceptable under the mandates of the Clean Water Act or the National Environmental Policy Act.

We request that a public hearing be held when the application is finalized. Please keep us informed about the status of the application.

Sincerely,

William E. Siri

William E. Siri
President

cc: Roger James, RWQCB
Peninsula Conservation Center
EPA Region IX

STATE OF CALIFORNIA GEORGE DEUKMEJIAN Governor

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION
30 VAN NESS AVENUE
SAN FRANCISCO, CALIFORNIA 94102-6080
PHONE: (415) 557-3686

Department of Water Resources
1416 Ninth Street
Sacramento, CA 95814

Attn: Mr. C. K. Fellows

Gentlemen:

This is in response to your request for comments on Corps of Engineer's Public Notice No. 15483E49.

☐ The Commission has issued BCDC Permit No. _____ for the project described in the Public Notice.

☐ The Commission is in the process of reviewing Application No. _____ for a BCDC permit for the project described in the Public Notice and requests the Corps not to issue a permit until BCDC has taken action on the application.

☒ The Commission ~~has~~ may have jurisdiction over portions of the project described in the Public Notice but has not yet received a permit application for the proposed work. The Commission requests the Corps not to issue a permit until a BCDC permit has been issued.

☐ The Commission has issued BCDC Permit No. _____ for a project similar to that described in the Public Notice; however, it appears that there is a conflict between the project as it is described in the Public Notice and the project as it is authorized in the BCDC permit. Therefore, the Commission requests that the Corps not issue a permit for the project until this conflict has been resolved.

Thank you for this opportunity to comment on the Public Notice.

Sincerely,

Nancy Wakeman

NANCY WAKEMAN
Chief of Permits

H2O Qualit

East Bay Regional Park District

11500 SKYLINE BOULEVARD, OAKLAND, CALIFORNIA 94619 TELEPHONE (415) 531-9300

BOARD OF DIRECTORS
WALTER COSTA President
TED RADKE Vice President
JOHN J LEAVITT Secretary
LYNN BOWERS Treasurer
MARY LEE JEFFERDS
HARLAN KESSEL
JOHN O DONNELL

RICHARD C TRUDEAU
General Manager

July 2, 1984

Col. Edward M. Lee
U. S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

Subject: PN 15483E49, Marathon U. S. Realties, Inc., proposed Industrial Park in San Lorenzo

Dear Col. Lee:

The EBRPD has reviewed the subject Notice and concurs with the general scope of the EIS outline therein. As a downstream property owner, the District requests that the Corps' EIS specifically address the issue of potential adverse impacts upon water quality. A clear description of the proposed drainage system both for the project site and the wetland enhancement sites will be needed to understand the potential for adverse water quality impacts. Such impacts could originate either as a result of a spill of a toxic liquid in the proposed industrial park, or as a result of leachate from the garbage landfill which is adjacent to the wetland enhancement sites.

The traffic implications of the project may require the construction of an additional access road in the transportation corridor between the project site and the EBRPD's property in the area. The District anticipates a marsh enhancement project on its holdings north of Sulphur Creek; this may involve the reintroduction of tidal action there. Road construction in the transportation corridor will have to be protected by a levee which is capable of withstanding the effects of wind and tide action. If the project includes any road construction in the transportation corridor adjacent to EBRPD property, such a levee should be part of the road's design.

The District will be pleased to cooperate with the Corps of Engineers in the preparation of this EIS. If you have any questions, please contact the undersigned on Ext. 263.

Very truly yours,

T. H. Lindenmeyer
Environmental Coordinator
Planning and Design

TL:lm

cc: R. C. Trudeau
L. Crutcher
H. Hornbeck
P. Koos
R. Doyle
HASPA

BOARD OF TRUSTEES
Mark J. Hanna
President
John R. Anderson
Vice-President
William M. Spinola
Secretary
Arthur H. Breed, Jr.
Nelson E. Clemens
James N. Doggett
Sidney F. Dommes, Jr.
Wallace E. Fox
Manuel Garcia
Michael Greene
Ginger Latham
Harvey I. Scudder
Edwin J. Suchman
John P. Vizzolini

Alameda County
Mosquito Abatement District

FRED C. ROBERTS
MANAGER
3024 EAST SEVENTH STREET
OAKLAND CALIFORNIA 94601
(415) 533-7321

July 5, 1984

Col. Edward M. Lee, Jr.
District Engineer
U.S. Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, CA 94105

Attention: Regulating Functions Branch

Re: Public Notice No. 15483E49

The above mentioned notice indicates that two sites (90 acres) will be enhanced as seasonal wetlands to mitigate for the loss of seasonal wetlands. The enhancement of these sites may also enhance the production of pest and vector mosquitoes. The sites in question have required considerable expenditures of effort to control five species of mosquitoes produced in the recent past. We feel that the wildlife enhancement efforts could be designed to reduce mosquito production.

We would greatly appreciate the opportunity to provide our point of view to those planning the wildlife enhancement project.

Sincerely,

Fred C. Roberts

Fred C. Roberts
Manager

FCR:roa

COUNTY OF ALAMEDA
PUBLIC WORKS AGENCY

ALAMEDA COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

399 Elmhurst Street • Hayward, CA 94544-1395 • (415) 881-6470

July 5, 1984

Col. Edward M. Lee Jr.
District Engineer
US Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, CA 94105

Attention: Regulatory Function Branch

Gentlemen:

Subject: Public Notice No. 15483E49, dated June 7, 1984, Marathon U.S. Realties

We have the following comments regarding the proposed project:

1. A new levee and associated channel improvements are required along Sulphur Creek adjacent to the southern portion of the project.

2. The Bockman Canal levee may need to be reconstructed.

3. The proposed pumping stations shown on the vicinity map should be labeled as follows:

   (a) the westerly station is a storm water lift station;
   (b) the easterly station is a sanitary lift station.

4. The storm water lift station is currently under construction and will be operated by this District. At this time no provision has been made in the design of the plant to accommodate pumping of water to the proposed mitigation sites.

Very truly yours,

SHINJI MOMONO
ACTING ENGINEER-MANAGER

By Ralph Johnson
RALPH JOHNSON
INTER-AGENCY COORDINATION SECTION

RJ:ba

cc: Marathan U.S. Realties

F/F

June 28, 1984

Col. Edward M. Lee, Jr., District Engineer
U.S. Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, CA 94105

Re: Public Notice NO. 15483E49 Date 7 June 1984
Marathon U.S. Realties, Inc.

Attention: Regulatory Functions Branch

Dear Col. Lee:

I received the PUBLIC NOTICE for the Marathon U.S. Realties, Inc. Application No. 15283E49.

The Public Notice No. 15483E49 describes the applicant's proposal for a permit to fill a 134-acre site for the development of an industrial-commercial business center, and to develop two nearby sites (a total of 90 acres) as seasonal wetlands. The sites are located in the city of Hayward and in San Lorenzo, Alameda County, California.

One of the most significant long-term impacts is the loss of wetland over 80% of the project site. This is a problem which deserves careful consideration in view of the public efforts through comprehensive planning and monitary commitment for over a decade to preserve and conserve historic marshlands along the Hayward Shoreline.

There are important questions to be answered about the mitigation proposal which calls for "enhancement" of the habitat value of two sites owned by the Hayward Area Recreation and Park District. Another concern is the proposed pumping and disposal of urban runoff from the proposed business center and an adjoining 65 acre existing industrial tract. Runoff would be pumped into the 35-acre mitigation site.

A public hearing would provide a means for local citizens to learn about and consider these serious questions before decisions are made on the proposal.

Barbara G. Shockley

Very truly yours,

Barbara G. Shockley
1890 Bockman Road
San Lorenzo, CA 94580
415-276-7272

cc. Hayward Area Shoreline Planning Agency
City of Hayward Planning Department

SAN LORENZO UNIFIED SCHOOL DISTRICT

15510 USHER STREET • SAN LORENZO, CALIFORNIA 94580-1623 • TELEPHONE 276-3600

SUPERINTENDENT
ALDEN W. BADAL

June 27, 1984

Col. Edward M. Lee, Jr., District Engineer
U. S. Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, CA 94105

Re: Public Notice No. 15483E49 Date: 7 June 1984
Marathon U. S. Realties, Inc.

Attention: Regulatory Functions Branch

Dear Col. Lee:

Recently the Hayward Area Shoreline Planning Agency (HASPA) received a copy of the U. S. Army Corps of Engineers' Public Notice regarding the proposed Marathon U. S. Realties, Inc. development project which is planned for the Hayward-San Lorenzo shoreline area. The proposed project came to the attention of the San Lorenzo Unified School District since our District is a member of the HASPA organization.

Our District requests that we be placed on your mailing list to receive any Environmental Impact Studies and other related reports pertaining to this project. Also, we would request that we be provided with information on any public hearings or other meetings relating to this project. We would further request that the response time to comment on the project be extended 30 days since our District has yet to receive the formal notice and only became aware of it through the attendance of two of our Board members who were present at the last HASPA meeting held on June 26, 1984.

Thank you for your attention to and consideration of these requests.

Sincerely,

Dorothy J. Partridge

Dorothy J. Partridge
President
Board of Education

DJP:ph

cc: HASPA
Board of Education
Environmental Branch, U. S. Army Corps of Engineers

BOARD OF EDUCATION

HARRY G. GIN • MRS. PATRICIA GRIFFEN • MRS. BETTY MOOSE • MRS. DOROTHY J. PARTRIDGE • LOREN D. SIMPSON

Southern Pacific
Transportation Company

1707 Wood Street • Oakland, California 94607 • (415) 891-7456

J. T. HALL
REGIONAL ENGINEER
K. B. DERR
ASST. REGIONAL ENGINEER
D. T. WICKERSHAM
REGIONAL M OF W MANAGER
R. V. HERNANDEZ
REGIONAL M OF W MANAGER

IN REPLY PLEASE REFER TO
924102/349

June 21, 1984

Colonel Edward M. Lee, Jr., District Engineer
Regulatory Functions Branch
U. S. Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, California 94105

Dear Colonel Lee:

We are responding to Public Notice No. 15483E49, dated June 7, 1984, pertaining to Marathon U. S. Realties, Inc., 595 Market Street, San Francisco, California 94105, request for permit to fill a 134-acre site for development of an industrial-commercial business center, etc.

1. It is noted a fill surcharge is to be placed over existing mud flats up to the Southern Pacific Company main line track fill on Section A-A of second page of PN 15483E49. Our concern is that proper soil studies have been made that such a fill surcharge will not create an upward or side movement of our main line track. Should such an event occur there are certain liabilities involved.

2. We are also concerned with the Bockman Creek and Sulphur Creek connection as to possible backup of flow to our main line structures and proper drainage of railroad main line embankment which has several culverts between the two creeks.

3. Prior to any fill entering the Southern Pacific property, proper agreements of parties involved will be required.

If you have any further questions, please feel free to contact Mr. K. B. Derr, Asst. Regional Engineer on (415) 891-7459 or Mr. J. C. Bolla on (415) 891-7468.

Yours truly,

J. T. Hall
Regional Engineer

By K. B. Derr
K. B. Derr
Asst. Regional Engineer

Ken

CITIZENS FOR URBAN WILDERNESS AREAS
1052 MERCED, BERKELEY, CALIFORNIA 94707

Glenn T. Seaborg
Chairman
Thomas Bowman
V. Chairman
Geraldine Jackson
Treasurer
Roger Reeve
C. Secretary
Karen Davis
R. Secretary

Re: 15283E49 & 15483E49

July 7, 1984

Lt. Col. Andrew M. Perkins, Jr.
U.S. Army Corps of Engineers
211 Main Street
San Francisco, CA. 94105

Dear Lt. Col. Perkins:

In a recent letter to you (July 5) Citizens for Urban Wilderness Areas expressed concern about Cullinan Ranch (14775E57). Our attention has been called to two other situations with additional information: the Laumberg Tract (15283E49) and bay shoreline property known as Marathon Realties (15483E49).

In the case of the Laumberg Tract it seems that Title settlement with the State Lands Commission is still pending. However, we would appreciate a copy of the DEIS when it is completed. Preliminary mitigation proposals seem very inadequate and, among other things, there should be much more restoration of the snowy plover habitat. We feel these problems should be fully addressed in the DEIS.

Likewise, we would appreciate a copy of the DEIS for the Marathon proposal. It appears that this project likewise should have better mitigation. Some of our members may be able to attend the July 18, 7 PM meeting at the Hayward City Center. Essentially, we are supporting the Wetlands Coalition position.

We hope you will agree with our position.

Sincerely,

Roger Reeve

Roger Reeve, C. Sec.

FAUNA

A-1

CALIFORNIA WATERFOWL ASSOCIATION

~~555 VETERANS BOULEVARD — REDWOOD CITY, CALIFORNIA 94063 — (415) 369-9072~~

1862 Las Ramblas, Concord CA 94521 (415) 672-7525

June 22, 1984

Col. Edward M. Lee
Corps of Engineers
211 Main Street
San Francisco CA 94105

Attn: Regulatory Functions Branch

Dear Col. Lee,

The California Waterfowl Association feels that the application (PN15483E49) by Marathon U.S. Realties, inc. to develop a 134 acre site containing 90 acres of wetlands should be denied without even going through the EIS process. This project will destroy valuable, high use wetland habitat unnecessarily. Since the project is not water dependant there is no need to put in this location.

The mitigation sites that Marathon proposes to develop are already valuable, high use seasonal wetlands. Marathon cannot appreciably enhance them. In fact, the proposal could destroy them. Run-off water from industrial/commercial areas can be contaminated by oil, fuel, chemical spills, etc. to put water of questionable quality on a productive site does not seem reasonable.

If the Corps goes ahead with the EIS we would like to be placed on the list to receive a copy of the draft. Thank you.

Sincerely,

Mike Corker

MIKE CORKER
Resources Committee

CC: Dan Chapin CWA
USFWS
CDFG

MC/dic

F/F KLM

SANTA CLARA VALLEY AUDUBON SOCIETY, Inc.

2253 Park Blvd.
Palo Alto, CA 94306
(415) 329-1811

June 26, 1984

Colonel Edward M. Lee, Jr.
District Engineer
ATTN: Regulatory Functions Branch
U.S. Corps of Engineers
211 Main Street
San Francisco, CA 94105

Re: Public Notice No. 15483E49, 7 June 1984
Marathon U.S. Realties, Inc.

Dear Colonel Lee,

This project is another in a series where valuable and scarce wetland, in this case approximately 90 acres of it, is threatened with development that is not water-dependent, and does not need to be on wetland. And, once again, inadequate mitigation is proposed.

The area under question provides significant habitat for wildlife, particularly waterfowl, which would be permanently eliminated. We feel that this type of habitat is very rare in the Bay Area, and should be protected. Available resources for wildlife are fast dwindling in the Bay Area.

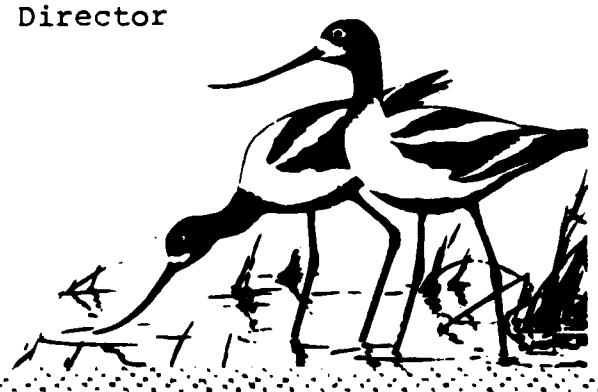
The proposed mitigation does not replace the loss of any wetland. Instead, it is just trading wetland for already established wetland. Appropriate mitigation would involve recreating historical wetlands, or creating new wetland habitat. There is no way the two nearby sites can be improved to replace the wetland values lost. Even if the mitigation was adequate, this location is not appropriate for non-water-dependent uses.

We hope that the Corps will note the inadequacy of the proposed mitigation, and the value of the present wetland, and will move to protect this wetland from development.

Sincerely,

Lynn Tennefoss

Lynn Tennefoss
Managing Director



F/F

16077 Ashland Avenue, #255
San Lorenzo, CA 94580
20 June 1984

Col. Edward M. Lee Jr.
ATTN: Regulatory Functions Branch
U.S. Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, CA 94105

Dear Sir:

I am writing in regard to Public Notice Number 15483E49, dated June 7, 1984. This notice is an application to fill and develop a 134-acre site and develop two other sites totaling 90 acres as seasonal wetlands.

First, I would like to address the fact that approximately 90 acres of the 134-acre site are wetlands, a commodity of which very little remains in the Bay area. Wetlands provide a valuable home to many species of wildlife, yet each year these areas are drastically reduced. Wetlands also serve a practical function as filters and flood control areas. They help prevent erosion and reduce silt build up in the Bay. Wetlands are not only a tangible benefit to ourselves and to wildlife, they also serve an aesthetic need in our society. Wetlands serve the need for open space in our often crowded society.

Due to increased vehicle traffic during and after construction of the site, air quality would be greatly decreased, putting even more pressure on our already decreasing air quality. Noise levels would increase in an area that is not currently inhabited. This, along with decreasing air quality, may adversely affect the wildlife of the area, not only at the site, but also in nearby areas.

Approximately 80% of the site is wetland that will be permanently lost. In exchange for this the developer proposes to develop two nearby sites as seasonal wetlands. How they plan to do this is not entirely clear at this time, but part of this involves pumping runoff from the proposed site and a nearby industrial site into part of the mitigation site. This idea is totally unacceptable. This runoff would contain high levels of pollutants, not only from vehicles (such as oil and gas), but industrial pollutants as well. It may also contain trash and other debris. This not only affects the wetland and associated animal and plant life, it also ultimately enters the bay, adding to its increasing load of pollutants. (This does not

enhance the value of this area, but greatly subtracts from it.) Finally, an excessive amount of water pumped into this area could increase erosion and bay sedimentation.

I don't believe that a permit should be issued for this site. Too much valuable wetland will be lost and the disadvantages outweigh the advantages proposed by Marathon U.S. Realities. I appreciate this opportunity for input.

Sincerely yours,

James A. Wallis
Chairman, Conservation Committee
Ohlone Audubon Society

JAW:mw

1548 East Ave.
Hayward, CA 94541
5 July 1984

Col.Edward M.Lee,jr.,District Engineer
U.S.Army Corps of Engineers
San Francisco District Office
211 Main Street
San Francisco, CA 94105

Attn: Regulatory Functions Branch
Re: Public notice No. 15483E49

Dear Sir:

With regard to my background of involvement with ecology of the Hayward area shoreline and vicinity, see the paragraph in my letter of this same date written to your office regarding public notice 15283E49 for a summary. Another type of study which I carried out from 1968-72 around San Francisco Bay was that of the relationship of solid waste disposal and bird hazard to aircraft. The two old land fills adjacent on the south and southwest to the site of the Marathon U.S.Realties project referenced above were then active or just closed. It is now of great interest that lands adjacent are being: 1) proposed for development, or 2) proposed as sites for mitigation of impacts of such development on the ecological values of remaining wetlands.

The Marathon proposal briefly described in the 15483E49 notice is entirely within the area designated on the October 1976 HASPA plan (in turn adopted by the City of Hayward, East Bay Regional Park District, and County of Alameda) as "urban/industrial." Two significant features of the HASPA Plan in this immediate area (margins of the parcel on the south and west) are not even mentioned in the public notice, however, and are of considerable concern to me and others interested in seeing the completion of that Plan accomplished. These are: 1) on the west, a multipurpose transportation corridor connecting Grant Ave.in San Lorenzo to route 92 in Hayward, with an improved bicycle trail along the bayward side; and 2) a bicycle trail connecting this (presumably under or over the expressway) at Sulphur Creek and across the S.P.railroad to San Lorenzo Community Park. The concept of the HASPA Plan was that the lands westward of the multipurpose corridor could then be restored as tidal marsh, if so desired, since the fill for the corridor would constitute a new major levee against inundation by high tides and the one at the present "bayshore" could be breached or allowed to breach. Presumably the levee indicated in the Marathon proposal is the same levee as that for the transportation corridor (although it is shown with 2 right-angle jogs instead of a sweeping curve at the north). Without such an arterial street being built, there would be no access to the development unless via local streets now being developed from W.Winton Avenue. Both Winton and Grant are already heavily overburdened with truck traffic seeking to get to and from route 92, so this corridor is desperately needed. It is not desirable to have a freeway in this area as was originally planned by CalTrans. Whether Marathon is required to contribute to the construction of the arterial road, provision for the space it would require should be made, and for the trails mentioned, as planning is approved.

Another aspect mentioned in the public notice indicates that "runoff [from the developed site,presumably] would be pumped into the 35-acre mitigation site." The use of diked wetlands for this purpose of temporary disposal of storm waters may be of environmental value if suitable controls over water quality are maintained; but knowledge is scanty with regard to the results around San Francisco Bay. Hence I would like to see that issue fully addressed in the EIS/EIR. An alternative to keeping the mitigation area as diked wetlands (present condition) would be to open it to tide action, or the western area (presently at the bay shore) could be so opened and the eastern one not.

Please place my name on the mailing list for receiving public notices of development proposals within the Corps' jurisdiction in the San Leandro through Fremont area.

Sincerely yours,

Howard L. Cogswell

Howard L. Cogswell

1548 East Avenue
Hayward, CA 94541
5 July 1984

U.S.Army Corps of Engineers
San Francisco District, Regulatory Functions Branch
211 Main St.
San Francisco,CA 94105

Re: Public Notice No. 15283E49 Attn: Col.Edward M.Lee,Jr.

Dear Sirs:

Although time for response to the above-referenced public notice has passed by a few days, I trust you will allow a few additional comments. Most of my concerns with regard to this proposal (by the Shorelands Corporation) were expressed in a lengthy letter which I addressed to Mr.Richard Sheridan, chairman of the Hayward Area Shoreline Planning Agency, on 17 June. I understand from Mr.Sheridan and staff of the Hayward Area Recreation and Park District (one of the 5 member agencies of HASPA) that a copy of that letter was forwarded to you before the 1 July deadline, and furthermore that the HASPA Board has sent a letter to you essentially endorsing the concerns which I expressed in the letter.

At this time, therefore, I would just like to say that I have known the conditions in the project area quite thoroughly since my arrival in Hayward as a new member of the faculty of Calif.State University,Hayward, in 1964. With the cooperation of the land owner, Leslie Salt Co., I have over the years conducted a variety of studies -- mostly censuses and short-term behavior of birds -- in the area and particularly throughout the salt evaporators to the west and southwest. I am an ornithologist and ecologist, taught both these subjects and others at CSUH from 1964 to 1982, but am now retired. I am also the author of one popular book on birds (Water Birds of California, 1977, U.C.Press) and have another in preparation. In addition to this background as a professional biologist, I served 12 years as a director of the East Bay Regional Park District (1980-82) and was involved heavily through them with the establishment of several parks along the San Francisco Bay shores, including the present Hayward Regional Shoreline with its newly created tidal lagoons and forthcoming fresh- and brackish-marsh project. During my term as director of EBRPD I was also their representative on the HASPA Board.

In addition to the comments in my letter of 17 June to Mr.Sheridan, I would like to add now that the proposed development (except for its northwesternmost part) is within the area designated on the adopted HASPA plan for development or"Developed with Uses that are Compatible with Adjacent Areas and Suited to Environmental Conditions." The same plan (Oct.1976) calls for retention of existing freshwater habitats in the gunclub area to the east of the south part of the proposed development -- an area I suggest is a possible area where mitigation for destruction of seasonal wetlands values in the developed area might be accomplished. I also here re-emphasize the first point made in my letter of 17 June, namely that the establishing of a regional trail system from near (even at) route 92 to the new Alameda Creek levee, along with suitable staging area and preservation of the large tidal marshes near the Bay shore by deeding all of this to the EBRPD is a most worthwhile aspect of the proposal from the environmental standpoint. Although <u>some</u> other mitigation should be sought also, I do not believe it should be as far reaching as some have been claiming. However, a full EIS/EIR report will, if properly done, provide this balance. Please place me on the mailing list for notices of any future projects within Corps jurisdiction along the San Leandro--Fremont shore.

Sincerely,

Howard L. Cogswell

Howard L. Cogswell

H_2O / Flow
MM's

Philip Williams & Associates
Consultants in Hydrology

Pier 33 North, The Embarcadero
San Francisco, CA 94111
Phone: (415) 981-8363

5 July 1984

Col. Edward M. Lee, Jr.
District Engineer
Regulatory Functions Branch SPNCO-R
Department of the Army
San Francisco District, Corps of Engineers
211 Main Street
San Francisco, CA 94105

RE: YOUR FILE NO. 145E49

Dear Col. Lee:

I understand from our client James Christian of Marathon U.S. Realties, Inc. that the Hayward Area Recreation and Park District (HARD) and the Hayward Area Shoreline Planning Agency (HASPA) have expressed concern about the source of water for Marathon's proposed wetland enhancement project on the Hayward shoreline. Our evaluation of water sources for a brackish marsh has included consideration of both reclaimed wastewater and urban runoff.

The East Bay Regional Park District (EBRPD) is presently creating a marsh on the Hayward shoreline that will use reclaimed wastewater. Informal conversations with personnel of the Regional Water Quality Control Board, the California Department of Fish and Game, and the Department of Public Health indicated that no further permits are likely to be granted for such a use of reclaimed wastewater until several years of data and experience have been gained from the EBRPD marsh. For this reason, we have focused on the use of urban runoff.

We estimate that under conditions of full development, available storm runoff would amount to about 20 acre-feet in a 1 in 10 dry year, 164 acre-feet in a median year, and 341 acre-feet in a 1 in 10 wet year. A monthly salt and water balance for the parcels indicates that in a median to dry year, inflow of bay water from Sulphur Creek would be necesary to maintain water in channels through the summer, and to prevent the water from becoming hypersaline.

Urban runoff is often contaminated with oil and grease, heavy metals, BOD and suspended solids. Some of the oil will be removed at a pumping station before the water enters the marsh. We anticipate additional improvement in the quality of water as a result of routing stormflow through the wetland. Without the proposed wetland enhancement project, stormflow from the Marathon site and adjacent wrecking yards would flow directly into the Bay via Sulphur Creek.

Philip Williams & Associates

Please feel free to contact me if you have additional questions or concerns.

Very sincerely yours,

Robert Coats
Senior Associate

/rk

cc: James Christian
Bud Critzer, HARD
Jo McLellan, HASPA

AUG 14 REC'D

July 26, 1984

U. S Army Corps of Engineers
211 Main Street
San Francisco, Ca. 94105

Attn: — Lee Tong — Environmental Branch.
and Ken Maynard — permit process

Thank you for your study on the 134 acre development owned by Marathon — permit # 15483E49.

Our question is this — Why is it necessary to develop this acreage when it will only cause problem of contamination, noise, and a congestion of population when this is unnecessary?

We would like to see this land stay just as it now in its wild stay. We hope you will advise this.

We hope to see this development stopped and the site designated as a park — free of any building

Thank you.

Mr & Mrs Harold Trembly
Sandoni Ave
San Lorenzo, Calif —

San Lorenzo Village Homes Association
LARGEST HOMES ASSOCIATION IN THE NATION
377 PASEO GRANDE SAN LORENZO, CA. 94580
276-4554
351-2731

JUL 26 REC'D

July 24, 1984

TO: City of Hayward Planning Dept.
22300 Foothill Boulevard
Hayward, CA 94541

FROM: Bernie Chalifoux, Administrator
San Lorenzo Village Homes Assoc.

SUBJECT: Marathon Development

Major concerns of the San Lorenzo Village Homes Association and the residents it represents are the following:

NOISE - Property owners directly adjacent will be impacted by traffic and manufacturing noise. Great care should be taken to be certain that the distance between adjacent homes and the development boundaries is sufficient. No buildings requiring outside generators or refrigeration compressors should be allowed in that section of the development. All buildings in the impact area should have loading docks and delivery entrances on the opposite side of the resident area.

ODOR - Plants using odor and fume producing chemicals should not be allowed in close proximity to adjacent homeowners.

PROPERTY VALUES - Great care should be given to all issues that might be harmful to the property value of the homes adjacent to the development. The purchase of a home is a major investment for most people and allowing intrusion by commercial developers that would harm property values of individuals would be a great injustice.

The Homes Association believes that special attention to the concerns of the individual homeowners directly adjacent to the northeasterly boundary of the development is necessary and justified.

Sincerely,

Bernie Chalifoux
Administrator

cc: U. S. Army Corps of Engineers
Shapiro and Associates, Inc.

Concerns previously identified by Public Notice and Consultant for the City

SIGNIFICANT ISSUES

1. AIR QUALITY/TRAFFIC

2. WILDLIFE HABITAT/WETLANDS

3. NOISE

4. PUBLIC SERVICES

5. EMPLOYMENT

6. BUSINESS

7. LOCAL GOVERNMENT FINANCES

8. LAND USE

9. CULTURAL RESOURCES

JUL 26 REC'D

DISCUSSION

a. Based on the description of the proposed action, indicate your most important concern. This could be important to you personally, or to your agency responsibility, or to an environmental component with which you are most familar.

The adjacent homeowners at the northeasterly boundary of the development

b. Relate the context of this concern geographically. Is your concern local, regional, or national? Local

c. Discuss your concern's uniqueness, special characteristics, or relationship to the proposed action. The Homes Association represents and supports individual homeowner members whose property values and quality of life are threatened.

d. Briefly describe, as possible, the extent of potential impact of the proposed action on your concern. Most detrimental would be property value and negative impacts on individual rights to clean air, lack of noise and enjoyment of view and backyard use.

OTHERS

APPENDIX B

HABITAT EVALUATION

HABITAT EVALUATION

of the

MARATHON U.S. REALTIES SITE - TRACT 5167

and

ADJACENT PROPERTIES

Submitted to

U.S. ARMY CORPS OF ENGINEERS

SAN FRANCISCO DISTRICT

October 19, 1985

by

Nancy Olmsted, TRS Consultants

and

Marc E. Boule, Shapiro and Associates, Inc.

HABITAT EVALUATION

OF THE MARATHON U.S. REALTIES SITE - TRACT 5167

AND ADJACENT PROPERTIES

HAYWARD, CALIFORNIA

Table of Contents

		Page
I.	Introduction	B-1
II.	Methodology	B-1
	Rationale	B-1
	Study design	B-2
	Evaluation Assumptions and Criteria	B-3
	Existing Habitats and Future Scenarios	B-5
III.	Results	B-8
	Duration of Inundation	B-8
	Habitat Evaluation, Existing Conditions	B-10
	Habitat Evaluation, Post-Development	B-12
IV.	Summary and Discussion	B-15
V.	References	B-17

List of Tables

1.	Species List and Group Each Represents	B-5
2.	Existing Habitats and Future Scenarios	B-6
3.	Historic Photographic Interpretation of Inundation on Marathon, EBRPD, and HARD Parcels	B-10
4.	Duration of Inundation and Saturation on the Study Site	B-9
5.	Calculation of Average Annual Habitat Suitability Rating and Total Habitat Under Existing Conditions	B-11
6.	Post-Development Habitat Suitability Rating	B-13
7.	Calculation of Average Annual Habitat Value and Total Habitat Units Under Development Scenarios	B-14
8.	Summary of Habitat Value Changes with Development Scenarios	B-16

List of Figures

1.	Habitat Map Outlining Study Areas	B-4

I. INTRODUCTION

Marathon U. S. Realties, Inc. (Marathon) would like to develop Tract 5167, a 134-acre parcel located immediately west of Hayward Airport. The property consists of a mixture of ruderal upland and seasonal wetland habitats. It has been identified by resource agencies as having important habitat values. Proposed development of the parcel would eliminate approximately 90 acres of seasonal wetlands. In order to compensate for this loss of habitat, Marathon proposes to restore or enhance wetlands on two parcels south of Sulfur Creek, presently owned by the Hayward Area Recreation and Park Districts (HARD). The purpose of this study is to quantitatively analyze the habitat value of the Marathon property, the East Bay Regional Park District (EBRPD) property to the west of the Marathon site, and the two HARD parcels located south of Sulfur Creek. In addition, the study will evaluate the habitat changes associated with the Marathon development, for two alternative designs, and upon the HARD and EBRPD properties as a result of proposed activities

The following discussion presents a rationale for and description of methods to evaluate the habitat. This study is based on established habitat evaluation methods with modifications to reflect the location, the specific habitats, the seasonal use of those habitats by a variety of wildlife.

II. METHODOLOGY

Rationale.

A survey of the methods available for wetlands assessment was conducted by Lonard, et al. (1984). This analysis was consulted to determine the best study design for evaluation of the Marathon site and adjacent sites. Upon examination of the 20 methodologies available to date for habitat assessment, it was determined that only two -- Reppert, et al. (1979) and the U. S. Fish and Wildlife Service Habitat Evaluation Procedures (HEP) (1980) were applicable to the objectives of this study. HEP is perhaps the most well known of all methodologies for assessing habitat values; it is used frequently by U. S. Fish and Wildife Service (FWS) to quantify the impacts associated with various water resource projects, and to quantify habitat enhancement associated with mitigation procedures. As noted by Lonard, et al. (1984), however, HEP has not been extensively applied to marine and estuarine systems, although the concepts may be applicable. Reppert, et al. (1979) was developed by the U. S. Army Corps of Engineers and is probably not as well known as the HEP, but it does offer the opportunity to quantitatively rate habitats and potential enhancement actions.

The HEP methodology involves the selection of up to 10 key species which represent the various groups of wildlife found on given sites. In

general, a species is selected as a representative of a whole class of species which have similar feeding behaviors and other habitat requirements. For each of those representative species, the suitability of the habitat present on the site for supporting that species is rated on a scale of 0-1. This "habitat suitability index" (HSI) is then multiplied by the acreage of the habitat being considered to give a value in nondimensional habitat units (HU). The sum of the habitat units for a site provides a quantitative value for the site. As designed, the method requires detailed quantitative information about the habitat being evaluated. It is this requirement for detailed quantitative information which creates the greatest difficulty in applying the HEP procedure to the Marathon site. First, there are relatively few west coast species for which habitat suitability models have been developed. Second, there are no models developed for estuarine species or the estuarine portion of the life cycle of anadromous or migrating species. As a result, at this time, it is not possible to apply the HEP methodology on a west coast estuarine or near estuarine system such as that found on the Marathon site and the adjacent HARD and EBRPD parcels.

In contrast, the Reppert, et al. (1979) methodology depends on a subjective judgment of the value of the habitat, as determined by a resource manager or specialist familiar with the species and/or habitats present on the site. In addition, the Reppert methodology makes no attempt to develop a quantitative habitat value which can be compared to other habitats on or adjacent to the site. The results of a Reppert type evaluation (e.g. aesthetics, etc.) are given a value on a scale of 1 to 3 (high, medium, and low) for each of the habitat types present on the site. It is then the responsibility of the reader or the resource manager to compare the results displayed in a matrix and make determinations concerning the relative value of the different habitat types present within the area of interest. This results in obvious limitations with regard to assessing the relative value of various habitat types before and after development activities.

For this study, we have combined features of these two methodologies in order to allow the development of a quantitative habitat value (similar to that developed in the HEP procedure), but based upon the less quantitative evaluation techniques applied -- the Reppert methodology. The proposed methodology consists of the following steps:

1) Establish a team of experts to evaluate the site
2) Outline evaluation criteria and general assumptions
3) Map vegetative communities and group them into habitats
4) Select species to be evaluated
5) Establish assumptions for future scenarios of habitats based on plans for development
6) Develop quantitative evaluations for each species in each habitat under each scenario.

Study Design.

The evaluation team was selected for their recognized expertise in wetlands habitats and the wildlife using them. The members invited to

participate included personnel from the FWS, California Department of Fish and Game (DFG), the Corps, the East Bay Regional Parks District (EBRPD), Phil Williams and Associates, Inc., Harvey and Stanley Associates, Inc., and Shapiro and Associates, Inc. For various reasons, the team available to conduct the actual on site analysis was limited to Nancy Olmsted of TRS Consultants, Inc., Mr. Ron Duke and Dr. H. T. Harvey of Harvey and Stanley Associates, Inc., Dr. Robert Coats of Phil Williams and Associates, Inc., and Marc Boule of Shapiro and Associates, Inc. Les Tong of the Corps contributed to the criteria development and assumptions determination planning session and Paul Kelly (DFG) and Margaret Kohl (FWS) provided comments on the species selection. The team reviewed the available information on the site and species, they agreed to the delineation of habitats, and then they outlined the following assumptions and criteria for evaluation.

Evaluation Assumptions and Criteria.

The basic unit of analysis is the "habitat"; it consists of grouping of vegetative communities that provide similar biological and physical resources to the wildlife using them. The sites to be evaluated were divided into six habitats as diagrammed on the habitat map (Figure 1). The six habitats were named and coded according to their locations. Criteria for separating them in this fashion were:

- amount of human or livestock disturbance
- vegetation characteristics
- hydrologic characteristics (i.e. influence of tidal action, seasonal ponding, groundwater seepage, etc.)

The Marathon property Tract 5167 was divided longitudinally into wet and dry parcels with the eastern upland some saltmarsh and agricultural habitat types combined as MARDRY (approximately 76 acres). For purposes of analysis, some of the transitional and saltmarsh habitat was included in this parcel since it served as one continous habitat type. MARWET consists of 58 acres of the wetland habitat types including the ponded areas in the southern half of the site (see Figure 1).

The EBRPD property was divided longitudinally along the boundary between annual and perennial pickleweed communities; they were coded EBAYE and EBAYW. The two HARD parcels were treated as single habitats and labeled HARDE and HARDW.

The habitats were given a habitat suitability rating (similar to the HSI in HEP) on a scale of 0-3 for each species. The lowest rating indicated no value to the species, whereas a value of 3 indicated support of the species in more than two behaviors (i.e., feeding, breeding, resting, etc.). Each habitat was evaluated on both a wet and dry season basis.

To simplify the analysis, it was assumed that all species analyzed had equal resource value. It was also assumed that all species used all habitats at some time during their life cycle. Species were selected on

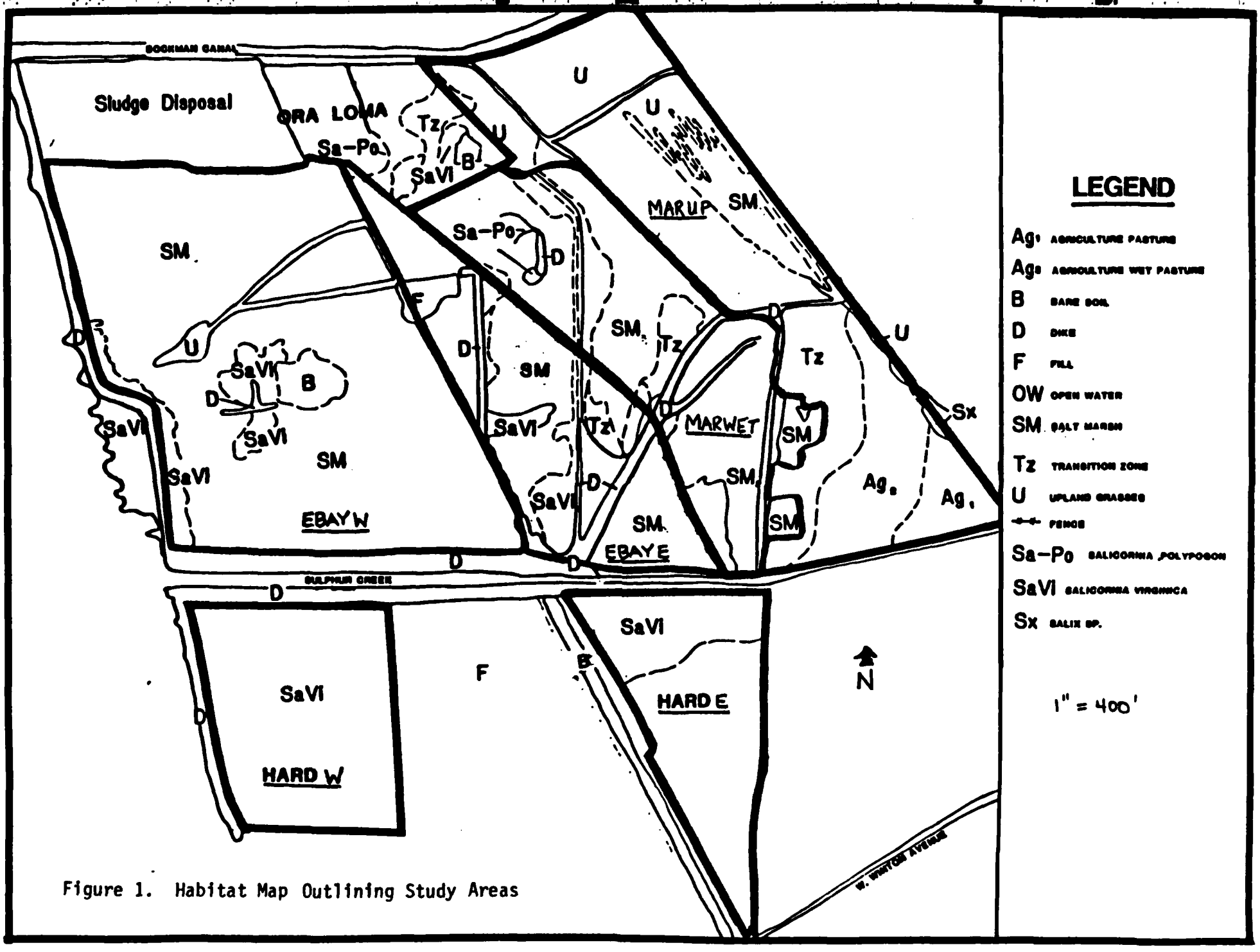


Figure 1. Habitat Map Outlining Study Areas

the basis of their ability to represent a group of animals exhibiting similar life requirements. For instance, the snowy egret was chosen to represent the entire group of herons and egrets. The species selected included a majority of birds because the site supports more shorebirds and waterfowl than any other wildlife forms. No rare, endangered, or threatened animals were used in the analysis. The rationale for this was that these species are generally not representative of an entire group of species. Furthermore, since it was assumed that the species selected were to have equal resource value, evaluating for a species that might have specific essential or critical habitat on the site would bias the results in favor of that habitat type.

The wildlife species selected and the group they represent are listed in Table 1.

Table 1. Species List and Group Each Represents

Common Name	Code	Group
Snowy Egret	SNEG	Egrets/Herons
Greater Scaup	GRSC	Diving Ducks
Northern Harrier	NOHA	Raptors
Northern Shoveler	NOSH	Dabbling Ducks
Black-bellied Plover	BLPL	Shorebirds
Black-necked stilt	BLST	Shorebirds
Greater Yellowlegs	GRYE	Shorebirds
Meadowlark	MELA	Passerines
Gopher Snake	GOSN	Reptiles
California Vole	CAVO	Small Mammals

There was considerable debate among the evaluation team with regard to the duration of inundation and saturation of the various parcels being considered. It is characteristic of seasonal wetlands that more wildlife use them and therefore, they have a higher habitat value when wet than when dry. In order to account for this variability, habitat suitability ratings for each species were calculated under both wet and dry conditions for all sites. The wet and dry values were then weighted in proportion to their annual duration and summed to provide an average annual rating for the entire year. [For example, if a particular habitat is inundated 3 months of the year with a value of 3 for snowy egret, and is dry for 9 months, with a value of 1, then the total habitat value for snowy egret in that habitat would be calculated as follows: $3(3/12) + 1(9/12) = 1.5$]

Existing Habitats and Future Scenarios.

The predicted habitat changes for the future, as discussed in the EIR/EIS and agreed to by the team, are outlined in Table 2. These scenarios are based on preliminary restoration designs developed for

Marathon by Phil Williams and Associates (1979). Because of the paucity of appropriate mitigation sites in the San Francisco Bay region, it was decided that the proposed site (Tract 5167) mitigative purposes should be included in the analysis. As proposed by Alameda County, development of the Industrial Transportation Corridor would have a major effect on the quality of the wetland habitats of the Marathon property. Since the permit for the construction is not currently being pursued for that development (R. Gushue, City of Hayward, 1984), it was decided that the evaluation would consider both future scenarios: with and without development of the transporation corridor. The chosen target year for the future analysis, 1994, assumes that all development would take place and the new vegetative communities would establish and stabilize prior to that date.

Table 2. Existing Habitats and Future Scenarios

Code	Existing Habitats	Description
MARWET	Marathon Wetlands	seasonal salt marsh
MARUP	Marathon Uplands	wet pasture, grassland
EBAYE	EBRPD east portion	seasonal pickleweed marsh; ruderal upland on dikes
EBAYW	EBRPD west portion	seasonal pickleweed marsh
HARDE	HARD east (parcel A)	bare ground and seasonal pickleweed marsh
HARDW	HARD west (parcel B)	seasonal pickleweed marsh

Future Scenarios	Assumptions
1. Future without the project	1984 baseline habitat conditions all sites
2a. Marathon Property - 100% developed (The presence or absence of the transportation corridor would not significantly alter the total habitat values under this scenario.)	no habitat value to any species
2b. Marathon Property - 75% developed with the Transportation Corridor Construction	
MARUP	no habitat value to any species; 100% developed
MARWET	approximately 30 Ac restored restored salt marsh between the development and the corridor

Table 2. (continued).

Future Scenarios	Assumptions
2c. Marathon Property - 75% developed without the Transporation Corridor Construction	
MARUP	no habitat value to any species; 100% developed
MARWET	permanent salt marsh, open water channels and mudflats continguous with EBRPD salt marsh
3. East Bay Regional Parks District	
EBAYE	1984 baseline conditions
EBAYW	1984 baseline conditions
4. Hayward Area Recreation and Parks District	
HARDE	Salt/brackish marsh, channels, mudflats, and islands
HARDW	15 acres open water with an island. Salt marsh community on island and on periphery of site

III. RESULTS

The results of this evaluation are presented as a series of tables (3-9) depicting existing habitat suitability ratings and potential future habitat suitability ratings for each species and each habitat within the study area. In each, the total rating for each habitat has been adjusted to reflect the period each habitat is inundated or saturated. Habitat values (HU) are calculated as the product of the habitat suitability rating and the area of each habitat. The final summary matrix compares the habitat values on the site and the adjacent properties before and following completion of development.

Duration of Inundation.

Since there have been no long-term studies of inundation on any of the properties under consideration, it was necessary to estimate the

average annual duration of inundation using existing aerial photography from 1976 to present. Table 3 lists the date of the photographs which were analyzed and the inundation characteristics apparent from each photograph.

Based on this aerial photographic analysis, it appears that most of the area is better drained than was originally assumed. During the winter of 1983-84, there was more water on the EPRPD parcel and the HARDW parcel than in previous years; this was apparently due to storm flooding over the dikes. These investigations suggest the periods of inundation and saturation listed below (Table 4).

Table 4. Duration of Inundation and Saturation on the Study Site

Parcel	Inundated	Saturated
MARDRY	rarely	2 months maximum
MARWET	1-2 weeks	2 months maximum
EBAYE	1-2 weeks	2 months maximum
EBAYW	1-2 weeks	2 months maximum
HARDE	10% covered 1-2 months	1-4 months
HARDW	50% covered 1-2 months	1-4 months

In an effort to provide an assessment based on maximum inundation under normal conditions, the periods of saturation were used to determine the habitat suitability ratings.

Habitat Evaluation, Existing Conditions.

As discussed in the methodology section, each habitat was rated for its suitability to support the major life functions of each of 10 species identified as characteristic of the site. Since most of the habitats are inundated only a portion of the year, they were evaluated in both a wet and dry condition. The results of this evaluation of existing conditions are shown in Table 5. The "total" rating is considered to be overall assessment of habitat suitability for each habitat under wet or dry conditions.

Inspection of Table 5 reveals that all habitats have considerably greater habitat value, at least for the species being evaluated, when they are inundated. It is also apparent that even when inundated, the upland portion of the Marathon site does not have as great a value as the adjacent wetland portion or the nearby park properties. It is also apparent that it is the value to the meadowlark and gopher snake which distinguish the Marathon parcel during the dry season.

Given the significant differences in habitat suitability between wet and dry periods, the overall annual average habitat suitability should be calculated by combining the two values weighted in proportion to their

Table 3

HISTORIC PHOTOGRAPHIC INTERPRETATION OF INUNDATION
ON MARATHON, EBRPD, AND HARD PARCELS

Photograph Date	Inundation Characteristics*
2-10-76**	MARWET, MARDRY, EBAYE, EBAYW - dry HARDE - approximately 10% inundated HARDW - ditch along north side inundated
6-1-77**	All parcels dry
11-19-77**	All parcels dry
12-14-78**	MARWET, MARDRY, EBAYE, EBAYW, HARDW - dry HARDE - ditch inundated
4-13-79	MARWET, MARDRY, EBAYE, EBAYW - no surface water visible in vegetated or unvegetated areas HARDE - ditch inundated HARDW - 15% covered
5-17-80	MARWET, MARDRY, EBAYE, EBAYW - no surface water visible in vegetated or unvegetated areas HARDE - ditch inundated HARDW - 15% covered
4-80	MARWET, MARDRY - dry EBAYE, EBAYW - no surface water visible in vegetated or unvegetated areas HARDE - dry HARDW - 25% covered
9-31-81	All parcels dry

*See Future Scenarios for the various parcels under consideration
**Severe drought period

period of occurrence. In the previous section, the duration of inundation and saturation was listed (Table 4). That table indicated the HARD parcels are saturated a maximum of 4 months or 33% of the time, while the other parcels are saturated only 2 months of the year, or about 17% of the time. From these figures, the average annual habitat suitability rating can be calculated for each habitat (Table 6).

Table 6 also lists the area of each habitat under consideration. The product of this area and the average annual habitat suitability is the habitat value in non-dimensional habitat units (HU).

Habitat Evaluation, Post-Development.

In order to determine the potential changes in habitat value on the various parcels as a result of a development or mitigation efforts, it is necessary to determine what the character of those habitats will be. With the assistance of Bob Coats of Phil Williams and Associates, designers of the potential marsh restoration plan, the evaluation team was able to project the habitat ratings for each species in each habitat in the same manner in which it was done for existing conditions.

As noted in the methodology discussion, three different development scenarios were evaluated: 100% development of the Marathon parcel; 75% of the Marathon parcel with the transportation corridor constructed; and 75% without the transportation corridor. The EBAYE habitat was evaluated to determine the impacts from development on the Marathon site, but it was assumed there would be no impacts on EBAYW. Finally, the HARDE and HARDW habitats were evaluated to assess the effects of restoration activities. The restoration concept evaluated assumed that HARDW would be a deep water (to 3 feet) saline wetland oriented toward waterfowl, and HARDE habitat would be a shallow saline wetland more suitable for shorebirds. Table 7 shows the results of these projections and evaluations.

As with Table 5, the "total" habitat suitability rating is considered to be an overall assessment of habitat suitability for each habitat and species under the various scenarios. Under any proposed action, all of the MARUP habitat would be developed and therefore have no habitat suitability for the 10 species being considered. With 100% development, the MARWET habitat would also be eliminated; however, under the 75% development scenario, approximately 35 acres of MARUP would be enhanced as tidal wetland. Construction of the transportation corridor would decrease habitat suitability ratings in that enhanced area by isolating it from the EBAYE habitat. Similarly, the completion of a 100% development on MARWET would also reduce habitat suitability ratings on EBAYE, especially for shorebirds.

The proposed restoration of the HARDE and HARDW habitats involves adding sufficient storm water during the winter and tidal water during the summer to maintain them as inundated year-round. As a result, it is not necessary to calculate an average annual habitat suitability rating for those parcels; the water regime and, therefore, habitat suitability,

Table 5

CALCULATION OF AVERAGE ANNUAL HABITAT SUITABILITY RATING
AND TOTAL HABITAT VALUE UNDER EXISTING CONDITIONS

Habitat	Water Regime	Total Habitat Suitability Rating	Duration of Water Regime	Weighted Habitat Suitability Rating	Avg Annual Habitat Suitability Rating	Area (acres)	Habitat Value (HU)
MARUP	Inundated	16	.17	2.7	10.2	86	877
	Dry	9	.83	7.5			
MARWET	Inundated	19	.17	3.2	12.3	69	849
	Dry	11	.83	9.1			
EBAYE	Inundated	21	.17	3.6	9.4	53	498
	Dry	7	.83	5.8			
EBAYW	Inundated	20	.17	3.4	9.2	144	1325
	Dry	7	.83	5.8			
HARDE	Inundated	21	.33	7.0	11.7	42	491
	Dry	7	.67	4.7			
HARDW	Inundated	20	.33	6.6	13.3	52	692
	Dry	7	.67	4.7			

Table 6

POST-DEVELOPMENT HABITAT SUITABILITY RATING

Habitats	Species										TOTAL
	GOSN	SNEG	NOSH	BBPL	BNST	GRYL	NOHA	MELA	CAVO	GRSE	
MARUP	0	0	0	0	0	0	0	0	0	0	0
MARWET											
100%	0	0	0	0	0	0	0	0	0	0	0
75% W/TC*	1	3	2	1	2	2	1	0	1	0	13
75% WO/TC**	1	3	3	2	3	3	2	1	1	1	20
EBAYE											
Inundated	1	3	1	2	3	2	2	1	1	0	16
Dry	1	1	0	0	0	0	1	1	1	0	6
EBAYW											
Inundated	1	3	3	2	2	2	3	1	2	1	20
Dry	1	1	0	0	0	0	2	1	2	0	7
HARDE	0	3	2	3	3	3	2	1	1	2	20
HARDW	0	3	3	2	2	3	2	0	0	3	18

*With completion of transportation corridor
**Without completion of transportation corridor

Table 7

CALCULATION OF AVERAGE ANNUAL HABITAT VALUE
AND TOTAL HABITAT UNITS UNDER DEVELOPMENT SCENARIOS

Habitat	Water Regime	Total Habitat Suitability Rating	Duration of Water Regime	Weighted Habitat Suitability Rating	Avg Annual Habitat Suitability Rating	Area (acres)	Habitat Value (HU)
MARUP	N/A[1]	0	N/A	0	0	0	0
MARWET							
100%	N/A[1]	0	N/A	0	0	0	0
75% w/TC	N/A[2]	13	1.0	13.0	13.0	35	455
75% wo/TC	N/A[2]	20	1.0	20.0	20.0	35	700
EBAYE[3]	Inundated	16	.17	2.7	6.9	53	366
	Dry	5	.83	4.2			
EBAYW[3]	Inundated	20	.17	3.4	9.8	144	1325
	Dry	7	.83	5.8			
HARDE	N/A[4]	20	1.0	20.0	20.0	42	840
HARDW	N/A[4]	18	1.0	18.0	18.0	52	936

[1]Totally developed; therefore, no water regime

[2]Restored 35 acres would be tidal, not seasonal

[3]Water regime in these areas would not change from existing conditions

[4]Restored to winter storm runoff and summer tidal conditions

remains the same throughout the year. Such a rating would be necessary for the EBAYE and EBAYW habitats only if substantial seasonal variations in water regime were to continue to occur. The calculations of habitat suitability rating and post-development habitat value are shown in Table 8.

Several notable differences are apparent when comparing the values calculated for post-development (Table 8) with those calculated for existing conditions (Table 6). These include:

- Total development of the Marathon property (MARUP and MARWET) results in substantial loss of habitat value (loss of 1726 HU).
- Enhancement of 35 acres of MARWET, without construction of the transportation corridor results in a substantial increase in habitat suitability rating for that area (loss of 796 HU).
- Total development of the Marathon property results in some decrease to habitat values in EBAYE (loss of 132 HU).
- Enhancement of HARDE and HARDW through the addition of storm and tidal waters results in a substantial increase in habitat suitability rating, and hence habitat value (gain of 697 HU).

IV. SUMMARY AND DISCUSSION

A modified Habitat Evaluation Procedure (HEP) was developed to quantitatively assess the existing habitat values and the potential post-development values on four properties in the City of Hayward, California. Three of the four properties were evaluated as entirely seasonal wetlands. The fourth, a proposed development site of approximately 134 acres, was divided into a wetland habitat of about 55 acres and adjacent upland (dry) area of about 74 acres.

The procedure used was modified from the HEP developed by US Fish and Wildlife Service (1980) using concepts developed by the Corps of Engineers (Reppert, et al., 1979). Using the basic HEP format, 10 wildlife species were selected as representative of the major groups presently using the study area. Due to concerns about seasonal wetlands, these 10 representative species were dominated by shorebirds and waterfowl. The four parcels were divided into six habitats, corresponding to property boundaries and major variations in water regime. Two local wildlife biologists with extensive experience in the study area then developed a habitat suitability rating for each species at each habitat. The rating, on a scale of 0-3, indicated the suitability of each habitat to provide for the major life support functions of each species being considered. Given the seasonal nature of inundation on these habitats, the rating for each area was calculated for both wet and dry seasons. The seasonal values were summed and weighted for the duration of inundation, resulting in an average annual habitat suitability rating. The product of the habitat suitability

Table 8

SUMMARY OF HABITAT VALUE CHANGES
WITH DEVELOPMENT SCENARIOS

	Habitat Value (HU)			
Habitat	Existing	100% Development*	75% Development w/TC	75% Development wo/TC**
MARUP	877	0	0	0
MARWET	849	0	455	700
EBAYE	498	366	498	498
EBAYW	1325	1325	1325	1325
HARDE	491	840	840	840
HARDW	692	936	936	936
TOTAL	4732	3467	4054	4299
% Change	0%	-27%	-14%	-9%

*Assumes enhancement of HARDE, HARDW

**Assumes enhancement of HARDE, HARDW, and 35 acres of MARWET

rating and the total area of the habitat results in a non-dimensional habitat value.

A description of the potential development and habitat enhancement scenarios was provided to the evaluation team. From these, a new set of habitat suitability ratings was developed. Post-development habitat values were calculated based on the conditions and habitat areas predicted for each scenario.

The results of this evaluation are summarized in Table 8. As noted earlier, 100% development of the Marathon properties would result in a substantial loss of habitat value (loss of 1858 HU) north of Sulphur Creek, including secondary impacts at EBAYE. A reduced scale of development assuming no transportation corridor construction, with 35 acres of enhanced wetland in MARWET, would significantly decrease this loss (1026 HU). Enhancement of the HARDE and HARDW properties south of Sulphur Creek would increase their combined habitat value by about 593 HU. Under the reduced development and enhancement scenario with the transporation corridor overall habitat values in the area would decrease by about 433 HU or 9%.

It should be noted that the general level of information about wildlife habitat needs (not to mention our limited predictive capabilities) probably does not justify level of precision pursued in this analysis. However, the methodology does provide a mechanism for comparing changes in habitat value over time and space. This analysis does suggest that the proposed development, even with a commitment to enhancement of the HARD parcels, would reduce habitat values in the area by approximately 27%, and that a slight reduction in the scale of that development could reduce those losses to about 9%.

V. REFERENCES

Lonard, R. I., E. J. Clarain, R. T. Huffman, J. W. Hardy, L. D. Brown, P. E. Ballard, and J. W. Watts, 1984. Wetlands Functions and Values Study Plan. Appendix A: Analysis of Methodologies for Assessing Wetlands Values. Environmental Laboratory, U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Reppert, R. T., W. Sigeleo, E. Stakhiv, L. Messman, C. Meyers, 1979. Wetland Values. Concepts and Methods for Wetland Evaluation. Institute for Water Resorces. U. S. Army Corps of Engineers, Fort Belvoir, Virginia.

U. S. Fish and Wildlife Service, 1980. Habitat Evaluation Procedures. Fort Collins, Colorado.

Philip Williams and Associates, 1979. Preliminary Design for Marsh Restoration, Marathon Project.

Gushue, R., 1984. Personal Communication from the City of Hayward.

APPENDIX C:

MARSH RESTORATION DESIGN FOR TWO PARCELS ON THE HAYWARD SHORELINE

Philip Williams & Associates
Consultants in Hydrology

Pier 33 North, The Embarcadero
San Francisco, CA 94111
Phone: (415) 981-8363

MARSH RESTORATION DESIGN

FOR TWO PARCELS ON THE HAYWARD SHORELINE

By

Robert N. Coats, Ph.D.
Senior Associate

With Contribution From
H. Thomas Harvey, Ph.D.
Harvey & Stanley Associates, Inc.

25 June 1984

Philip Williams & Associates
Consultants in Hydrology

Pier 33 North, The Embarcadero
San Francisco, CA 94111
Phone: (415) 981-8363

MARSH RESTORATION DESIGN

FOR TWO PARCELS ON THE HAYWARD SHORELINE

Introduction

The proposed Marathon development (Phase II) in Hayward could eliminate about 90 acres areas of seasonal wetland. In order to provide mitigation, Marathon Development California, Inc. proposes to restore or enhance wetlands on two parcels on the south side of Sulphur Creek that are owned by the Hayward Area Recreation and Park District. The purpose of this report is to describe the preliminary design for wetland restoration at the site.

Objectives of wetland restoration

There are three primary objectives for this marsh reclamation project. These are 1) to create a productive and biologically diverse wetland that provides wildlife habitat; 2) to enhance quality of surface runoff 3) to maintain or enhance flood control opportunities. In this (as in all marsh restoration projects) there are budgetary constraints. Keeping costs within the limits of economic feasibility for the Marathon corporation is also an important project objective.

1. Biological productivity

The benefits to wildlife of wetland restoration are highly variable, depending on the vegetation, water chemistry and hydrology. The endangered salt marsh harvest mouse, for example, depends on pickleweed with infrequent innundation; protected open water areas provide resting areas for waterfowl; salt marsh estuaries are favored as feeding sites for wading birds.

Along the Hayward shoreline, protected open water areas have been shown to provide important resting and feeding areas during winter months for shorebirds and waterfowl. These open areas are provided by salt evaporation ponds and seasonal wetlands (McKevitt, 1984). The primary goal of this project will be to enhance the value of the HARD parcels as open water and seasonal wetland.

2. Water quality

Improvement of urban storm runoff quality is another objective of this project. Typical quality problems of urban stormwater runoff include oil and grease, sediment, heavy metals, Biochemical Oxygen Demand (BOD), nutrients, fecal coliform bacteria and trash (ABAG, 1983). A marsh basin at Palo Alto was found to be effective in reducing BOD, suspended sediment and volatile suspended solids; the pickleweed in the marsh was found to accumulate heavy metals (ABAG, 1979). Several water quality problems presently exist at the site (see below). A secondary objective of this project is to provide natural marsh treatment of urban runoff, improve the quality of ponded water during

summer months, and clean up exposed garbage on the margins of an adjacent landill.

3. Flood control and shoreline erosion

The flood control objective in this project is to maintain or improve channel capacity of Sulphur Creek, protect the adjacent filled lands from wave erosion, and ensure that water elevations in the eastern parcel do not threaten adjacent property values.

Description of the site

1. Physical environment

Figure 1 is a map showing the location of the two parcels. Numbered locations on the map refer to the discussion below. Prior to diking, a portion of the site was covered by natural salt ponds, isolated from the Bay by beaches and interfingering with pickleweed marsh (Nichols and Wright, 1971). Part of the area, especially parcel A, was covered by commercial salt ponds in the early 1900s. Some of the underlying soils may therefore be high in salt. Soils on the site have not yet been sampled, but they are no doubt clay-rich and poorly drained.

Figure 2 shows the range of elevations of parcels A and B, along with the tidal descriptors and percent of time a given elevation is equalled or exceeded by the tide level. The range of elevations in both parcels is favorable for marsh enhancement and restoration.

During the 1950s and '60s, adjacent lands (now owned by the Alameda County Flood Control District and by Pacific F.M.) were

used as a garbage dump. The dump was abandoned in the late 1960s or early 1970s, prior to the Regional Water Quality Control Board's Resolution 77-7, which established standards for closing and sealing Class II solid waste disposal sites. The dump was never properly capped and sealed, although fill was graded over the surface. Water infiltrates the surface and leachate emerges in several spots along the sideslopes, adjacent to the HARD parcels. Where the sideslopes are eroding (especially at 9), trash and debris are exposed and wash onto the HARD parcels.

At present, surface and shallow groundwater enter the parcels from several sources. A 86.5 acre area bounded by Sulphur Creek on the north, the S. P. railroad tracks on the east, and a line roughly parallel to and 200 ft. north of Winton Ave. on the south drains to the Marathon site on the south side of Sulphur Creek (Liskamm, 1982). Some of this runoff may seep through the low dike that separates the HARD parcel A from the Marathon site (at 6). Second, Parcel A receives surface runoff at 7 from a ditch on the north side of Winton Ave and at 8 from a ditch on the west side of the parcel. Runoff to this ditch comes from the wrecking yards, the Santucci cattle feedlot on the south side of Winton, and from an undetermined area along Winton Avenue. This runoff is supposed to flow south rather than entering parcel A (Angelo Isquierdo, Alameda Co. Flood Control District, personal communication).

Following completion of the Marathon Phase II development, the 86.5 acre area will be served by a pump station that will discharge into Sulphur Creek. The total contributing area for the pump station (including the development on the north side of

Sulphur Creek) will be about 200 (M& M Engineering). This runoff is designed to discharge to Sulphur Creek but could be diverted to Parcel A at 6 for seasonal wetland on brackish marsh. Surface runoff and shallow groundwater also enter both parcels from the adjacent filled areas of the A.C.F.C.D. and Pacific F.M. Water also enters Parcel B from the Bay during extreme high tides, when the levee on the west side of the parcel is overtopped by waves. This apparently happened during the Dec. 3, 1983 storm.

The two parcels are connected by a ditch just inside of the levee on the south side of Sulphur Creek. At its western end, the ditch enters a culvert beneath an access road (at 2).

There are three significant water quality problems at the site. First, leachate from the garbage dump is discolored and contains oil and grease. Second, surface runoff from the wrecking yards on Winton Ave. is heavily contaminated with oil and grease; grass along the roadside ditch is killed when the water level rises. Third, cattle grazing on site and runoff from the Santucci feedlot both contribute animal wastes.

Because of concerns about the quality of leachate that enters the parcels from the old landfill, water samples were collected at 10 locations around the parcels. Sampling locations are indicated on Figure 1 by Roman numerals. Samples were collected on February 10, 1984, placed on ice and delivered to Brown and Caldwell Analytical Services Division. The samples were analyzed for pH, specific conductance, total organic carbon (TOC), total organic halides (TOX), lead, arsenic, cadmium, chromium, copper, mercury, and zinc. Table 1 shows the results.

The symbol "<" (less than) indicates that the concentration was below the level of detection.

The values for pH, specific conductance and TOC indicate that the samples are brackish, contain significant concentrations of dissolved organic matter, and are not contaminated with strong acids. None of the heavy metal concentrations are high enough to be cause for concern. The TOX concentrations, however, are appreciable, but without analysis of specific compounds there is no way to assess their significance. The concentrations are reported as chloroform. TOX and TOC are highly correlated for the dump leachate samples ($r^2 = .92$); in other words, where dissolved organic carbon is high, organic halides are also high. A relatively consistent fraction of the dissolved organic carbon is halogenated, but the source of the material is an open question.

In order to estimate the water elevations and salinity under existing conditions for wet, median and dry years, a water balance was developed for the site. In a median year with no outflow from the parcels, the water surface can be expected to reach a maximum elevation of only +2.6 ft NGVD, assuming no inflow from the bay, and it will drop to an elevation of 1.0 ft NGVD by July. This suggests that the high water on the site during the 1983-84 winter resulted from unusual December runoff combined with the overtopping of the bayward level during the second high tide of December 3, 1983.

Color IR photos taken on May 17, 1980, substantiate that the area is not inundated for long. The photos show that almost all of surface area of parcel A is drained, and water on parcel B is

ponded only on the east, west and south sides. Elevation of the water surface at the time of the photo was only about +1.5 ft NGVD. This is especially significant since 1980 was an usually wet year.

2. Present wildlife uses

During the 1983-84 winter, the HARD parcels were heavily used by wintering and migratory water birds. As seasonal wetland habitats they provide both waterfowl and shorebirds with feeding and resting sites. During March 1983, 33 different species were observed using parcel A (see Appendix A). Approximately 500 individuals were counted during the observation time. Parcel A is covered primarily by pickleweed over about 15 acres. It is, however, both widely spaced and short pickleweed, so that it is highly unlikely that salt marsh harvest mice are present (Dr. H.S. Shellhammer, pers. comm.).

Parcel B is presently a relatively barren basin (reputably mechanically cleared) that holds water to varying depths during the rainy season. Last winter (1983-84) served as a prime habitat for waterfowl (Paul Kelly, pers. comm.). During a visit in March, we also observed over 1,000 ducks on the water. If the unusual conditions of 1983-84 fail to occur for a few years it is likely that pickleweed will re-invade the area in a manner similar to the situation on parcel A.

Grading plans

To meet the objectives stated above, Parcel A will be treated as a brackish marsh with shallow water (0-1 ft deep).

Channels will be dug to a bottom elevation of 0.0 ft NGVD. A 30-ft wide channel will route stormwater from the northeastern corner of the triangle to the apex at the south end, and thence to the outlet at the northwestern corner. There also will be a network of interconnecting 10-ft wide ditches to drain the interior of the parcel. In addition to raised areas along the EBDA line, three new islands will be built and covered with sand or fine gravel. Margins of the old landfill will be covered with new fill and graded to a slope of 10:1.

Parcel B will be maintained as open water area through the summer. This will entail excavating about 15 acres to an elevation of 0.0 feet. (NGVD) Margins of the old landfill will be covered and graded to a maximum slope of 10:1. This slope will merge gradually with a gently sloping shelf (about 0.3%) 150 ft wide at an elevation of 2.75 to 3.25. Once this shelf is vegetated, it will dissipate wave energy and prevent further erosion of the landfill margins. One island will be built in the ponded area, with an area of about 0.4 acres.

The total amount of material excavated will be about 62,500 yds^3. This will provide enough material to build the shelf around the east and south sides of Parcel B, and cover the margins of the old landfill to a depth of 2 to 6 feet, and build 6-7 islands of 440 yds^3 each. By building 10:1 slopes on the margins of the landfill to a lesser elevation (nine feet instead of a maximum of 14 feet), additional material could be made available for fill elsewhere. Some of this fill can be used to increase the elevation of the Sulphur Creek dike to 9.0 feet NGVD as additional protection against overtopping.

Control Structures and Water Management

During winter months, stormwater will be pumped from the pump station on the south side of Sulphur Creek. Flashboards will maintain the water surface elevation at 3.0 ft NGVD. This will inundate 20.6 acres of channel and pond to a depth of 3.0 ft NGVD, 29.3 acres to a depth of 1.0-2.0 ft NGVD, and 20.5 acres to a depth of 0.0-1.0ft NGVD.

During summer and fall of most years, inflow of water from Sulphur Creek will be needed to maintain water levels. The flow of water from the northeast corner of parcel A to the out-flow at the mouth of Sulphur Creek will be maintained by the difference in elevation of the wiers and culverts, and by tide gates. Water will flow into parcel A for a short period each day, during the higher high tide, and will flow out when the tide drops below 3.0 ft NGVD. This will allow about 22.5 hours each day (on the average) during which the parcels may drain.

Three inlet-outlet structures will be needed. These are:

1. An inlet structure at the northeast corner of parcel A, opening into Sulphur Creek. Inflow will be controlled by a screwgate and flashboards. When there is sufficient pumpstation inflow to maintain water surface elevations above 2.0 ft NGVD, the screwgate will be closed. Between late winter and fall, the screwgate will remain open, allowing control of inflow by a variable weir. Elevation of the weir will be around 3.5 ft, allowing inflow to occur on the average about on hour per day.

Additional modifications could also include an automatic shut-off valve to prevent inflow above 3.0 ft NGVD, and an inlet pipe sized to restrict the inflow rate.

2. A 48" culvert with slide-flapgate at the upper end of the ditch that connects Parcels A and B. This will stay open most of the time, but allow either parcel to be drained without affecting the other.

3. A 48" box culvert, with drop-box, flashboards and flapgate at the northwest corner of Parcel B. Top of the flashboards will be at 3.0 feet; the culvert invert will be at 0.0 feet. The outlet will drain into Sulphur Creek; this will help protect the structure from wave erosion.

To determine when inflow of water from Sulphur Creek will be needed, a water balance for the parcels was calculated, for the 1 in 10 dry year, 1 in 10 wet year and the median year. Precipitation was based on long-term records for Oakland, adjusted to an annual mean of 16 inches at the site (Rantz, undated). The runoff coefficients were based on the assumption of full development of the Marathon site, from Crippen and Waananen, 1969). Runoff for the old landfill area was taken from Rantz's (1974) map of natural runoff for the San Francisco Bay Area. Runoff coefficient for the marsh area was taken to be 1.0. Evaporation was taken from class A evaporation pan data for Burlingame. Results of the water balance are shown in the Appendix.

The water balances show that in a 1 in 10 dry year, evaporation would exceed runoff even during the winter, and throughflow from Sulphur Creek would be necessary year-round to maintain the water level of 3.0 ft. During a median year, there would be discharge from the area in December, January February, and March, and salinity would remain below that of bay water through May. Throughflow from Sulphur Creek in the median year could start in May and continue into the following October. During the 1 in 10 wet year, throughflow would not be needed until June to maintain water levels.

The salt balances for the parcels were calculated along with the water balances. Initial salt concentration was taken to be that of bay water (30 parts per thousand). Salt concentration of runoff was assumed to be 500 parts per million in fall and spring, and 250 parts per million in winter. Without throughflow, salinity would exceed that of Bay water year round in a dry year, and during summer months in a median year. In a wet year, however, salinity would drop to about one-tenth that of Bay water. The low salinities would be favorable for survival of ducklings. It might be better in a wet year to delay introduction of water from Sulphur Creek and allow the water level to drop to 2.5 or 2.0 ft NGVD.

A number of tasks in the design of the marsh system remain. First, the elevation and size of the inlet structure need to be calculated. If the pipe (or weir) is too low or too large, the parcels could flood above +3.0 ft; if too small or too high there would not be enough inflow to maintain circulation. Second, the

sedimentation rate on the parcels needs to be calculated. This will depend on water velocities, and the suspended sediment concentration of incoming water. These calculations may in turn suggest some more slight modifications in design. Third, more detailed grading calculations need to be done for parcel B. The present map at a scale of 1'=200' for parcel B does not have sufficient detail to permit accurate balancing of cuts and fills. Fourth, the impact of the design on flood levels needs to be evaluated.

Vegetation

Islands and margins of both parcels would be rapidly invaded by pickleweed; due to evaporation at the soil surface, soil salinities would soon be too high for non-halophytes. Flooded areas would not become vegetated.

Enhancement benefits

The proposed design would provide the following benefits:

1) Enhanced shorebird habitat in parcel A. Most of the area would have water depths of about 0.5 ft NGVD throughout the year. Under present conditions (in a median year), there is barely enough runoff to cover parcel A during February and March, and the area quickly dries.
2) Enhanced nesting success for waterfowl, due to protection provided by islands and (in wet and normal years) reduced salinity in the spring.
3) Increased duration of open water for ducks in parcel B.
4) Increased vegetative cover around the perimeter and on

islands.

5) Increased diversity of habitats, including deep water, shallow water, islands and vegetated slopes.

6) Increased water circulation and dilution of summertime seepage from the adjacent landfill.

7) Biological filtering of urban runoff during the storm season.

8) Removal or burial of old refuse presently exposed on the surface around the margins of the parcels.

REFERENCES

Association of Bay Area Governments, 1979. Treatment of Stormwater Runoff by a Marsh/Flood Basin, Interim report, Berkeley, CA 89 pp.

Association of Bay Area Governments, 1983. The Use of Wetlands for Water Pollution Control. EPA 600/S2-82-086.

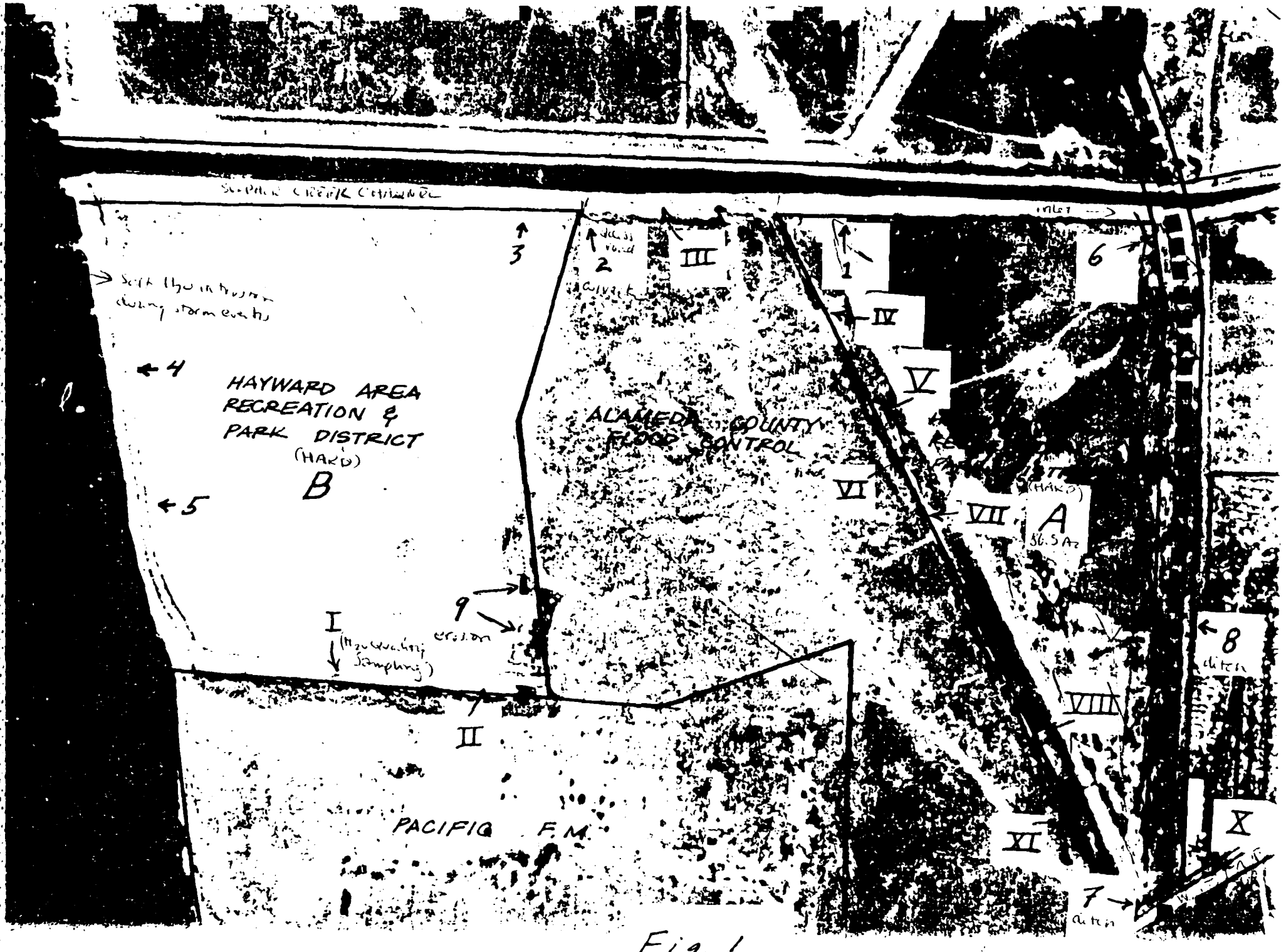
Crippen, J.R. and A. O. Waananen, 1969. Hydrologic effects of suburban development near Palo Alto, California. U.S. Geological Survey open file report, Menlo Park, CA 10 pp.

Liskamm, W. H., 1982. Draft EIR for Marathon Industrial Development. Prepared for Planning Dept. City of Hayward.

McKevitt, J. J., 1984. Letter to James Christian dated April 17. U.S. Fish & Wildlife Service.

Nichols, D. R. and N.A. Wright, 1971. Preliminary map of historic margins of marshland (S.F. Bay). U.S. Geological Survey open file report.

Rantz, S. E., undated. Isohyetal map of San Francisco Bay Region, California, showing mean annual precipitation. U.S. Geological Survey, Meno Park, CA.

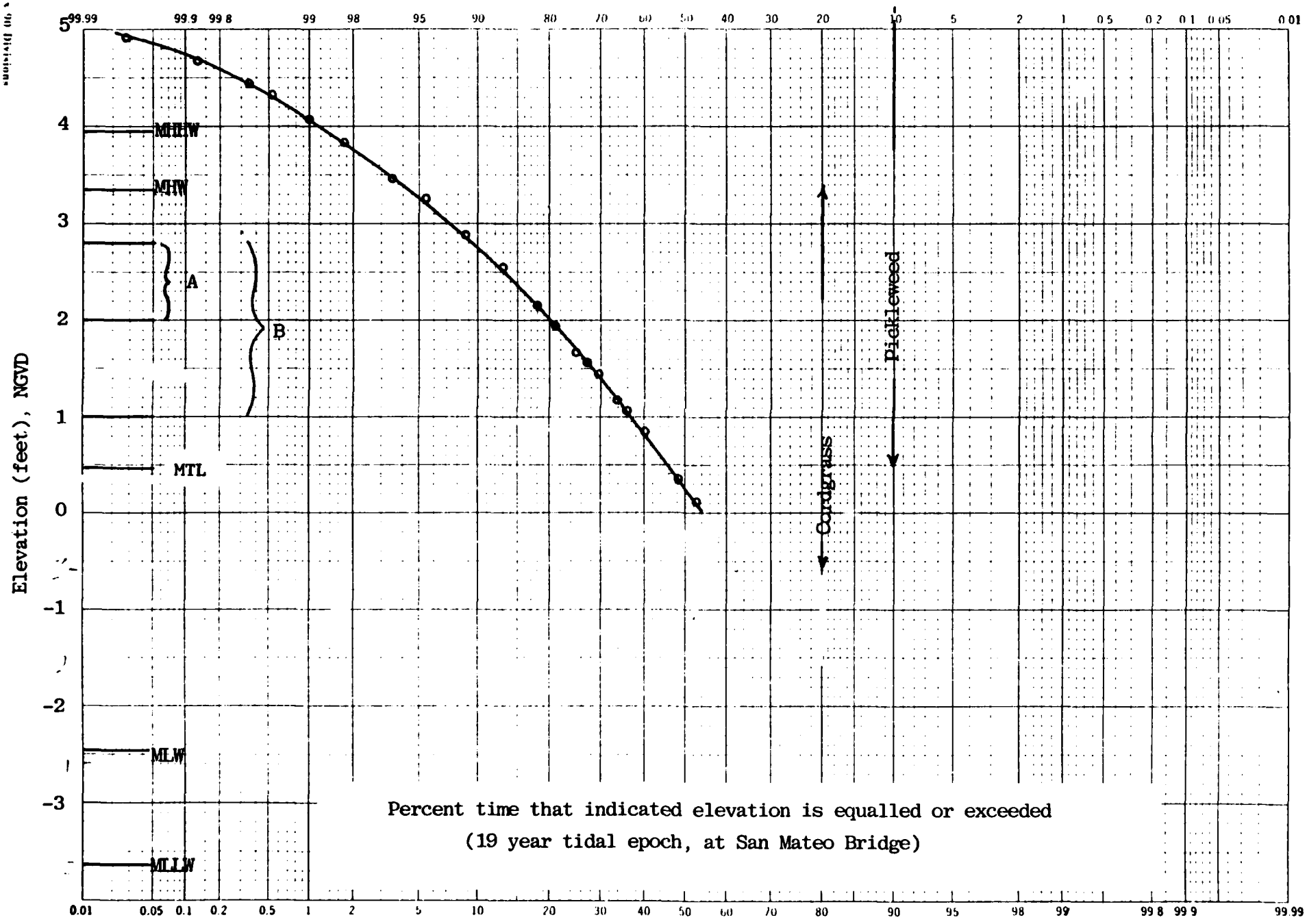


HAYWARD AREA RECREATION & PARK DISTRICT
(HARD)
B
ALAMEDA COUNTY FLOOD CONTROL
PACIFIC F.M.
(HARD)
A
56.5 Ac
1
2
3
4
5
6
7
8
9
I
II
III
IV
V
VI
VII
VIII
X
XI
inlet
ditch

Fig. 1

Fig. 2

Revised 3/6/84 B.C.



APPENDIX

BROWN AND CALDWELL
CONSULTING ENGINEERS
ANALYTICAL SERVICES DIVISION
1255 POWELL STREET
EMERYVILLE, CA 94608
PHONE (415) 428-2300

Log No. E84-2-126

Date Sampled 2/10/84
Date Received 2/10/84
Date Reported 3/03/84

Reported To: Mr. Robert Coats
Philip Williams and Associates
Pier 33 North, Embarcadero
San Francisco, California 94111

Laboratory Director

cc.

og No.	Sample Description
·126-1	# 1
2-126-2	# 2
-126-3	# 3
·126-4	# 4
·126-5	# 5
-126-6	# 6

Concentration: mg/L; unless otherwise indicated

	2-126-1	2-126-2	2-126-3	2-126-4	2-126-5	2-126-6
pH	6.9	7.4	8.2	7.0	7.0	7.0
Specific Conductance (umhos/cm @ 25° C)	6470	8020	11,600	8180	7670	6110
Total Organic Carbon	230	190	110	130	150	150
Arsenic	0.028	0.016	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chromium	0.07	0.06	0.04	0.05	0.05	0.02
Copper	0.05	0.02	0.02	0.02	< 0.01	0.02
Lead	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Mercury	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Zinc	0.22	0.21	0.14	0.10	0.05	0.10
Total Organic Halides	1.1	0.84	0.54	0.41	0.68	0.59

ht

BROWN AND CALDWELL
CONSULTING ENGINEERS
ANALYTICAL SERVICES DIVISION
1255 POWELL STREET
EMERYVILLE, CA 94608
PHONE (415) 428-2300

Log No. E84-2-126

Date Sampled 2/10/84
Date Received 2/10/84
Date Reported 3/03/84

Reported To: Mr. Robert Coats
Philip Williams and Associates

Laboratory Director

cc.

og No.	Sample Description
126-7	#7
126-8	#8
126-9	#9
126-10	#10

Concentration: mg/L; unless otherwise indicated

	2-126-7	2-126-8	2-126-9	2-126-10
H	7.7	7.4	6.9	6.9
ecific Conductance mhos/cm @ 25° C)	5570	4430	4950	7190
tal Organic Carbon	160	120	150	90
senic	0.051	0.030	< 0.001	< 0.001
dmium	< 0.01	< 0.01	< 0.01	< 0.01
hromium	0.10	0.08	0.04	0.04
pper	0.05	0.02	< 0.01	< 0.01
ad	< 0.1	< 0.1	< 0.1	< 0.1
rcury	0.0002	0.0005	< 0.0002	< 0.0002
nc	0.20	0.13	0.11	0.07
otal Organic Halides	0.54	0.50	0.43	0.19

BIRDS OBSERVED ON PARCEL A

	March 11, 1983	March 18, 1983
Western Grebe	4	—
Pied-billed	2	3
Great Blue Heron	2	1
Great Egret	15	18
Snowy Egret	23	27
Bl-cr Night Heron	6	3
American Bittern	—	1
Mallard	8	4
Gadwall	2	2
Pintail	14	18
Green-winged Teal	2	4
Cinnamon Teal	5	7
American Widgeon	11	10
Canvasback	3	3
Lesser Scaup	9	10
Ruddy Duck	8	8
Turkey Vulture	1	1
Black-shouldered Kite	2	2
Red-tailed Hawk	1	—
Marsh Hawk	3	2
Ring-necked Pheasant	2	1
American Coot	47	65
Killdeer	9	14
Black-bellied Plover	31	40
Long-billed Curlew	4	11
Willet	8	2
Lesser Yellowlegs	5	3
Western Sandpiper	125	125

Marbled Godwit	3	3
American Avocet	27	30
Black-necked Stilt	31	25
California Gull	12	15
Ring-billed Gull	25	10
Forster's Tern	4	5

Output for MARATHON/HARD POSTPROJECT WATER BALANCE FOR 1 IN 10 DRY YEAR

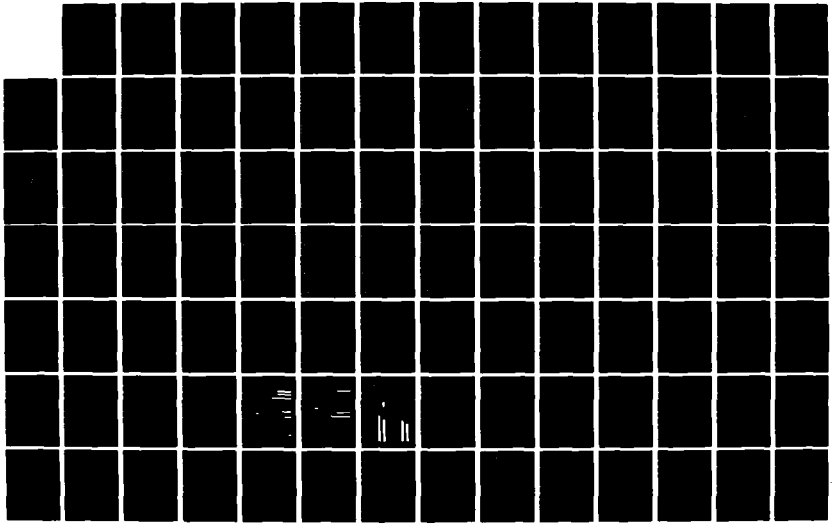
month	runoff	e. loss	discharge	volume
Oct	0.00	18.30	0.00	143.40
Nov	0.60	8.58	0.00	135.41
Dec	5.20	5.77	0.00	134.84
Jan	7.10	5.76	0.00	136.18
Feb	2.70	8.36	0.00	130.52
Mar	4.40	15.11	0.00	119.81
Apr	0.20	21.14	0.00	98.87
May	0.00	25.49	0.00	73.38
Jun	0.00	26.09	0.00	47.29
Jul	0.00	19.64	0.00	27.65
Aug	0.00	11.97	0.00	15.68
Sep	0.00	5.96	0.00	9.72

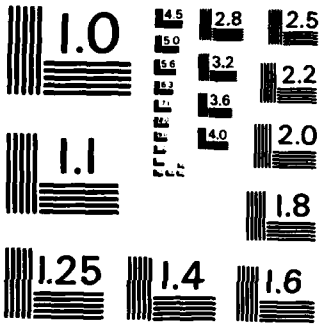
month	stage	area	salinity
Oct	2.79	66.03	33829.4
Nov	2.70	64.13	35826.3
Dec	2.69	63.99	35987.7
Jan	2.71	64.31	35646.4
Feb	2.65	62.96	37197.5
Mar	2.52	60.40	40531.9
Apr	2.29	55.41	49117.8
May	1.99	49.23	66177.2
Jun	1.50	35.08	102687.
Jul	1.13	24.42	175641.
Aug	0.76	15.68	309682.
Sep	0.47	9.72	499487.

initial stage = 3.00 max. stage = 3.00
initial volume = 161.70 max. volume = 161.70
initial area = 70.40 max. area = 70.40
initial salinity = 30000.0

AD-A161 484 DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT 3/4
STATEMENT PROPOSED..(U) CORPS OF ENGINEERS SAN
FRANCISCO CA SAN FRANCISCO DISTRICT OCT 85

UNCLASSIFIED F/G 6/6 NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

Output for MARATHON/HARD POSTPROJECT WATER BALANCE FOR MEDIAN YEAR

month	runoff	e. loss	discharge	volume
Oct	6.50	18.30	0.00	149.90
Nov	19.40	8.79	0.00	160.51
Dec	31.10	6.31	23.60	161.70
Jan	37.90	6.34	31.56	161.70
Feb	30.00	9.15	20.85	161.70
Mar	24.30	16.90	7.40	161.70
Apr	11.50	24.64	0.00	148.56
May	2.70	30.94	0.00	120.32
Jun	0.30	32.08	0.00	88.54
Jul	0.00	29.65	0.00	58.89
Aug	0.00	20.27	0.00	38.62
Sep	0.00	11.54	0.00	27.08

month	stage	area	salinity
Oct	2.87	67.58	32419.1
Nov	2.99	70.12	30305.5
Dec	3.00	70.40	25733.1
Jan	3.00	70.40	20757.1
Feb	3.00	70.40	18121.3
Mar	3.00	70.40	17327.4
Apr	2.85	67.26	18879.3
May	2.53	60.52	23316.4
Jun	2.17	52.94	31686.6
Jul	1.72	41.37	47637.9
Aug	1.34	30.37	72640.6
Sep	1.12	24.11	103603.

initial stage = 3.00 max. stage = 3.00
initial volume = 161.70 max. volume = 161.70
initial area = 70.40 max. area = 70.40
initial salinity = 30000.0

Output for MARATHON/HARD POSTPROJECT WATER BALANCE FOR 1 IN 10 WET YEAR

month	runoff	e. loss	discharge	volume
Oct	20.80	18.30	2.50	161.70
Nov	40.70	9.15	31.55	161.70
Dec	60.90	6.34	54.56	161.70
Jan	70.60	6.34	64.26	161.70
Feb	58.30	9.15	49.15	161.70
Mar	44.70	16.90	27.80	161.70
Apr	27.70	24.64	3.06	161.70
May	9.60	32.38	0.00	138.92
Jun	3.00	34.43	0.00	107.49
Jul	0.50	32.18	0.00	75.81
Aug	0.80	24.45	0.00	52.15
Sep	3.50	14.33	0.00	41.32

month	stage	area	salinity
Oct	3.00	70.40	17114.1
Nov	3.00	70.40	13825.7
Dec	3.00	70.40	9222.76
Jan	3.00	70.40	5623.14
Feb	3.00	70.40	3976.73
Mar	3.00	70.40	3350.16
Apr	3.00	70.40	3328.76
May	2.74	64.96	3891.99
Jun	2.38	57.46	5037.05
Jul	2.02	49.90	7143.63
Aug	1.59	37.71	10387.2
Sep	1.39	31.84	13131.0

initial stage = 3.00 max. stage = 3.00
initial volume = 161.70 max. volume = 161.70
initial area = 70.40 max. area = 70.40
initial salinity = 30000.0

APPENDIX D:

SOILS INVESTIGATION

SOIL INVESTIGATION
182 ACRE MARATHON DEVELOPMENT SITE
HAYWARD, CALIFORNIA

HLA Job No. 9249,003.04

Prepared For

Marathon Development California, Inc.
595 Market Street, Suite 1330
San Francisco, California 94105

by

Gary E. Underdahl
Civil Engineer - 24255

Henry T. Taylor
Civil Engineer - 8787

Harding Lawson Associates
20 Hawthorne Street
San Francisco, California 94105
415/543-8422

November 16, 1981

INTRODUCTION

This report presents the results of our soil investigation of your 182 acre site in Hayward California. Our preliminary findings were presented to you in a letter dated October 13, 1981.

Project Description

We understand that the property will be subdivided into 42 lots ranging from 1.5 to 6 acres as shown on the Site Plan, Plate 1. The lots will be graded to about elevation 5.5 feet, which will require fills of as much as 3 feet deep near the northwest corner of the property. A feasibility study by M&M Consultants, dated August 1981, estimates that at least 350,000 cubic yards of fill will be required to achieve site grades. To provide access to the lots more than 2 miles of roadway and a bridge over Sulphur Creek will be constructed. The dikes along Sulphur Creek will be raised one or two feet, to elevations of 5 to 8 feet above Mean Sea Level. Storm drains, sanitary sewers and water mains will also be installed. Two storm drain lift stations and a sewer pump station will also be constructed in the southern portion of the site. Their exact locations have not been determined at this time.

Scope

The scope of our services, as outlined in our proposal dated September 23, 1981, was to investigate the soils and groundwater at the site, and develop conclusions and recommendations regarding the following:

1. Site preparation and grading
2. Anticipated settlement resulting from the planned fills
3. Probable foundation types for future buildings
4. Siting considerations regarding the sewer pump station, storm drain lift stations, and the Sulphur Creek crossing
5. Excavation and backfilling of utility trenches
6. Flexible asphalt pavement designs for interior roadways
7. Stability of creek embankments and dikes

FIELD EXPLORATION AND LABORATORY TESTS

We explored subsurface conditions at the site by drilling 24 test borings at the locations shown on Plate 1. The borings were drilled with truck-mounted flight auger and rotary-wash equipment. Boring depths ranged from 13 to 27 feet except for Boring 7, which extended to 50 feet. Our field engineer logged the materials encountered in each

boring and obtained undisturbed samples for visual examination and laboratory tests. The samples were obtained by driving a Sprague and Henwood split-barrel sampler with a 140-pound hammer falling 30 inches. The blow counts were converted to "Standard Penetration Test" values. The date of drilling, sample depths, blow counts, and soil classifications are presented on the Logs of Borings, Plates 2 through 22. The soils are classified in accordance with the Unified Soil Classification System which is presented on Plate 23.

In our laboratory, we performed tests on the soil samples to evaluate their engineering properties. The testing program consisted of the determination of moisture content, dry density, triaxial shear strength, Atterberg Limits, consolidation characteristics and resistance values (R-values). The results of most of the tests are presented on the boring logs in the manner described by the Key to Test Data, Plate 23. Consolidation test data, Atterberg limits, and R-value test data are presented on Plates 24 through 29.

SITE AND SOIL CONDITIONS

The site slopes gently downward to the north and west with surface elevations ranging from 3 to 7 feet above Mean Sea Level. The southern half of the site is traversed in an

east-west direction by Sulphur Creek. Sulphur Creek has been channelized for flood control into a nearly-straight alignment. The channel is about 10 feet wide. The channel depth (below top of dike) varies from about 3 to 8 feet. The top of the dike varies from about 2 to 5 feet above adjacent ground levels. Surface vegetation over the site consists of a moderate growth of grasses and weeds. Most of the southern half of the site is presently a pasture for cattle. A ranch house and several associated buildings currently occupy the southeastern corner of the site.

Firm clayey alluvial soils are predominant over the site. The soils contain some interlayered sand and gravel below the water table. Soft to medium stiff, compressible clayey soils were encountered in the northwest portion of the site. The upper 1 to 2 feet of the soft soils are desiccated and form a firm crust. In the borings, the soft soil layer is up to 6 or 7 feet deep. The approximate limits of these soft soils are shown on the attached Plate 1.

Nearly all of the clayey soils are expansive. Expansive soils tend to shrink and swell with changes in moisture content. The surface clay layer is highly expansive and extends to depths of at least 4 feet.

Stabilized groundwater levels during exploration ranged from 1-1/2 feet below the ground surface in the northwest area to 6-1/2 feet in the southeast corner of the site.

However, in most of the borings it stabilized at depths of from 2 to 4 feet.

GEOLOGY

The firm soils on the site consist of Holocene and late Pleistocene alluvial deposits. The soft clayey soils are Holocene estuarian muds.

The Hayward Fault is located about 3 miles east of the site and the San Andreas Fault is 15 miles to the west. There are no known faults or extensions of active faults passing through or near the site.

CONCLUSIONS AND RECOMMENDATIONS

General

We conclude that there are no soil or geologic conditions at the site which would preclude its development as planned. The firm soil areas are relatively uniform; therefore, siting of the sewer pump station, storm drain lift stations or the Sulphur Creek crossing should not be affected by soil conditions. Excavation for the pump or lift stations will encounter weak and/or sandy soils requiring bracing and shoring, or sloped excavations. The primary geotechnical considerations which influence site development are

summarized below and are further discussed in the subsequent sections.

1. The expansive surface soils - Where these soils remain near the ground surface after site grading in the areas of buildings and pavements, steps must be taken to limit the effects of these materials on foundations, slabs and pavements. These steps may include deepened perimeter footings and placing a layer of select fill under slab-on-grade floors and possibly pavements. Because of the low R-values of these materials, relatively thick pavement sections will be required.

2. The soft soils in the northwest area - These soils will consolidate under new fill and building loads. For example, 3 feet of new fill placed over 4 feet of these soft soils will cause 1 to 2 inches of settlement as the soft soil consolidates. Most of this settlement should be complete within 6 months of fill placement.

3. The relatively high water table - Excavations extending below the groundwater table will need to be dewatered. This is particularly true for the pump and lift stations and possibly will be necessary for some of the utilities. These

facilities should be designed to resist hydrostatic uplift. Seepage into excavations through the clayey soils will occur at relatively slow rates. In the sandy and gravelly soils, relatively large seepage quantities can be anticipated. Shoring systems for excavations extending below the groundwater table should be designed to control seepage.

Geologic Hazards

Strong ground shaking at the site is expected during large earthquakes on the Hayward or San Andreas Faults. All structures should be designed to resist the lateral loads generated by seismic shaking. The sands in Borings 7 and 20 appear to be susceptible to liquefaction; however, the thickness of the clayey soil overburden should limit any surface expression and effects of liquefaction on surface structures. The risk of soil densification or lurching during earthquake shaking is considered remote. Since there are no known faults on the site, ground rupture as a result of an earthquake is considered unlikely.

Site Preparation and Grading

The upper few inches of soil containing vegetation should be stripped from all areas to be graded. Some of the site contains no vegetation and hence, will require little or no stripping. In soft soil areas, care should be taken

during construction not to disturb the crust. Because the soils are clayey over the entire site, grading could be difficult to perform during the rainy season. In all fill areas, the upper 6 inches of soil should be scarified, moisture conditioned to 3 to 6 percent above optimum moisture and compacted to at least 90 percent relative compaction*. Approved fill should then be placed in layers 8 inches or less in loose thickness, moisture conditioned, and compacted to at least 90 percent relative compaction. Where the expansive clayey soils are used for fill, they should be conditioned to 3 to 6 percent above optimum before being compacted. Imported fill material should be of low expansion potential with a plasticity index less than 15 and liquid limit less than 40.

All cut and fill slopes should be no steeper than 2 horizontal to 1 vertical (2:1). Fill slopes should be compacted or overbuilt and cut back to expose firm compacted soil. The surfaces in all graded areas should be sloped to drain away from the tops of the slopes to minimize erosion.

* Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material as determined by the ASTM D1557-78(C) laboratory compaction procedure.

Probable Building Foundations

We believe that typical light-weight commercial or industrial buildings can be supported satisfactorily on shallow spread foundations bottomed in firm natural soil or compacted fill. The perimeter footings will likely have to be bottomed below the depth of seasonal moisture change in the expansive soils. The depth of seasonal moisture change will probably be 2 to 3 feet below the proposed final grade. Where the expansive soils are covered with at least 2 feet of fill with a low expansion potential, deepening the perimeter footings should not be necessary.

In the soft soil areas, the planned fill (about 3 feet deep) should be sufficient to provide support for spread footings. However, foundation settlement should be considered. Removal of soft soils, surcharging, relatively rigid grid-type foundation systems, or deep foundations (piles) are possible alternatives for concentrated loads or settlement sensitive structures.

Slope Stability - Creek Channel

The soils encountered in our borings near the Sulphur Creek channel are stiff clays. The stiff clays should provide adequate factors of safety against a slope failure providing slopes no steeper than 2 horizontal to 1 vertical (2:1) are used. Stream water velocities should be low;

therefore, erosion is not expected to be significant and riprap or other means of slope protection will not be needed.

Pavements

The surface soils have very low resistance values (R-values). Laboratory test results range from 10 to less than 5. Therefore, pavements will have to be relatively thick to provide stable support for roadways. Design traffic indexes will vary based on the anticipated traffic volume for each road. We have calculated alternative pavement thicknesses for several traffic indexes. Pavement thicknesses are based on the CalTrans (State of California) design method using a 20 year design life. The design R-value for the subgrade is 5. The recommended design thicknesses are summarized in the following table.

Recommended Flexible Pavement Thicknesses

		Thickness, Inches		
Traffic Index	Alternative	Asphalt Concrete	Class 2 Aggregate Base	Class 2 Aggregate Sub-base
5.5	I	9.0	--	--
	II	3.0	12.0	--
	III	3.0	6.0	7.0
6.0	I	9.5	--	--
	II	3.5	12.5	--
	III	3.5	6.0	7.5
6.5	I	11.0	--	--
	II	4.0	14.0	--
	III	4.0	6.0	9.0

therefore, erosion is not expected to be significant and riprap or other means of slope protection will not be needed.

Pavements

The surface soils have very low resistance values (R-values). Laboratory test results range from 10 to less than 5. Therefore, pavements will have to be relatively thick to provide stable support for roadways. Design traffic indexes will vary based on the anticipated traffic volume for each road. We have calculated alternative pavement thicknesses for several traffic indexes. Pavement thicknesses are based on the CalTrans (State of California) design method using a 20 year design life. The design R-value for the subgrade is 5. The recommended design thicknesses are summarized in the following table.

Recommended Flexible Pavement Thicknesses

		Thickness, Inches		
Traffic Index	Alternative	Asphalt Concrete	Class 2 Aggregate Base	Class 2 Aggregate Sub-base
5.5	I	9.0	--	--
	II	3.0	12.0	--
	III	3.0	6.0	7.0
6.0	I	9.5	--	--
	II	3.5	12.5	--
	III	3.5	6.0	7.5
6.5	I	11.0	--	--
	II	4.0	14.0	--
	III	4.0	6.0	9.0

If pavements are underlain by imported fill, pavements could be constructed with thinner sections because the R-value of the imported fill should be higher than that for the on-site soils. We would be pleased to evaluate other pavement designs once fill sources are identified. The upper 6 inches of subgrade soil should be scarified, moisture conditioned and compacted to at least 90 percent relative compaction for expansive soils and to at least 95 percent for imported fill with a low expansion potential. The expansive soils should be conditioned to a moisture content 3 to 6 percent above optimum before compaction. The subgrade soils should be kept moist until covered by the pavement materials.

The aggregate base and sub-base materials should conform to the quality requirements of the CalTrans specifications. The base and sub-base should be placed in layers no greater than 6 inches thick and compacted to at least 95 percent relative compaction.

The edges of pavements on expansive soils could develop cracks as the soils shrink and swell with seasonal moisture changes. Possible alternatives to limit seasonal moisture changes include: 1) a 1 to 2 foot thick blanket of imported fill of low expansion potential, 2) covering the expansive soil adjacent to the pavement with asphalt or concrete (such as curb-and-gutter plus sidewalk), 3) an impermeable moisture

cut-off wall along the edge of the pavement about 3 feet deep, or 4) landscaping with frequent watering.

Sulphur Creek Bridge

The bridge proposed near Boring 7 is in a stiff clayey soil area. We believe a relatively light bridge can be supported on shallow spread footings bottomed on the natural soils. However, if the bridge is relatively heavy, deep foundations such as drilled or driven piles may be required. Piles would gain support through skin friction in the firm natural soils. Caving sand and gravel will be encountered during cast-in-place pile drilling, making it necessary to case the holes or use drilling mud, and tremie the concrete. The length of drilled piles would depend on the diameter of the piles and the load it is designed to carry. For example, a 2-foot-diameter drilled concrete pile with 25 feet of embedment in the stiff soils should support about 50 tons dead plus live load. A 12-inch-square, precast concrete pile would need about 35 feet of embedment in the stiff soils to support a 50 ton load.

ADDITIONAL SOIL ENGINEERING SERVICES

When project plans are more complete, we should perform a supplemental investigation to develop conclusions and recommendations regarding:

1. Foundation support of the pump and lift stations, and the Sulphur Creek bridge.
2. Foundation design criteria for the recommended foundation(s)
3. Lateral earth pressures for retaining wall design

We should review plans and specifications for site grading to check for conformance with our recommendations. All site grading should be observed by our engineer and appropriate field and laboratory tests performed to check material quality and compaction.

We wish to emphasize that this report is not intended to provide formal foundation recommendations for buildings that will be constructed on the site. Site specific soil investigations should be performed to develop foundation recommendations for each building.

LIST OF ILLUSTRATIONS

Plate 1	Site Plan
Plates 2 through 22	Logs of Borings 1 through 24
Plate 23	Unified Soil Classification System and Key to Test Data
Plate 24	Plasticity Chart
Plates 25 through 26	Consolidation Test Data
Plates 27 through 29	Resistance Value Test Data

DISTRIBUTION

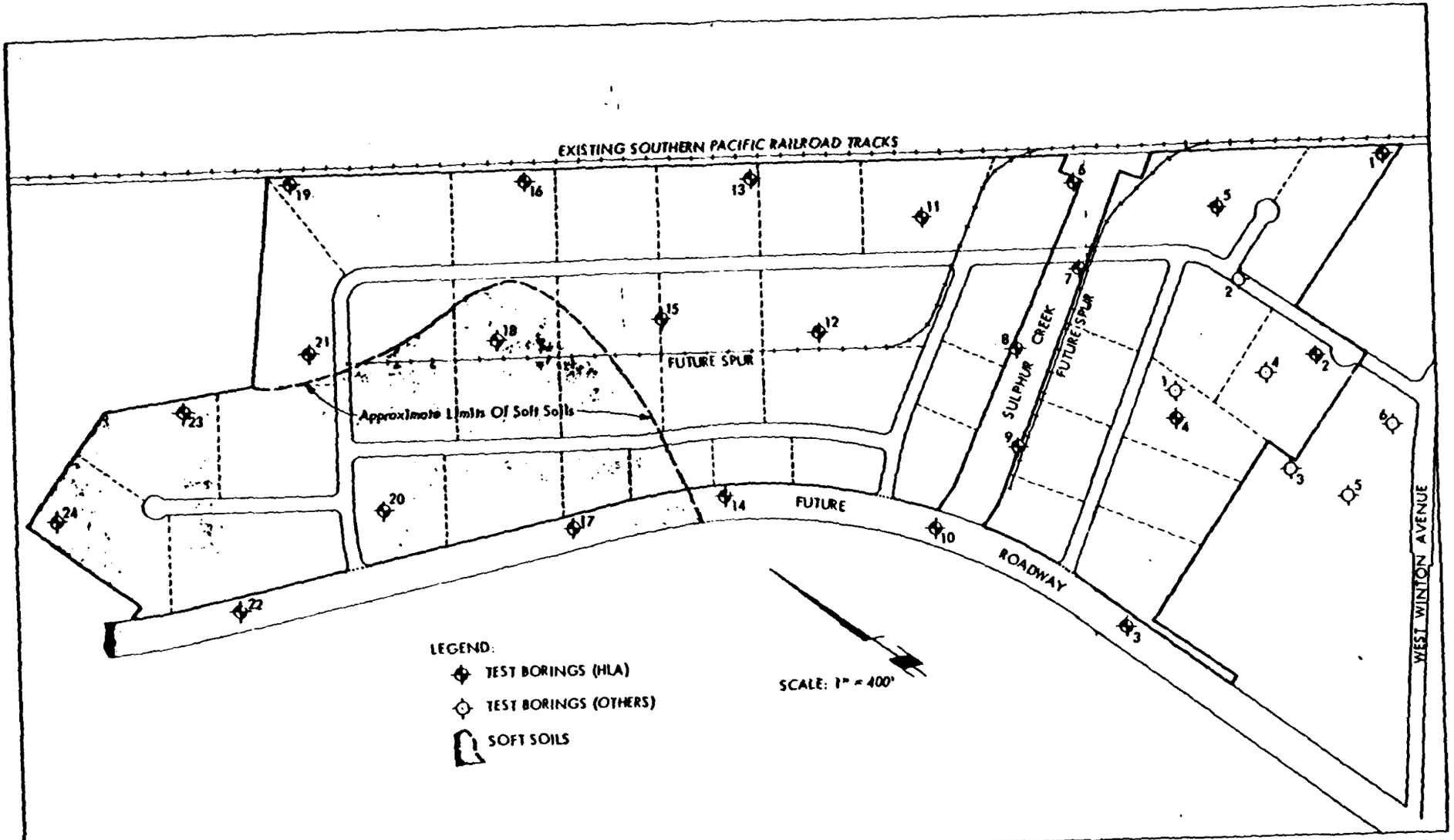
6 copies submitted	Marathon Development California, Inc. 595 Market Street, Suite 1330 San Francisco, California 94105 Attention: Mr. James E. Christian
2 copies submitted	M&M Consultants 7700 Edgewater Drive Oakland, California 94621 Attention: Mr. Paul Lang

GEU/HTT/JPB/cg

QUALITY CONTROL REVIEWER

James P. Bowers

James P. Bowers
Civil Engineer - 28962



Harding Lawson Associates
Engineers Geologists & Geophysicists

SITE PLAN
Marathon Development
Hayward, California

PLATE 1

Drawn R.W.O. | Job Number 9249,000,04 | Approved | Date 10/16/81 | Revised | Date

LOG OF BORING 1

Equipment 6" Flight Auger

Elevation 11.5'** Date 10/1/81

Laboratory Tests	Blows/foot*	Moisture Content (%)	Dry Density (pcf)	Depth (ft.)	Sample	
				0		BROWN SANDY CLAY (CL) stiff, dry (FILL)
	15	26.2	93			BLACK SILTY CLAY (CH) stiff, wet
				5		GRAY SILTY CLAY (CH) stiff, wet
						▽ Water level 10/1/81
	15					
				10		BROWN SANDY CLAY (CL) medium stiff, saturated
	5					
				15		
	8					
				20		
				25		
				30		
				35		
				40		

*Field blowcounts converted to standard penetration resistance

**Mean Sea Level Datum, Feet

Harding Lawson Associates
Engineers Geologists & Geophysicists

LOG OF BORING 1
Marathon Development
Hayward, California

PLATE 2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.D.	9249,003.04		10/16/81		

LOG OF BORING 2

Equipment 6" Flight Auger

Elevation 8.0' Date 9/28/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
	16	22.9	85	0		BLACK SILTY CLAY (CH) stiff, dry, wet at 2'
						GRAY SILTY CLAY (CH) stiff, wet
				5		
	17					
						BROWN SANDY CLAY (CL) stiff, saturated
				10		
	13					
				15		
	14					
				20		boring backfilled before water level stabilized
				25		
				30		
				35		
				40		

Harding Lawson Associates
Engineers, Geologists & Geophysicists

LOG OF BORING 2
Marathon Development
Hayward, California

PLATE 3

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O.	9249,003,04		10/16/81		

LOG OF BORING 3

Equipment 6" Flight Auger

Elevation 3.5' Date 9/28/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry , wet at 2'
						▽ Water level 9/30/81
	11	22.5	105			DARK GRAY SILTY CLAY (CH) stiff, saturated
				5		
						BROWN SANDY CLAY (CL) stiff, saturared
	9					
				10		
	18					
				15		

LOG OF BORING 4

Equipment 6" Flight Auger

Elevation 6.8 Date 9/28/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry , wet at 2'
LL = 67 PL = 20 PI = 47	11	28.9	87			GRAY SILTY CLAY (CH) stiff, wet
				5		BROWN SANDY CLAY (CH) stiff, saturated
	20					
				10		
	9					
				15		boring backfilled before water level stabilized

Harding Lawson Associates
Engineers, Geologists & Geophysicists

LOG OF BORINGS 3 & 4
Marathon Development
Hayward, California

PLATE 4

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O.	9249,003.04	DEH	10/16/81		

LOG OF BORING 5

Equipment 6" Flight Auger

Elevation 9.5' Date 9/28/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry wet at 2'
	20					GRAY SILTY CLAY (CL) stiff, wet
				5		BROWN SANDY CLAY (CL) stiff, saturated
	18	23.8	103			
				10		
	10					
				15		boring backfilled before water level stabilized
				20		
				25		
				30		
				35		
				40		

Harding Lawson Associates
Engineers, Geologists & Geophysicists

LOG OF BORING 5
Marathon Development
Hayward, California

PLATE 5

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O	9249,003.04	JEL	10/16/81		

LOG OF BORING 6

Equipment 6" Flight Auger

Elevation 8.0' Date 9/28/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry, wet at 2', with caliche
	16	20.6	104			GRAY SILTY CLAY (CH) stiff, wet
				5		BROWN CLAYEY GRAVEL (GC) medium dense, saturated, with some clean gravel layers and sandy clay layers
	15					
				10		
	14					
				15		
	9					
				20		
	12					
				25		boring backfilled before water level stabilized
				30		
				35		
				40		

LOG OF BORING 7

Equipment 8" Hollow Auger

Elevation 7.5' Date 9/30/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Description
				0	BLACK SILTY CLAY (CH) stiff, dry, wet at 2'
	18				
Tx 1200 (864)	11	18.4	111	5	∇ Water level 10/1/81
					BROWN SANDY CLAY (CL) stiff, saturated
				10	increase in sand content with depth
	8				
				15	BROWN SILTY SAND (SM) medium dense, saturated
Tx 2000 (994)	27	17.7	112		
				20	BROWN CLAYEY GRAVELLY SAND (SP) medium dense, saturated
	13	10.7	115		
					BROWN SANDY CLAY (CL) stiff, saturated
				25	
	21				BLUE GRAY SANDY CLAY (CL) stiff, saturated
				30	
	11	21.0	107		BROWN SANDY CLAY (CL) stiff, saturated
				35	
	22	20.4	108		
				40	

(Continuation of Log)

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Description
				40	decrease in sand content with depth
	20				
				45	
	20	21.4	108		
				50	
	20				
				55	
				60	
				65	
				70	
				75	
				80	

Harding Lawson Associates
Engineers, Geologists & Geophysicists

LOG OF BORING 7
Marathon Development
Hayward, California

PLATE 7

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O	9249,003.04	[illegible]	10/16/81		

LOG OF BORING 8

Equipment 6" Flight Auger

Elevation 7.6' Date 9/29/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	Description
				0		BLACK SILTY CLAY (CH) stiff, dry, shrinkage cracks to 2' — DIKE FILL
LL = 70 PL = 21 PI = 49	13					BLACK SILTY CLAY (CH) stiff, wet
				5		GRAY SILTY CLAY (CH) stiff, wet
						▽ Water level 9/30/81
	11	18.9	110			BROWN SANDY CLAY (CL) stiff, saturated
				10		
	26					BROWN SANDY GRAVEL (GP) medium dense, saturated
				15		
	8					BROWN SANDY CLAY (CL) medium stiff, saturated
				20		
	8					GRAY SANDY CLAY (CL) stiff, saturated, with BROWN SAND (SP) lenses
				25		
				30		
				35		
				40		

Harding Lawson Associates
Engineers, Geologists & Geophysicists

LOG OF BORING 8
Marathon Development
Hayward, California

PLATE 8

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O.	9249,003.04		10/16/81		

LOG OF BORING 9

Equipment 6" Flight Auger

Elevation 5.0' Date 9/28/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry, wet at 2'
	9	29.8	90			GRAY SILTY CLAY (CH) stiff, wet
				5		BROWN SANDY CLAY (CL) stiff, saturated
	10	27.6	98			
				10		
	9					
				15		with thin sand lenses
	8					
				20		
	9					
				25		
	12					
				30		boring backfilled before water level stabilized
				35		
				40		

Harding Lawson Associates
Engineers, Geologists & Geophysicists

LOG OF BORING 9
Marathon Development
Hayward, California

PLATE 9

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O	9249,003.04	DEU	10/16/81		

LOG OF BORING 10

Equipment 6" Flight Auger

Elevation 3.0' Date 9/29/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry
						▽ Water level 9/30/81
Tx 1000 (860)	9	27.1	96			DARK GRAY SILTY CLAY (CH) stiff, wet
				5		
						BROWN SANDY CLAY (CL) stiff, saturated
	14	22.9	105			
				10		
	7					
				15		
	10					with clayey sand lenses
				20		
	33					
				25		
				30		
				35		
				40		

Harding Lawson Associates
Engineers, Geologists & Geophysicists

LOG OF BORING 10
Marathon Development
Hayward, California

PLATE 10

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.N.O.	9249,003.04		10/16/81		

LOG OF BORING 11

Equipment 6" Flight Auger

Elevation 6.0' Date 9/29/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry, wet at 2'
LL = 58 PL = 21 PI = 37	12					GRAY SILTY CLAY (CH) stiff, wet ▽ Water level 9/30/81
				5		BROWN SANDY CLAY (CL) stiff, saturated
	10					
				10		
	23					with brown clayey sand lenses
				15		

LOG OF BORING 12

Equipment 6" Flight Auger

Elevation 3.5 Date 9/29/81

Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
			0		BLACK SILTY CLAY (CH) stiff, dry
					GRAY SILTY CLAY (CH) stiff, wet
18	20.4	106			
			5		BROWN SANDY CLAY (CL) stiff, wet
21					
			10		
6					
			15		boring backfilled before water level stabilized

Harding Lawson Associates
Engineers, Geologists & Geophysicists

LOG OF BORINGS 11 & 12
Marathon Development
Hayward, California

PLATE 11

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.C	9249,003.04		10/16/81		

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	LOG OF BORING 13
						Equipment: 6" Flight Auger
						Elevation: 4.5' Date: 9/29/81
				0		BLACK SILTY CLAY (CH) stiff, dry
	23	20.6	95			GRAY SILTY CLAY (CH) stiff, dry
						▽ Water level 9/30/81
				5		BROWN SANDY CLAY (CL) stiff, saturated
	18					
				10		BROWN CLAYEY SAND (SC) loose, saturated
	4					
				15		

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	LOG OF BORING 14
						Equipment: 6" Flight Auger
						Elevation: 2.5 Date: 9/29/81
				0		BLACK SILTY CLAY (CH) stiff, dry, wet at 2'
	11	33.6	87			▽ Water level 9/29/81
						GRAY SILTY CLAY (CH) stiff, saturated
				5		BROWN SANDY CLAY (CL) stiff, saturated
	17					
				10		
	13					with clayey sand lenses
				15		

Harding Lawson Associates
Engineers Geologists & Geophysicists

LOG OF BORINGS 13 & 14
Marathon Development
Hayward, California

PLATE 12

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O.	9249,003.04	HLL	10/16/81		

LOG OF BORING 15

Equipment 6" Flight Auger

Elevation 3.0' Date 9/29/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry
	8	33.9	81			wet at 2'
						▽ Water level 9/30/81
						BLUE GRAY SILTY CLAY (CH) stiff, saturated
				5		
	12					
				10		
						BROWN SANDY CLAY (CL) stiff, saturated
	10					
				15		
				20		
				25		
				30		
				35		
				40		

Harding Lawson Associates
Engineers Geologists & Geophysicists

LOG OF BORING 15
Marathon Development
Hayward, California

PLATE 13

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O.	9249,003,04	HEK	10/16/81		

LOG OF BORING 16

Equipment 6" Flight Auger

Elevation 4.4' Date 9/30/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry
	6					▽ Water level 10/1/81
						GRAY SILTY CLAY (CH) stiff, saturated
				5		BROWN SILTY CLAY (CL) stiff, saturated
	9	22.9	104			
				10		
	12					
				15		
	--					
	23			20		
				25		
				30		
				35		
				40		

Harding Lawson Associates
Engineers, Geologists & Geophysicists

LOG OF BORING 16
Marathon Development
Hayward, California

PLATE 14

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O	9249,003.04		10/16/81		

LOG OF BORING 17

Equipment 6" Flight Auger

Elevation 3.0' Date 9/29/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		DARK GRAY SILTY CLAY (CH) stiff, dry, shrinkage cracks to 2', soft and wet at 2'
LL = 93 PL = 36 PI = 57	2					▽ Water level 9/30/81 with peaty layers
				5		BLUE GRAY SILTY CLAY (CH) stiff, wet
	23	21.9	105			BROWN SANDY CLAY (CL) stiff, saturated
				10		
	11					with silty sand lenses
				15		
				20		
				25		
				30		
				35		
				40		

Harding Lawson Associates
Engineers Geologists & Geophysicists

LOG OF BORING 17
Marathon Development
Hayward, California

PLATE 15

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O.	9249,003.04	HEU	10/16/81		

LOG OF BORING 18

Equipment 6" Flight Auger

Elevation 3.4' Date 10/1/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		GRAY SILTY CLAY (CH) stiff, dry soft and wet at 1'
						∇ Water level 10/1/81
	7	41.0	78	5		
						MOTTLED LIGHT BROWN AND GRAY SILTY CLAY (CL) stiff, saturated
	19			10		
	16			15		
	--			20		BROWN SANDY GRAVEL (GP) medium dense, saturated
				25		
				30		
				35		
				40		

Harding Lawson Associates
Engineers, Geologists & Geophysicists

LOG OF BORING 18
Marathon Development
Hayward, California

PLATE 16

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O.	9249,003.04	JBH	10/16/81		

LOG OF BORING 19

Equipment 6" Flight Auger

Elevation 4.9' Date 9/30/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry, wet at 2'
						▽ Water level 10/1/81
	6			5		BROWN SANDY CLAY (CL) stiff, saturated
	11	23.7	102	10		
						BROWN SANDY GRAVEL (GP) medium dense, saturated
	13			15		
						BROWN SANDY CLAY (CL) stiff, saturated
	6			20		
				25		
				30		
				35		
				40		

Harding Lawson Associates
Engineers, Geologists & Geophysicists

LOG OF BORING 19
Marathon Development
Hayward, California

PLATE 17

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O.	9249,003.04	HEU	10/16/81		

LOG OF BORING 20

Equipment 6" Flight Auger

Elevation 3.0' Date 10/1/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BROWN SILTY CLAY (CL) stiff, dry soft and wet at 1'
	2					▽ Water level 10/1/81
				5		GRAY SILTY CLAY (CL) stiff, saturated
	15	22.0	105			
				10		
						BROWN SILTY SAND (SM) medium dense, saturated
	19					
				15		
	15					BROWN SANDY CLAY (CL) stiff, saturated
				20		
	15					
				25		
				30		
				35		
				40		

Harding Lawson Associates
Engineers, Geologists & Geophysicists

LOG OF BORING 20
Marathon Development
Hayward, California

PLATE 18

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O	9249,003.04	JEU	10/16/81		

LOG OF BORING 21

Equipment 6" Flight Auger

Elevation 4.0' Date 9/30/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry wet at 2'
	7	33.9	85			
						▽ Water level 10/1/81
				5		LIGHT GRAY SILTY CLAY (CL) stiff, saturated, with volcanic ash
	12					
				10		BROWN CLAYEY SAND (SC) medium dense, saturated
	11					
				15		
						BROWN SANDY GRAVEL (GP) medium dense, saturated
	13					
				20		BROWN SILTY CLAY (CL) stiff, saturated
	11					
				25		
				30		
				35		
				40		

Harding Lawson Associates
Engineers, Geologists & Geophysicists

LOG OF BORING 21
Marathon Development
Hayward, California

PLATE 19

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O	9249,003.04		10/16/81		

LOG OF BORING 22

Equipment 6" Flight Auger

Elevation 3.1' Date 10/1/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BROWN SILTY CLAY (CL) stiff, dry soft and wet at 1'
	2	50.0	65	5		▽ Water level 10/1/81 GRAY SILTY CLAY (CL) stiff, saturated
	17			10		
						BROWN SANDY CLAY (CL) stiff, saturated
	8			15		
	21			20		
				25		
				30		
				35		
				40		

LOG OF BORING 23

Equipment 6" Flight Auger

Elevation 4.1' Date 10/1/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLUE GRAY SILTY CLAY (CH) stiff, dry, soft and wet at 2'
	1	83.4	51			▽ Water level 10/1/81
				5		BROWN SANDY CLAY (CL) stiff, saturated
	17			10		
	--			15		decrease in sand content with depth
	16			20		
				25		
				30		
				35		
				40		

Harding Lawson Associates
Engineers, Geologists & Geophysicists

LOG OF BORING 23
Marathon Development
Hayward, California

PLATE 21

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O	9249,003.04	JEU	10/16/81		

LOG OF BORING 24

Equipment 6" Flight Auger

Elevation 3.3' Date 10/1/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft.)	Sample	
				0		BROWN SILTY CLAY (CL) stiff, dry
	3	31.8	86			soft and wet at 1'
						∇ Water level 10/1/81
				5		GRAY SANDY CLAY (CL) stiff, saturated
	15					
				10		BROWN SANDY CLAY (CL) stiff, saturated
	6					
				15		
	12					
				20		
	11					
				25		
				30		
				35		
				40		

Harding Lawson Associates
Engineers Geologists & Geophysicists

LOG OF BORING 24
Marathon Development
Hayward, California

PLATE 22

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O.	9249,003.04		10/16/81		

MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS (MORE THAN HALF IS LARGER THAN #200 SIEVE)	GRAVELS (MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE)	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS, GRAVEL - SAND MIXTURES
			GP	POORLY GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL - SAND - SILT MIXTURES
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL - SAND - CLAY MIXTURES
	SANDS (MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE)	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS
			SP	POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, POORLY GRADED SAND - SILT MIXTURES
			SC	CLAYEY SANDS, POORLY GRADED SAND - CLAY MIXTURES
FINE GRAINED SOILS (MORE THAN HALF IS SMALLER THAN #200 SIEVE)	SILTS AND CLAYS (LIQUID LIMIT LESS THAN 50)		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (LIQUID LIMIT GREATER THAN 50)		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS

UNIFIED SOIL CLASSIFICATION SYSTEM

			Shear Strength, psf	Confining Pressure, psf	
Consol	— Consolidation	*Tu	320	(2000)	Unconsolidated Undrained Triaxial
LL	— Liquid Limit (in %)	TuCU	320	(2000)	Consolidated Undrained Triaxial
PL	— Plastic Limit (in %)	DS	2750	(2000)	Consolidated Drained Direct Shear
G_s	— Specific Gravity	FVS	470		Field Vane Shear
SA	— Sieve Analysis	*UC	2000		Unconfined Compression
	"Undisturbed" Sample	LVS	700		Laboratory Vane Shear
	Bulk Sample				

Notes: (1) All strength tests on 2.8" or 2.4" diameter samples unless otherwise indicated.

(2) * Indicates 1.4" diameter sample.

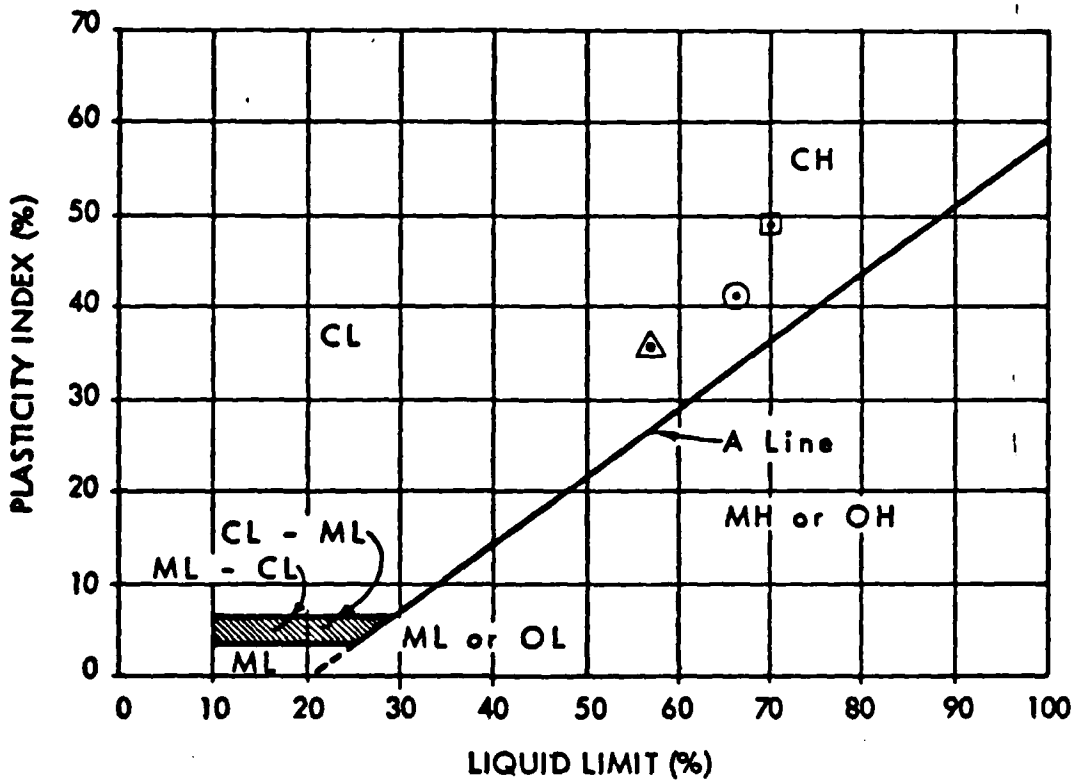
KEY TO TEST DATA

Harding Lawson Associates
Engineers Geologists & Geophysicists

SOIL CLASSIFICATION CHART AND KEY TO TEST DATA
Marathon Development

PLATE 23

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O.	9249.003.04	HEU	10/16/81		



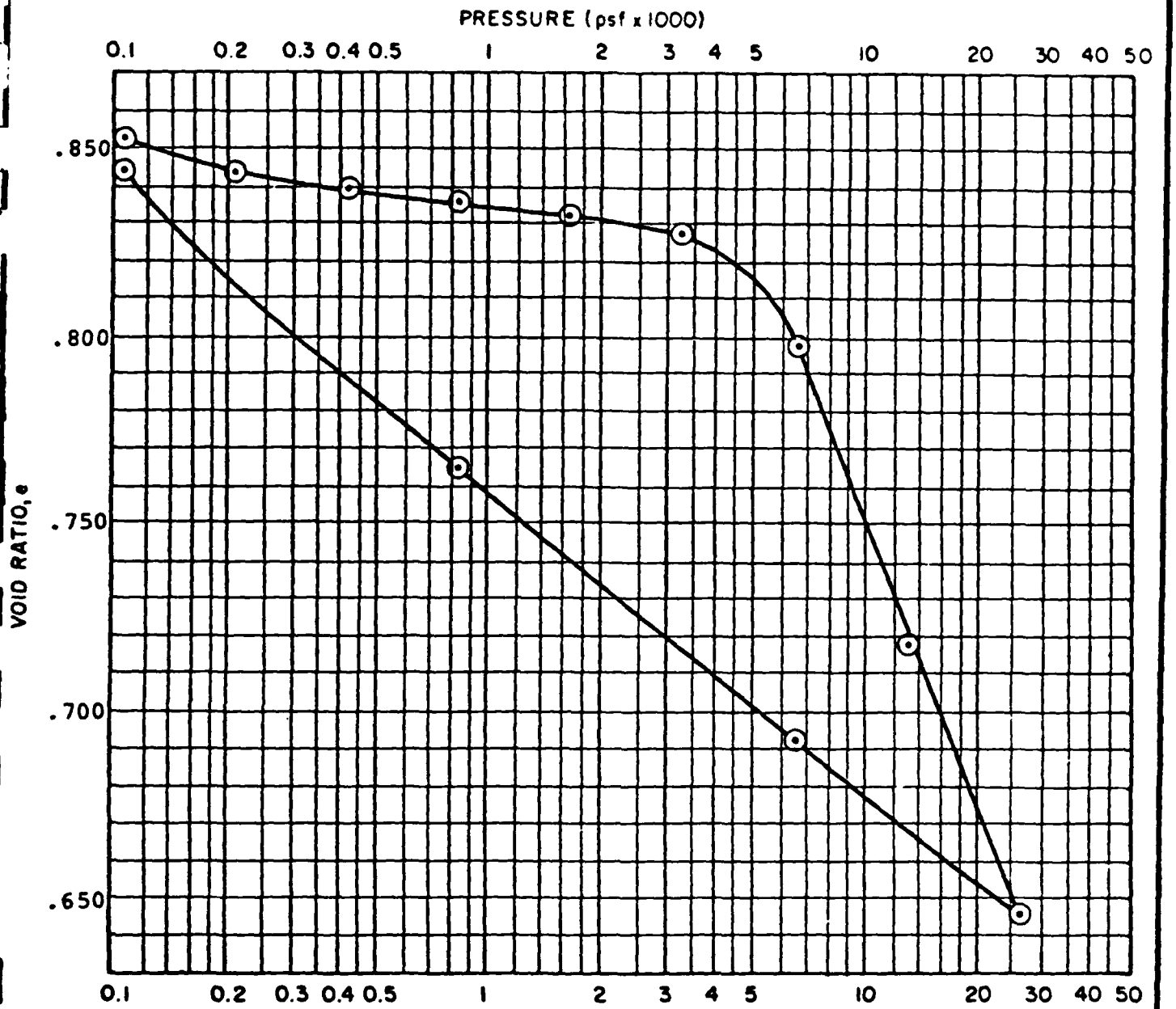
Symbol	Classification and Source	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	% Passing #200 Sieve
⊙	BLACK SILTY CLAY (CH) Boring 4 at 2.5 feet	67	20	47	-
⊡	BLACK SILTY CLAY (CH) Boring 8 at 3.5 feet	70	21	49	-
△	BLACK SILTY CLAY (CH) Boring 11 at 2.0 feet	58	21	37	-

Harding Lawson Associates
Engineers, Geologists & Geophysicists

PLASTICITY CHART
Marathon Development
Hayward, California

PLATE 24

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.D.	9249,003.04	KU	10/16/81		



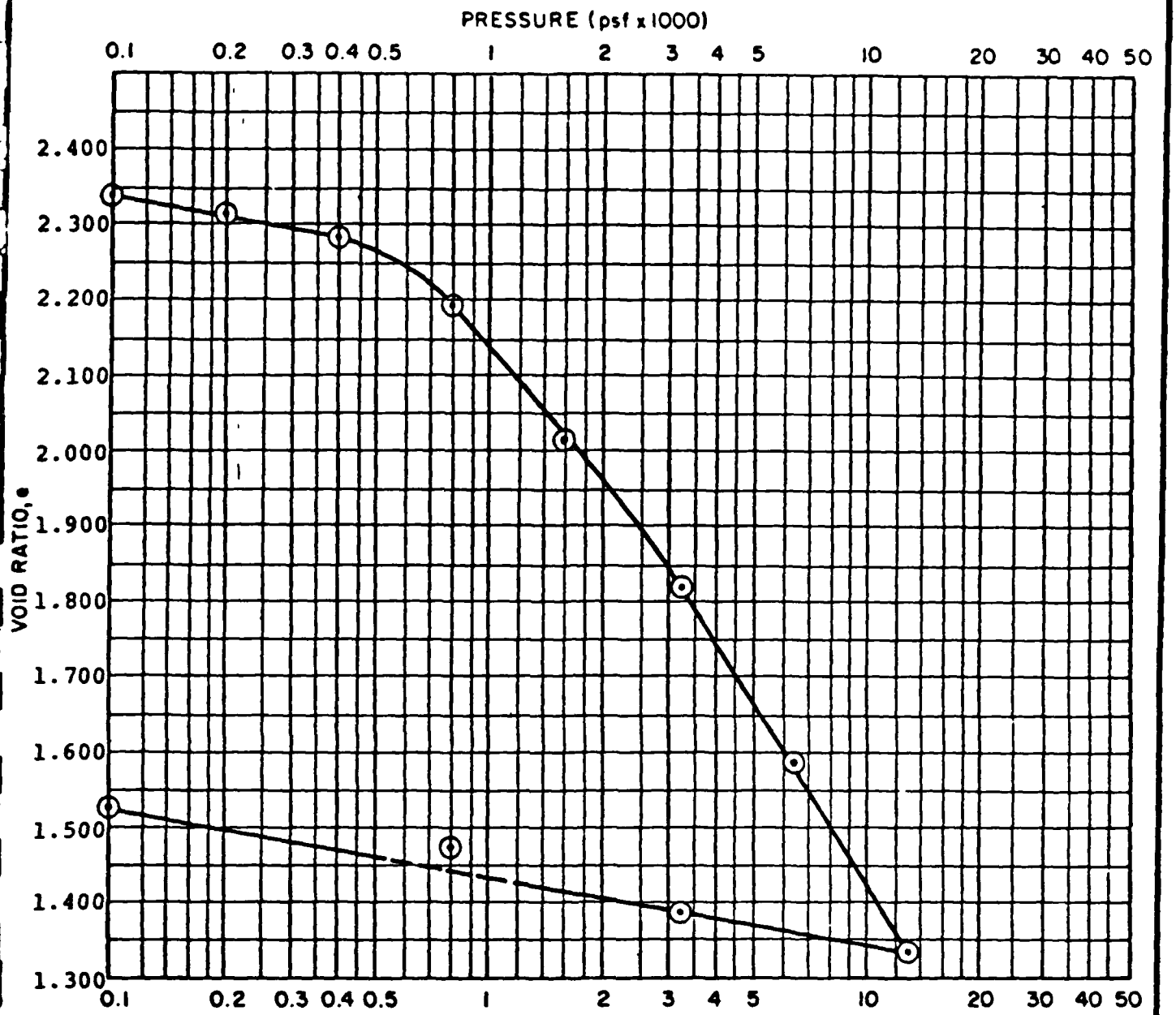
TYPE OF SPECIMEN	UNDISTURBED		BEFORE TEST			AFTER TEST	
DIAMETER (in.) 2.38	HEIGHT(in.) 0.80		MOISTURE CONTENT	w_o	28.8 %	w_f	30.9 %
OVERBURDEN PRESS., P_o		psf	VOID RATIO	e_o	0.856	e_f	0.844
PRECONSOL. PRESS., P_c		5000 psf	SATURATION	S_o	92 %	S_f	100 %
COMPRESSION INDEX, C_c		0.266	DRY DENSITY	γ_d	88.1 pcf	γ_d	88.7 pcf
LL 70	PL 21		PI 49		G_s 2.73		
CLASSIFICATION	BLACK SILTY CLAY (CH)		SOURCE Boring 8 at 3.5 feet				

Harding Lawson Associates
Engineers, Geologists & Geophysicists

CONSOLIDATION TEST REPORT
Marathon Development
Hayward, California

PLATE 25

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O.	9249,003.04	DEU	10/16/81		



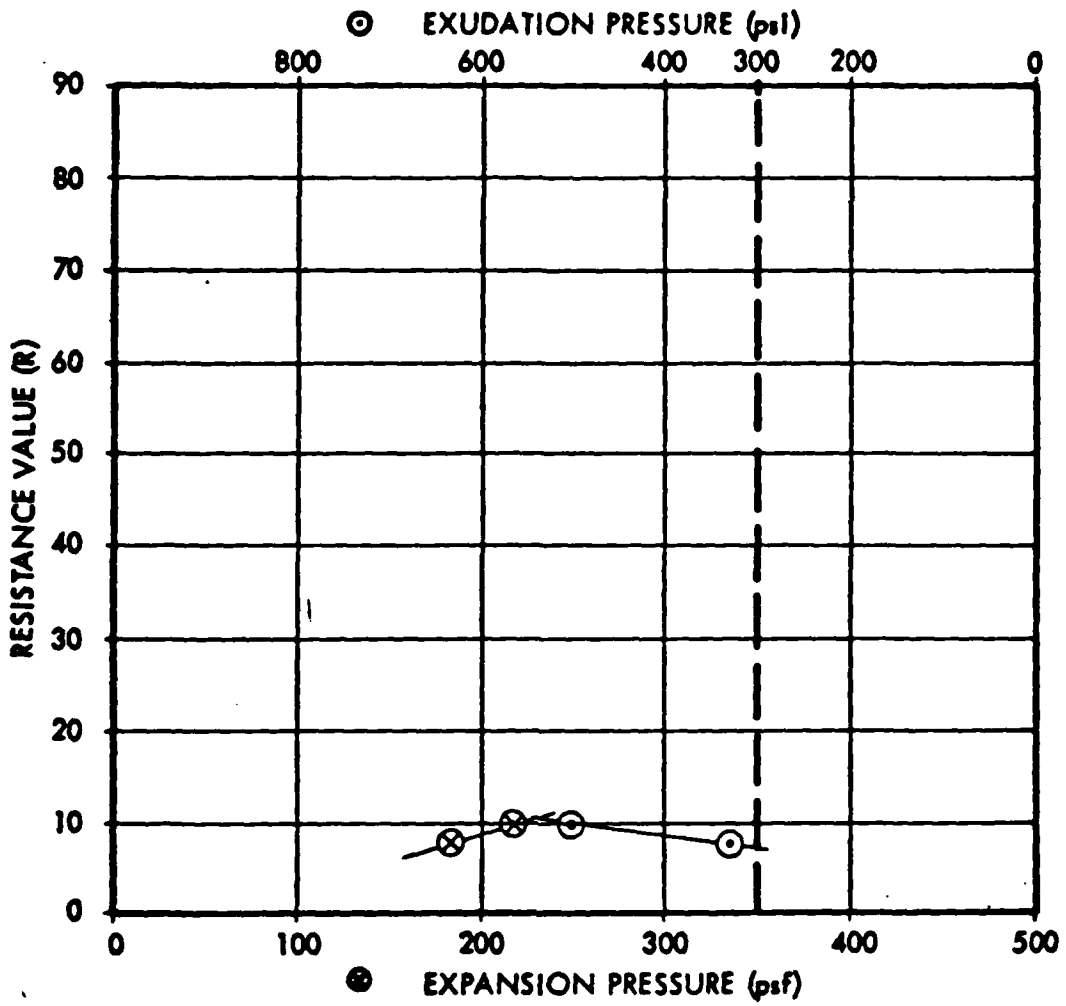
TYPE OF SPECIMEN	UNDISTURBED		BEFORE TEST			AFTER TEST	
DIAMETER (in.) 2.43	HEIGHT(in.) 0.80		MOISTURE CONTENT	w_o	88.6 %	w_f	55.1%
OVERBURDEN PRESS., P_b		psf	VOID RATIO	e_o	2.411	e_f	1.526
PRECONSOL. PRESS., P_c		1000 psf	SATURATION	S_o	100 %	S_f	100%
COMPRESSION INDEX, C_c		0.81	DRY DENSITY	γ_d	50.5 pcf	γ_d	68.2 pcf
LL 93	PL 36		PI 57			G_s 2.76	
CLASSIFICATION	DARK GRAY SILTY CLAY (CH) with peat		SOURCE Boring 17 at 2.5 feet				

Harding Lawson Associates
Engineers, Geologists & Geophysicists

CONSOLIDATION TEST REPORT
Marathon Development
Hayward, California

PLATE 26

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.D.	9249,003.04	DEU	10/16/81		



Specimen No.	1	2		
Moisture Content (%)	30.7	32.9		
Dry Density (psf)	85.0	82.6		
Exudation Pressure (psi)*	500	330		
Expansion Pressure (psf)	218	183		
Resistance Value (R)	8	10		

*EXTRUDED UNDER MOLD
AT PRESSURE INDICATED

TEST DATA

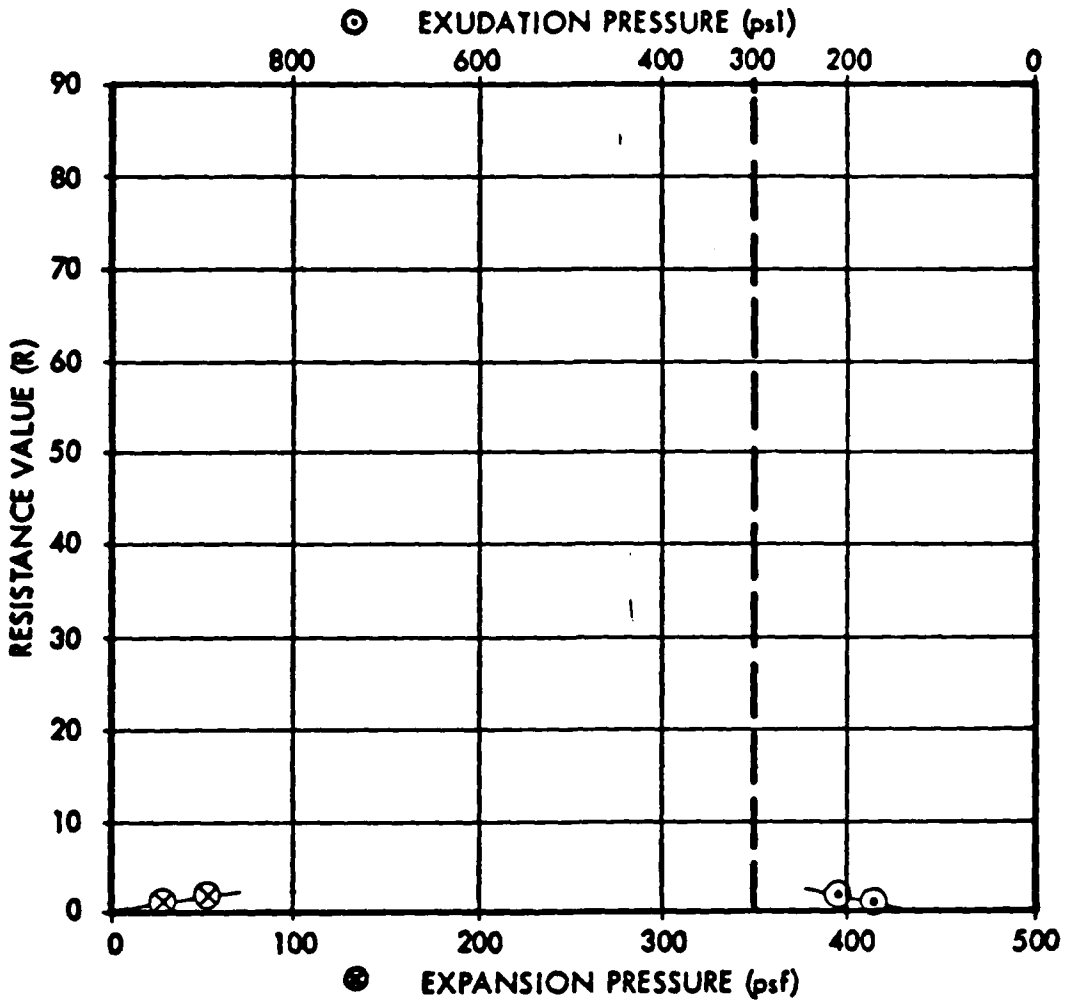
Sample Source	Classification	Sand Equivalent	Expansion Pressure	R value
SOUTH END OF SITE BY BORING 7	DARK GRAY SANDY CLAY (CH)	16	-	< 5

Harding Lawson Associates
Engineers, Geologists & Geophysicists

RESISTANCE VALUE TEST DATA
Marathon Development
Hayward, California

PLATE 27

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O.	9249,003.04	DEK	10/16/81		



Specimen No.	1	2		
Moisture Content (%)	30.4	29.0		
Dry Density (psf)	89.7	91.0		
Exudation Pressure (psi)*	165	205		
Expansion Pressure (psf)	81	52		
Resistance Value (R)	1	2		

*EXTRUDED UNDER MOLD AT PRESSURE INDICATED

TEST DATA

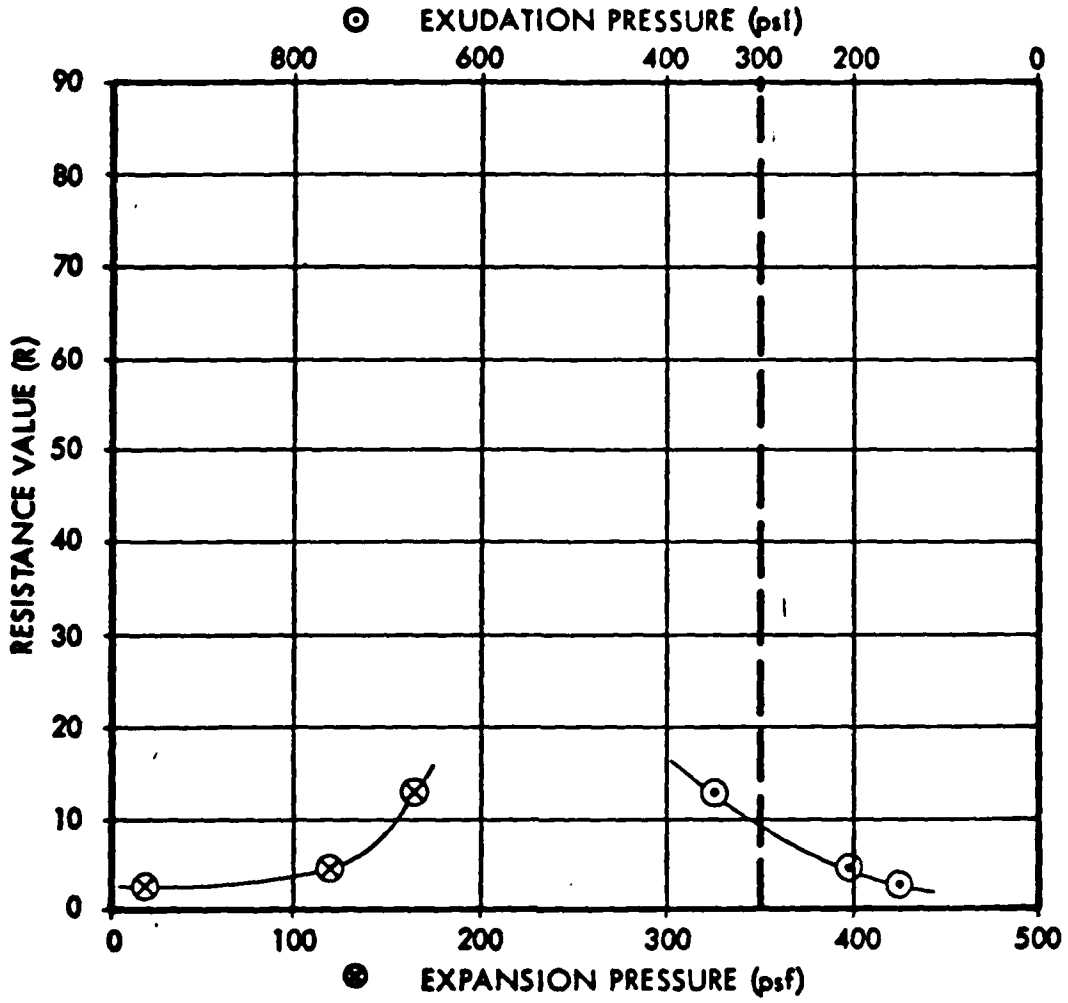
Sample Source	Classification	Sand Equivalent	Expansion Pressure	R value
CENTRAL PORTION OF SITE BY BORING 18	GRAY SILTY CLAY (CH)	2	-	<5

Harding Lawson Associates
Engineers, Geologists & Geophysicists

RESISTANCE VALUE TEST DATA
Marathon Development
Hayward, California

PLATE 28

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O.	9249,003,04	DEU	10/16/81		



Specimen No.	1	2	3	
Moisture Content (%)	25.9	23.6	20.6	
Dry Density (psf)	96.4	98.5	104.7	
Exudation Pressure (psi)	145	205	345	
Expansion Pressure (psf)	22	122	166	
Resistance Value (R)	3	5	13	

TEST DATA

Sample Source	Classification	Sand Equivalent	Expansion Pressure	R value
NORTHEND OF SITE BY BORING 24	BROWN SANDY CLAY (CH)	2	155	10

Harding Lawson Associates
Engineers Geologists & Geophysicists

RESISTANCE VALUE TEST DATA
Marathon Development
Hayward, California

PLATE 29

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.O.	9249,003,04		10/16/81		

APPENDIX E:

TRAFFIC/CIRCULATION STUDY

SECTION VI

TRAFFIC AND CIRCULATION

MARATHON PROJECT

HAYWARD, CALIFORNIA

JOHN J. FORRISTAL

OCTOBER, 1984

SECTION VI

TRAFFIC AND CIRCULATION

MARATHON PROJECT

HAYWARD, CALIFORNIA

OCTOBER 1984

SETTING

General

The Marathon site is located northerly of the intersection of West Winton Avenue and Cabot Boulevard in the westerly section of Hayward. The surrounding area is characterized by large industrial development, with several intervening vacant parcels. A few small commercial areas are adjacent to the major streets. There is virtually no residential development in the site vicinity. The lands adjacent to the north and west are vacant. The Hayward Air Terminal Industrial Center and the Skywest Golf Course border the site on the east, and the Hayward Industrial Center on the south.

Major Street System

The major street system in the project vicinity is shown in Figure 1. Primary access to the site is proposed from West Winton Avenue via Bruzzone Street, about 250 feet west of West Winton Avenue's intersection with Cabot Boulevard. Bruzzone Street is now approximately 250 feet in length. It has a 50 foot roadway section and is striped for 2 lanes.

Through the Bruzzone Street intersection, West Winton Avenue has a 4 lane roadway section plus a median turn lane. This section extends a

short distance west of Bruzzone Street, then narrows to 2 lanes with minimal shoulders. West Winton Avenue ends at Shoreline Park approximately 1 mile to the west. It extends easterly to Hesperian Boulevard, to an interchange with the Nimitz Freeway (State Route 17), and to an intersection with Jackson Street (State Route 92) on the periphery of the Hayward Central District.

Between Bruzzone Street and Hesperian Boulevard, West Winton Avenue is a 4 lane roadway with a painted median lane. The median lane provides left turn lanes at intersections, and functions as a 2 way left turn lane between intersections. Curb parking is permitted along most of the street, but there are partial restrictions on the south side between Cabot Boulevard and Clawiter Road. The speed limit on West Winton Avenue is 45 miles per hour.

East of Hesperian Boulevard to Wright Drive, West Winton Avenue has 4 lanes plus a median lane that provides back-to-back left turn lanes at the intersections. There is no on-street parking on this portion of the street. Between Wright Drive and Southland Place/Stonewall Avenue, the roadway section widens sufficiently to provide parking on the south side of the street.

East of Southland Place/Stonewall Avenue to SR 17, West Winton Avenue has 2 westbound lanes and 3 eastbound lanes. There are actually 3 lanes in the westbound direction; however, the outside lane is a merge lane coming off the freeway and the center lane converts into a double left turn lane on the Southland Drive approach. There is no parking on this portion of Winton Avenue.

Average daily traffic volumes on West Winton Avenue are 24,400 vehicles west of Hesperian Boulevard,[1] decreasing to an estimated 5,300 vehicles east of Cabot Boulevard. On West Winton Avenue east of Hesperian Boulevard, the average volume is 25,900 vehicles per day. Between Southland Drive and SR 17, volumes increase to an estimated 47,000 vehicles per day.

The other east-west arterial in the project vicinity is Depot Road, 1 mile south of West Winton Avenue. Between Cabot Boulevard and Clawiter Road, it has a 2 lane section of varying width. On-street parking is intermittent along this portion, as roadway width permits. From Clawiter Road east to Industrial Boulevard it has a wider roadway section with intermittment frontage improvements. East of Industrial Boulevard, Depot Road has been developed to its ultimate 56 foot section, with 2 through lanes and parking. On the eastbound approaches to both Industrial Boulevard and Hesperian Boulevard, the parking has been removed to provide 3 traffic lanes. Current traffic volumes on Depot Road west of Clawiter Road are 7,150 vehicles per day. Between Industrial Boulevard and Hesperian Boulevard, they are estimated at 12,400 vehicles per day.

The major north-south streets in the area are Cabot Boulevard, Clawiter Road/Industrial Boulevard and Hesperian Boulevard. Cabot Boulevard, as noted, intersects West Winton Avenue a few hundred feet east of Bruzzone Street. It extends south of West Winton Avenue to Depot Road. This street is presently striped for 2 traffic lanes, although it has sufficient width for 4 lanes and a median lane. No parking is permitted on Cabot Boulevard, presumably for esthetic reasons - e.g., to prevent long term truck parking.

Clawiter Road has a T intersection to the south with West Winton Avenue approximately 1 mile east of Bruzzone Street. It runs southerly to an intersection with Industrial Boulevard a short distance north of Depot Road. The main roadway alignment then curves to the southeast as Industrial Boulevard to and through an interchange with State Route 92 and continues to Industrial Parkway in the south part of Hayward. This portion of Clawiter Road/ Industrial Boulevard has a 4 lane roadway with with a 2-way left turn median. Parking is permitted on the street. Clawiter Road continues south of Industrial

Boulevard as a 2 lane street with some frontage improvements to an interchanbe with State Route 92.

Hesperian Boulevard is a major arterial, extending northerly through Hayward, San Lorenzo and San Leandro to East 14th Street and woutherly to Union City. In the vicinity of Winton Avenue, it has a 6 lane section with a raised median island. On-street parking is prohibited along much of its length, and access is limited on those portions where frontage roads are provided.

Daily traffic volumes are 2,800 vehicles on Cabot Boulevard south of West Winton Avenue. On Clawiter Road south of West Winton Avenue there are 18,600 vehicles, and on Industrial Boulevard south of Clawiter Road 17,300 vehicles. Hesperian Boulevard has 34,200 vehicles north of Winton Avenue and 29,200 vehicles south of Winton Avenue.

Regional access in the general project area is provided by State Route 17 (the Nimitz Freeway) and State Route 92 (West Jackson Street and the San Mateo Bridge). The Nimitz Freeway provides service northerly to the San Leandro and Oakland areas and to San Francisco via the Bay Bridge. For traffic oriented to the north, there are interchanges at Winton Avenue, A Street, and Hesperian Boulevard. To the south, the Nimitz Freeway extends through Union City and Fremont to metropolitan San Jose. South oriented trips are served by interchanges at Winton Avenue and at Jackson Street.

West Jackson Street runs in a general northeasterly direction, ending in the Hayward Central District at a junction with Mission Boulevard. Trips to Interstate 580 east would take this route. To the west, the San Mateo Bridge provides service to the San Francisco Peninsula and to the cities of San Francisco and San Jose via SR 101.

Current average daily traffic volumes on the Nimitz Freeway are 184,000 vehicles north of Winton Avenue and 172,000 vehicles to the south. On State Route 92, volumes are 52,000 vehicles west of the Clawiter Road interchange and 58,000 vehicles east of the Industrial Boulevard interchange.[2]

Current Traffic Operations

The study area established for this analysis is essentially that shown in Figure 1. It is bounded on the north by Sulpher Creek and Golf Course Drive, on the east by Hesperian Boulevard, on the south by State Route 92, and on the west by the Shoreline Corridor.

Typically in an urban street system, the primary restraints for traffic operations are the major street intersections. Because of the configuration of the street system serving the project area, as shown in Figure 1, all trips from Marathon oriented to the north and to the northeast would travel east on West Winton Avenue - either to Hesperian Boulevard, to SR 17, or to other points east. The addition of these trips to the heavy traffic volumes generated by the existing industrial and related uses, particularly during the evening peak hour, would make the major intersections on West Winton Avenue the critical points in the street system in the project area. It was assumed that project traffic would have a perceptible impact on West Winton Avenue from Cabot Boulevard to State Route 17. The existing eastbound flow on this portion of Winton Avenue during the evening peak hour is shown graphically in Figure 2, along with the turn volumes at the major intersections. Other intersections in the study area that would be impacted are indicated in Figure 1.

The critical intersections were analyzed to determine their current levels of service. The concept of level of service has been devised to

establish a standard frame of reference when describing traffic flow. Briefly, the service level of a given facility is a theoretical traffic volume determined by its physical and operational characteristics and by prescribed conditions of traffic flow.[3] Service levels were calculated by critical lane analysis. This procedure compares the heaviest conflicting movements within the intersection with the available capacities for these movements. The resultant ratio of volume to capacity indicates the level of service in accordance with the following scale.

V/C Ratio	Level of Service	Traffic Flow Conditions
Less than 0.60	A	No approach phase fully utilized. No vehicle waits longer than 1 red indication.
0.60 - 0.70	B	An occasional approach phase is fully utilized.
0.70 - 0.80	C	Occasionally drivers may have to wait through more than 1 red signal. Back-ups may develop behind turning vehicles.
0.80 - 0.90	D	Delays to vehicles may be substantial during short peaks but periodic clearance of queues prevents excessive back-up from developing.
0,90 - 1.00	E	Capacity, with sustained delays and back-up.
Greater than 1.00	F	Demand exceeds capacity.

P.M. peak hour turning counts were taken at the critical intersections. These counts are shown in Figures A-1 through A-16 in the Appendix. The existing volume/capacity ratios and the corresponding levels of service are listed in the first colume of Table 1. (The volume/capacity ratios may vary from those of the first phase Marathon report[4] since more recent procedures were utilized in the calculations.)

The intersections of West Winton Avenue-Hesperian Boulevard and Depot Road-Clawiter Road are currently operating at Level E. All other intersections are at Level D or better.

Observations made at the intersections corroborated the above conditions. The Hesperian Boulevard-West Winton Avenue intersection is at capacity during the evening peak hour with the eastbound movement on West Winton Avenue experiencing the most delay. Volume/capacity ratios are by definition computed for one-hour periods, but the actual conditions may fluctuate over that period. This is the case at West Winton Avenue and Hesperian Boulevard. Traffic flow is not constant, but has heavy peaks interspersed with short intervals of lighter demand. This is typical of industrial traffic because of the recurrent surges of employee work-to-home trips. The West Winton Avenue eastbound approach to Hesperian Boulevard has a right turn lane, a through lane, a through-left turn optional lane, and a left turn lane. The numbers of through lanes is limited to 2 because the east leg has only 2 through lanes. The average timed signal cycle was 3 minutes.

Observations were also made of the morning peak hour conditions at this intersection. Although counts show the westbound volume on West Winton Avenue is approximately equal to the evening eastbound volume, delay is considerably less. This is because the component of other (than home-to-work) traffic is lower on the conflicting movements. The signal cycle times during this period varied from 2 to 2-1/2 minutes.

The intersection of Depot Road and Clawiter Road is controlled by 4-2ay stop signs. Clawiter Road has single lane approaches; Depot Road has right turn lanes on both approaches. During the P.M. peak hour, the major back-ups are the northbound movement on Clawiter Road and the eastbound movement on

Depot Road. Again, the congestion is recurrent in nature, lasting over intermittent periods with relatively free flow in between.

At West Winton Avenue and Clawiter Road, the movement with the longest delay during the evening peak is the northbound right turn from Clawiter Road into West Winton Avenue. This is unusual, since the right turn movements at intersections typically are not a factor in volume/capacity calculations. In this case, however, the right turn periodic demand becomes heavy, but the eastbound flow on West Winton Avenue does not permit many free right turns. Most of these turns are made during the westbound left turn phase on West Winton Avenue. A number of vehicles were observed making right turns from the adjacent through lane, around the right turn channelization island.

The interchange of West Winton Avenue with the Nimitz Freeway is a 4 quad full clover leaf interchange. During the evening peak hour, the weaving of ramp traffic on the auxiliary road and the merge with freeway traffic causes congestion in both directions. The freeway itself is at capacity in the southbound direction and close to it in the northbound direction.

Project trips oriented to the south and southeast would travel on Cabot Boulevard, Clawiter Road, and Industrial Highway. The intersections of Depot Road with Industrial Boulevard and with Hesperian Boulevard are signalized; however, peak hour volumes through these intersections are relatively light compared to West Winton Avenue. In concurrence with the calculated service levels, field observations did not show any excessive delay on the intersection approaches.

Both Clawiter Road and Industrial Boulevard have interchanges at State Route 92. These are of the half-quad type which require left turns for certain ramp movements. The main problem during the P.M. peak hour is the

merge of eastbound on-ramp traffic with freeway traffic. This is more evident on Clawiter Road, where the back-up to the ramp on the single southbound lane can block all traffic.

Transit

Transit service is provided during the morning and evening peak hours by A-C Transit. Route 86 runs between the BART station and the industrial area.

TRAFFIC IMPACTS - MARATHON PROJECT

The Marathon project proposes a mixture of light industrial uses. Trip generation rates for these uses can vary. In the initial Marathon study, a cordon count was made of the adjacent area during the PM peak hours to determine the peak hour trip generation of the developed parcels, the directional splits, and the percentage of trucks during this period. The highest recorded hour was from 4:00 to 5:00 PM at 1,750 vehicles, or a peak hour trip generation rate of 5.3 trips per acre. At an assumed peak hour of 10 percent, the daily trip generation rate would be 53 trips per developed acre. The directional split was 73 percent eastbound (out) and 27 percent westbound (in). The overall proportion of trucks observed during this period was 8 percent.

Since R and D developments tend to have higher trip generation rates than the industrial-warehousing rates of the study area, the trips per acre were increased to 65, and the peak hour to 11 percent as being more to represent a worst-case scenario.

In the evaluations of the project traffic impacts, three

alternative plans were considered[5]. There are a total of five alternates; however only three vary in traffic impacts.

Alternate 1 Project as proposed. This is the development of 134 acres as per original proposal by Marathon.

Alternate 3 Development east of western half of proposed loop roadway. This would encompass approximately 104 acres of the site.

Alternate 5 No action.

For purposes of trip distribution, it was assumed that all access would be from West Winton Avenue. The daily and PM peak hour trips for the alternates are estimated as follows:

Alternate	Average Weekday Trips	PM Peak Hour Trips
1 - 134 acres	8,170(*)	951
3b - 104 acres	6,760(*)	738

The projected peak hour trips were distributed on the street system in accordance with observed traffic patterns in the project vicinity. The basic distribution patterns were assumed as follows:

South on Cabot - 16 percent
South on Clawiter - 22 percent
North on Hesperian - 22 percent
East on Winton (east of Hesperian) - 40 percent

These patterns were assumed for both outbound and inbound trips.

(*) If no R & D users locate on site these generation rates would be reduced to 5,120 for Alternative 1, and 3,980 for Alternative 3.

Traffic Impacts

The impacts on intersection operations under each of the three alternates are listed in columns 2, 3 and 4 of Table 2. Calculations for each alternate include the projected traffic for the first phase of the Marathon project, currently under construction. The range of impacts are greatest on those West Winton Avenue intersections nearest the project, diminishing in proportion to distance away from the site. The intersections of West Winton Avenue with Hesperian Boulevard and of Clawiter Road with Depot Road will drop from Level E to Level F under each of the alternates. Since no intersection can accommodate traffic volumes above its theoretical capacity, the implication here is the extent and duration of congestion will be increased beyond that already experienced. However, at the above intersections, the differences in volume/capacity ratios between the highest and lowest development levels does not exceed 8 percent, and no service level is changed. All other intersections remain at Level D or better. The conclusion is there is no substantive difference in traffic impacts between the three alternates.

Ramp volumes on the SR 17 - West Winton Avenue interchange are estimated to increase by 4 percent due to Marathon Phase 1 and Phase 2 - Alternate 1 traffic. Since these ramps are currently operating under forced flow conditions, there would be no perceptible effect on operational charachteristics. At the SR 92 - Clawiter Road interchange, increases are estimated at 24 percent on the westbound ramps, but total volumes will be approximately 800 vehicles per hour, which is well below capacity. The increases on the more critical eastbound ramps will be 8 percent; referring to Table 1, the service level at the intersection of the ramps with Clawiter Road will remain at Level D - the increases at the SR 92 - Industrial Boulevard interchange will range from 1 to 3 percent, with no significant impacts.

TRAFFIC IMPACTS - CUMULATIVE

Other Project Trips

In assessing traffic impacts in the study area previously defined, the potential trips from other undeveloped parcels were considered. There are approximately 283 undeveloped acres in the study area. These areas were identified,[6] the acreages calculated, and daily and PM peak hour trips estimated and distributed in accordance with the assumptions made for the Marathon project. The cumulative volume of these trips together with the Marathon Phase 2 - Alternate 1 represent the maximum impacts on the study area intersections, and are listed in column 5 of Table 1. For most intersections, there is a drop of 1 or 2 service level designations. In addition to the intersections of West Winton Avenue, Hesperian Boulevard and Depot Road - Clawiter Road, those of SR 92 Eastbound Ramps - Clawiter Road and SR 92 Westbound Ramps - Industrial Boulevard fall to Level F and Level E respectively.

The volume/capacity ratios and levels of service for the intersections along West Winton Avenue, Depot Road and SR 92 under Marathon Phase 2 and other project traffic, are shown diagrammatically in Figures 3, 4 and 5.

No Marathon Project

The fourth alternate evaluated was the "No Marathon project." The calculations for this alternate assumed that the Marathon first phase and the "other" projects would be built. The impacts on the intersections are listed in the sixth column of Table 1. Except for the intersections on West Winton Avenue closest to the Marathon site, there are relatively small changes in the volume/capacity ratios with or without the Marathon second phase.

Site Access

Access to the site will be from West Winton Avenue via Bruzzone Street. The present intersections of Bruzzone Street and Cabot Boulevard are offset by approximately 250 feet, which causes several operational problems. It is proposed that Cabot Boulevard be realigned to the west to line up with Bruzzone Street, thereby eliminating these problems.(7) This is planned as part of the development of the vacant parcel in the southwest quadrant of the West Winton Avenue - Cabot Boulevard intersection.

IMPACT ON RAILROADS

The Southern Pacific mainline track is adjacent to the Marathon site on the east. Approximately 24 freight trains and 4 passenger trains use this track daily. During the survey period from 4:00 to 5:30 PM two train movements were observed. There are grade crossings at West Winton Avenue, Depot Road, and Clawiter Road. Crossing gates and flashing lights have been installed at all crossings. These devices are about the limit of grade crossing protection. The ideal situation would be the construction of grade separations; however these projects would be financially unfeasible without the participation of the Public Utilities Commission. This would require including in their Grade Separation Priority Lists - a statewide construction schedule revised annually on the basis of a set of warrants to determine priorities. Among the warrants germane to this analysis are accident records and traffic volumes.

City records do not indicate a significant accident history at any of the 3 crossings.(8) The first phase Marathon development will add an estimated 1,060 daily trips at the West Winton Crossing, 210 at the Depot Road crossing and 160 at the Clawiter Road crossing. It does not appear that the

It does not appear that the addition of these trips will increase the accident potential or the traffic volumes a sufficient amount to qualify the crossings for a near-term listing in the PUC program. The listings of all 3 crossings are currently over 60; considering that about 4 projects a year are built, this gives some idea of the relative status of these crossings with regard to critical warrants.

A spur track is indicated on the preliminary development plan entering the Marathon site adjacent to the south side of the City storm drain. Since this drain marks the northerly limit of the first phase development, there will be no interior grade crossings in that phase. Because of the proximity of this and other spur tracks to the West Winton Avenue crossing, it is anticipated that predictors or similar time-our devices will be installed to minimize delay to traffic during switching operations.

MITIGATION

Possible mitigation measures to reduce the impacts of traffic on the street system are listed below.

Alameda Industrial Transportation Corridor

The Alameda Industrial Transportation Corridor is a proposed major north south facility extending from Doolittle Drive at Davis Street in San Leandro southerly to State Route 92 (West Jackson Street) in Hayward. This route is included in the Metropolitan Transportation Commission's Regional Transportation Plan. The basic section for this facility is a 4 lane divided roadway within a 150 foot right of way. Its primary function would be to increase north-south capacity for industrial and other traffic, and eliminate much of the east-west traffic currently using urban streets to reach Hesperian Boulevard, State Route 17, etc.

The current status of the Corridor Project is uncertain. There is no unanimity of opinion among the 3 jurisdictions involved - Alameda County, Hayward and San Leandro - as to what the ultimate scope of this project will be. The realistic assumption is that the route may not be continuous northerly all the way to Doolittle Drive, but end upon a partial project, ending somewhere south of San Lorenzo Creek.(9)

The City of Hayward is strongly supportive of the ultimate corridor plan, and has, in fact, purchased the necessary right of way at several locations in their jurisdiction.(10) The City of San Leandro, however, is opposed to part of the project in its jurisdiction. The Transportation Element of the City's General Plan shows the Corridor facility extending southerly from Doolittle Drive at Davis Street and ending at Lewelling Boulevard. Their expressed concerns have been that the complete route would function as a by-pass for State Route 17 traffic and that it would introduce large volumes of truck traffic through several predominatly residential neighborhoods.(11)

To summarize, the Industrial Corridor would relieve a number of congested east-west streets - primarily West Winton Avenue, Grant Avenue, and Lewelling Boulevard. It would significantly reduce both car and truck traffic on West Winton Avenue. However, its construction along its entire proposed length does not appear likely under current political policies and probable physical and financing constraints. Nor does the construction of a shorter route northerly to an alternate east-west street appear feasible. The most likely terminal street would be an extension of West A Street on the Golf Course Access Road alignment along the north edge of the airport. The extension would have to run through the Marathon site to reach the Corridor facility. The environmental impact of this route on the golf course and on

the area northwesterly of the existing West A Street - Hesperian Boulevard would be substantial, and the traffic problems which could develop at the West A Street intersection with Hesperian Boulevard and at the interchange with State Route 17 might only duplicate the problems currently occurring on West Winton Avenue. Also, an undercrossing would have to be constructed at the SPRR tracks. Preliminary studies by the City indicate the costs involved in construction of the roadway and necessary structures would be prohibitive under current financing limitations.[12] Since the grade separation would be new, rather than existing, participation in the cost by the Public Utilities Commission would not be available.

A second possible terminal street would be Grant Avenue. If past patterns are any indication, however, this alternate would be strenuously resisted by the adjacent residential areas, who over the years have been objecting to the existing truck traffic. Again, the present problems on West Winton Avenue may just be relocated to the Grant Avenue - Hesperian Boulevard State Route 17 area. If there is no northerly extension of the Corridor, then the Marathon project traffic will have no effect on Grant Avenue.

The extension of the Corridor southerly to State Route 92 is a more likely possibility. This extension is being considered by a connection between Cabot Boulevard and Whitesell Street, with a new interchange at SR 92. The route would divert a portion of existing and projected traffic from Clawiter Road and Industrial Boulevard.

West Winton Avenue Improvements

There are 2 intersections on West Winton Avenue where physical improvements may be possible.

West Winton Avenue-Hesperian Boulevard. At the Hesperian Boulevard intersection, the addition of a third eastbound lane on West Winton Avenue from Hesperian Boulevard to Southland Place/Stonewall Avenue to increase the eastbound capacity through the intersection is currently planned. This project will require additional right of way on the south side of West Winton Avenue. Depending on the lane width selected, the roadway will be widened about 10-12 feet immediately east of Hesperian Boulevard, tapering down to about 4-6 feet at the intersection of Wright Drive approximately 340 feet to the east. The City has already acquired 6 feet of additional right of way for approximately 200 feet east of Hesperian Boulevard. The additional width at Hesperian Boulevard might interfere with the present operation of the service station in the southeast quadrant. Between Wright Drive and Southland Place, the parking will be removed and the south side of West Winton Avenue widened 2-4 feet, again depending on the selected lane width. On the eastbound approach of West Winton Avenue, the third through lane will be acquired by converting the existing right turn lane to an optional right turn-through lane. This will reduce the efficiency of the third through lane somewhat, since the existing free right turning vehicles would generally be blocked by the through traffic during the red signal phase; however, the right turns during the evening peak hours are relatively light, and the overall intersection efficiency will be improved. The existing traffic island will have to be reduced in size to accommodate the through lane.

West Winton Avenue - Clawiter Road. Operations at this intersection could be improved by converting the existing through lane on

the northbound Clawiter Road approach to an optional right turn-through lane. This would require removal of the right turn channelization island and relocation of the signal. It might also require a "No right turn on red" feature; but, as noted, it is difficult to make this turn at the present time during peak periods. Turns would be made during the westbound left turn phase on West Winton Avenue plus a possible extension; however, since there will be 2 lanes turning right, this extension should not be too long. Opposite Clawiter Road is the driveway to the Air National Guard installation,so the amount of northbound through traffic - which would have to share the right turn lane - is minimal.

Depot Road. The ultimate section proposed for Depot Road between Cabot Boulevard and Clawiter Road is a 4 lane section with a 64 foot curb-to-curb width. In conjunction with the extension of Cabot Boulevard, the improved facility could conceivably attract vehicles from West Winton Avenue - especially if traffic flow on the new route is significantly more efficient than that on West Winton Avenue.

Clawiter Road. Clawiter Road is also proposed for an ultimate 4 lane section. The Depot Road - Clawiter Road and Clawiter Road - SR 92 intersection operations would improve beyond their current service levels with the widening of the approaches. In addition, widening of the off-ramps at SR 92 would provide more efficient traffic flow onto the City street system.

An assessment district is currently being formed by the property owners in the industrial area for implementation of the above improvements.

Other Mitigation Measures

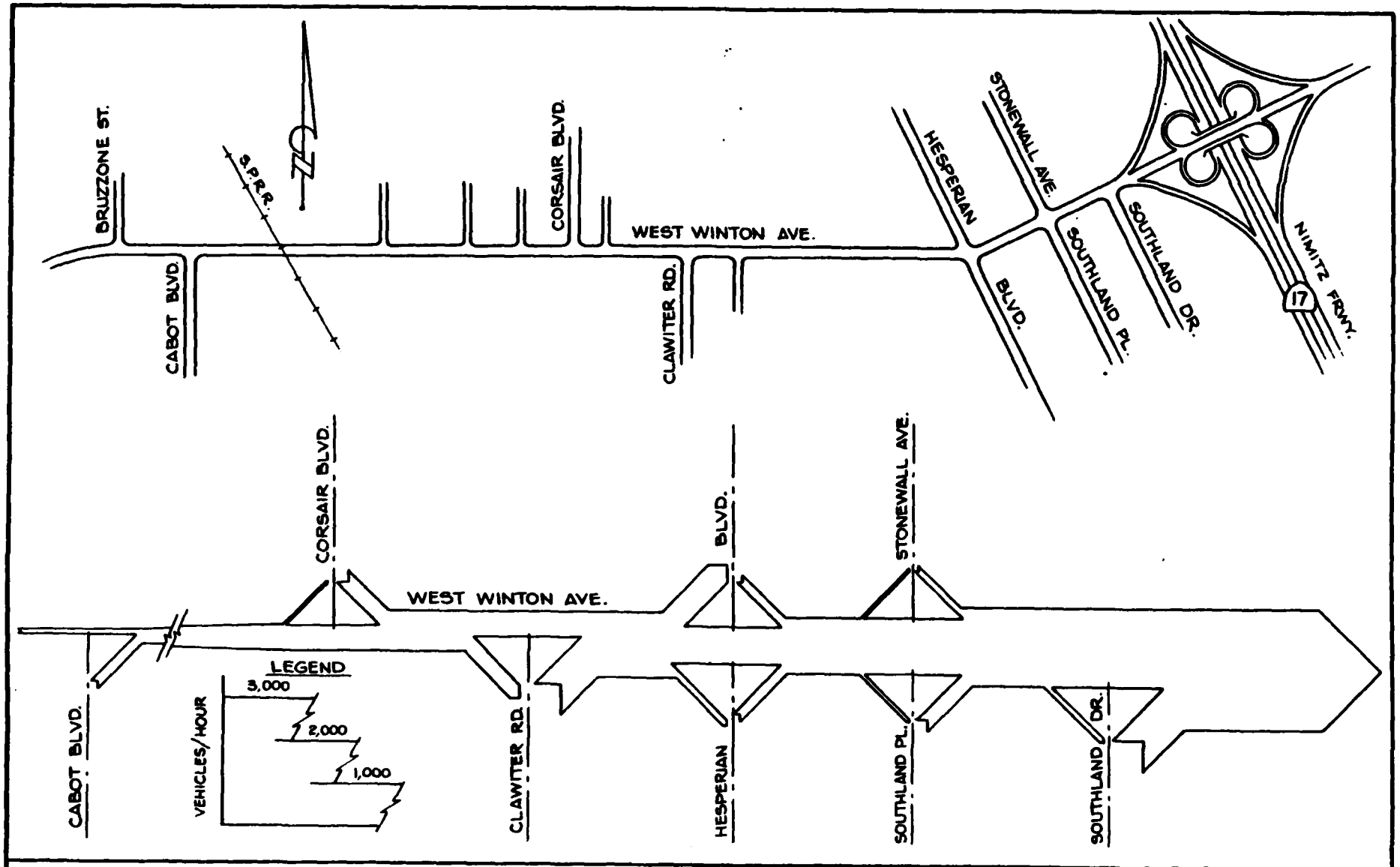
Besides construction of new elements of the street system or modifications of existing ones, the only feasible way to reduce vehicle traffic is to shift to transit, or to car-pooling or van-pooling. As noted, there is already an A/C Transit bus serving the industrial area from and to the BART Station. As the industrial area grows, it may be feasible to expand this service through more buses and reduced headways. Car-pooling and van-pooling are usually undertakings of the various industries involved, and these operations should be encouraged on that level.

TABLE 1

PM PEAK HOUR VOLUME/CAPACITY RATIOS AND LEVELS OF SERVICE

Intersection	Existing	Existing + Marathon Phase 1 + Marathon Phase 2 Alt. 1 + Other Projects	Existing + Marathon Phase 1 + Marathon Phase 1 Alt. 3B + Other Projects	Alt. 4 & 5 + Existing + Marathon Phase 1 + Other Projects
W. Winton Avenue - Cabot Blvd./Bruzzone St.	0.11 - A	0.67 - B	0.57 - A	0.64 - B
W. Winton Avenue - Corsair Blvd.	0.32 - A	0.72 - C	0.68 - B	0.54 - A
W. Winton Avenue - Clawiter Rd.	0.43 - A	0.83 - D	0.79 - C	0.67 - B
W. Winton Avenue - Hesperian Blvd.	0.96 - E	1.24 - F	1.23 - F	1.14 - F
W. Winton Avenue - Southland Pl/Stonewall Ave.	0.67 - B	0.87 - D	0.86 - D	0.81 - D
W. Winton Avenue - Southland Drive	0.70 - C	0.85 - D	0.84 - D	0.80 - D
Depot Road - Clawiter Road	0.97 - E	1.73 - F	1.67 - F	1.62 - F
Depot Road - Industrial Blvd.	0.67 - B	0.87 - D	0.86 - D	0.82 -D

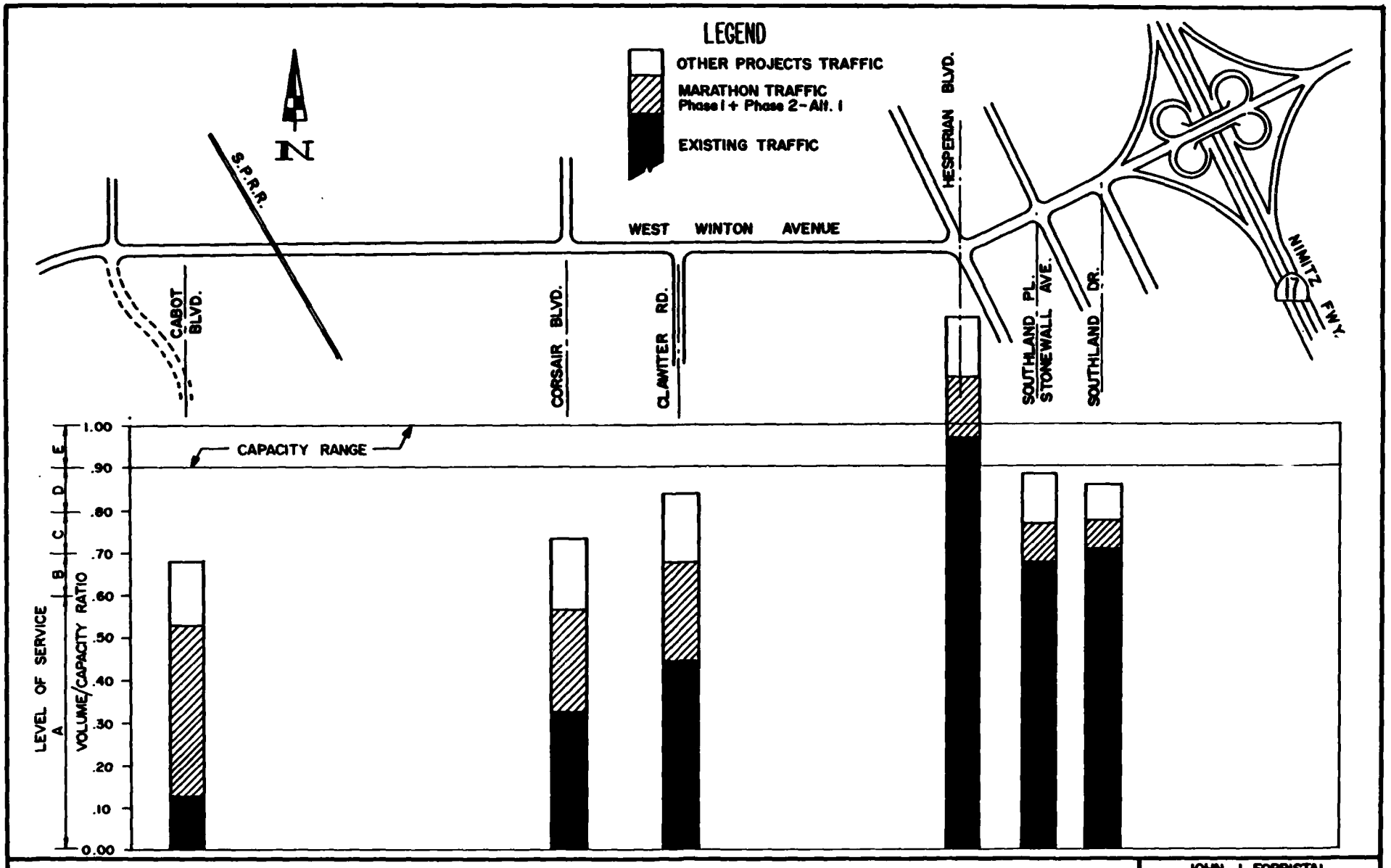
Depot Road - Hesperian Blvd.	0.67 - B	0.72 - C	0.69 - B	0.67 - B
SR 92 WB Ramps/Breakwater Ave. Clawiter Road	0.71 - C	0.89 - D	0.88 - D	0.84 - D
SR 92 EB Ramps/Eden Ldg. Rd. Clawiter Road	0.82 - D	1.01 - F	1.00 - E	0.97 - E
SR 92 WB Ramps/Cryer St. Industrial Blvd.	0.66 - B	0.92 - E	0.91 - E	0.89 - D
SR 92 WB Ramps/Sleepy Hollow Industrial Blvd.	0.55 - A	0.73 - C	0.73 - C	0.72 - C



EXISTING —— WINTON AVE. PM PEAK HOUR TRAFFIC FLOW – EASTBOUND

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

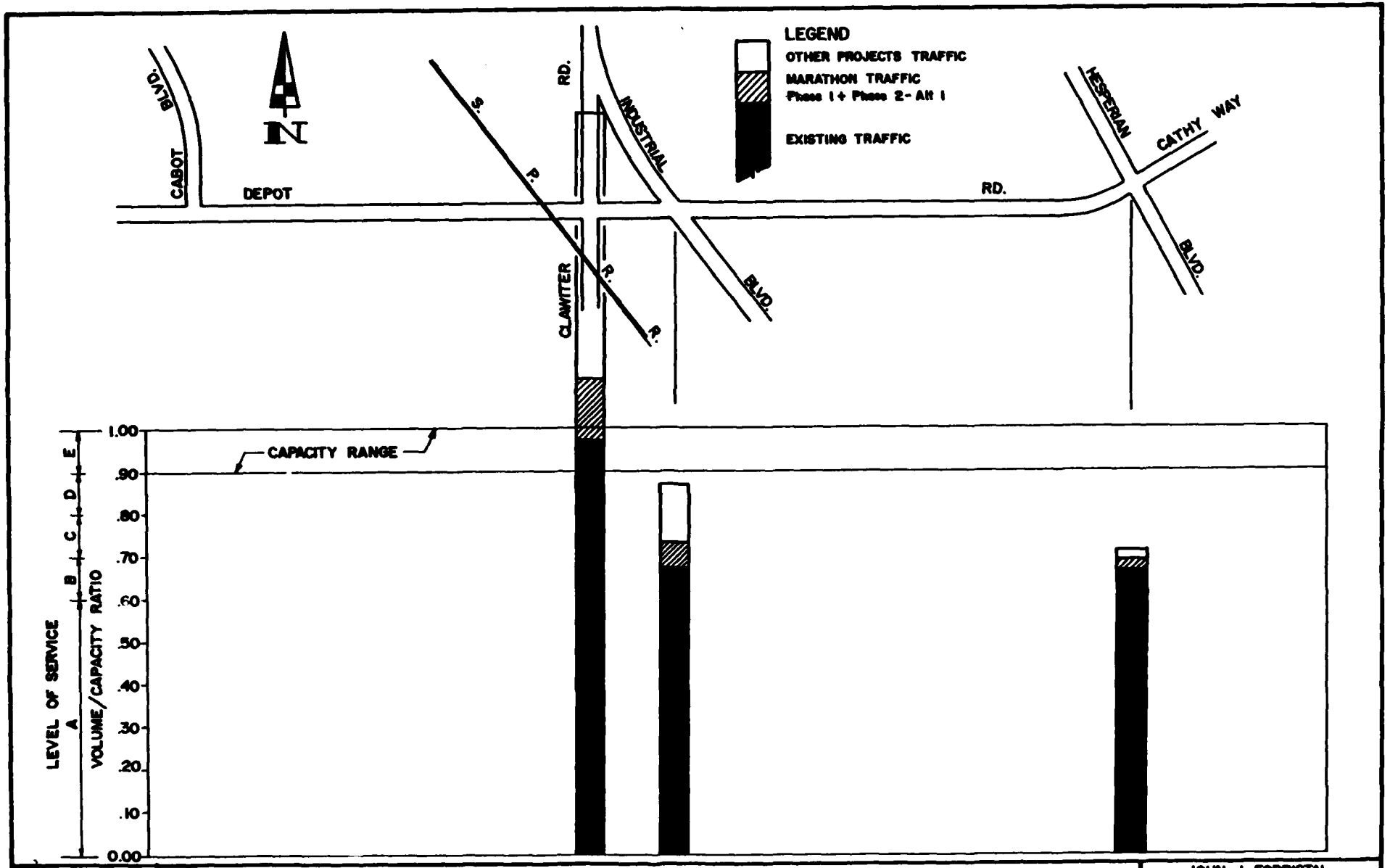
FIGURE 2



EXISTING AND PROJECTED VOLUME/CAPACITY RATIOS —— WEST WINTON AVENUE

JOHN J. FORRISTAL
Consulting Traffic Engineer
Oakland California

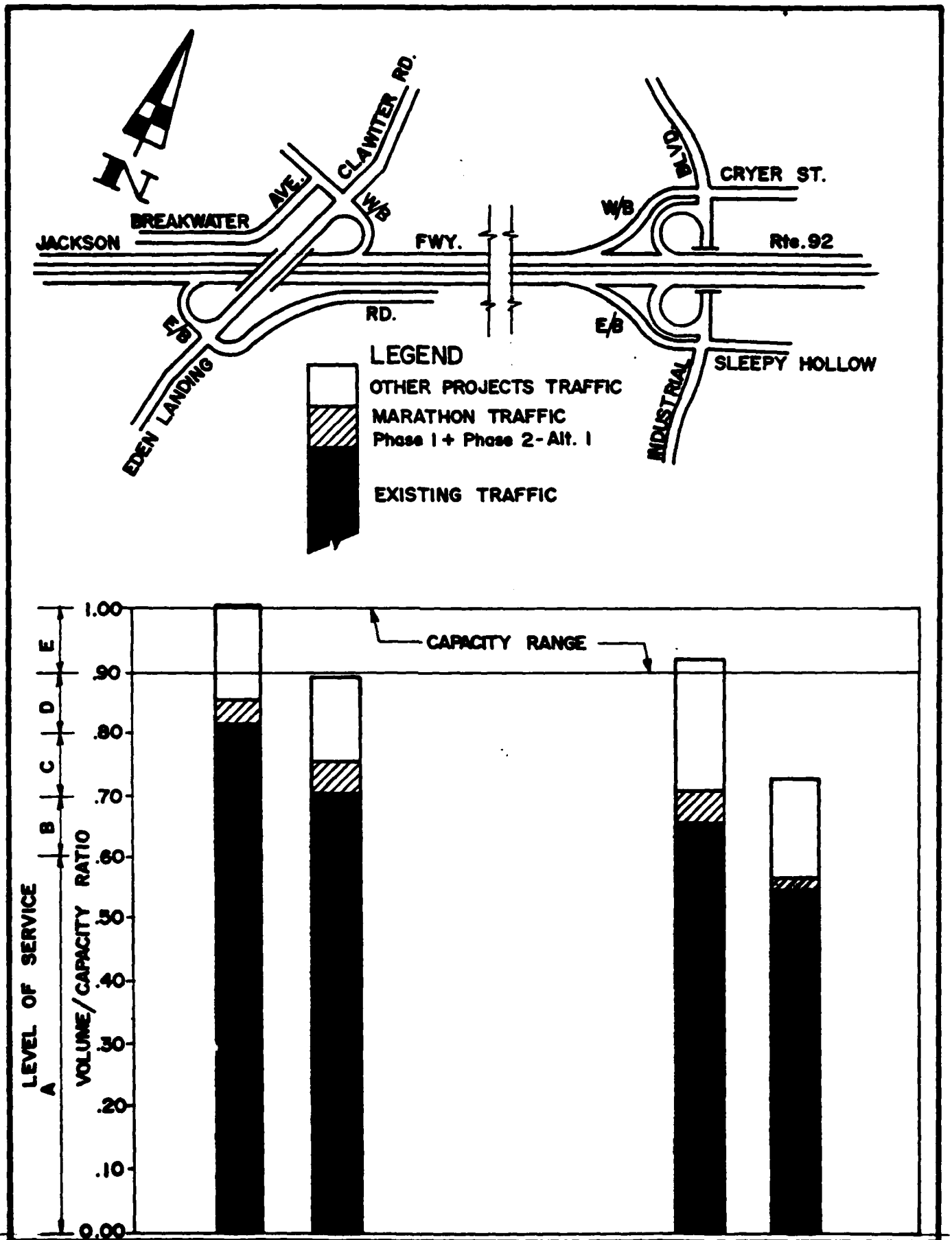
FIGURE 3



EXISTING AND PROJECTED VOLUME/CAPACITY RATIOS —— DEPOT ROAD

JOHN J. FORRISTAL
Consulting Traffic Engineer
Oakland California

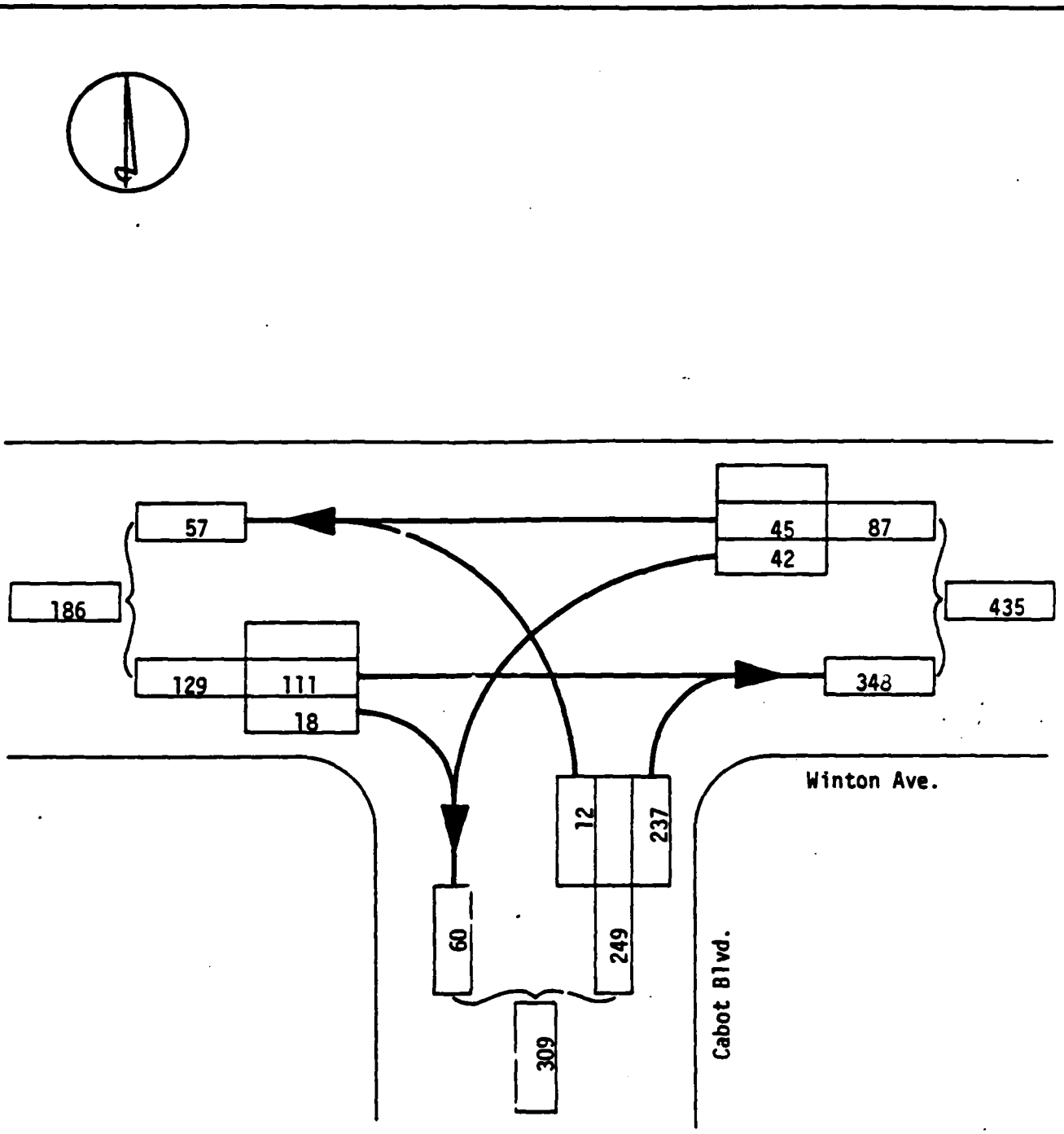
FIGURE 4



EXISTING AND PROJECTED VOLUME/CAPACITY RATIOS
JACKSON FREEWAY — Rte. 92

JOHN J. FORRISTAL
Consulting Traffic Engineer
Oakland California

FIGURE 5



LOCATION Winton Ave. & Cabot Blvd.

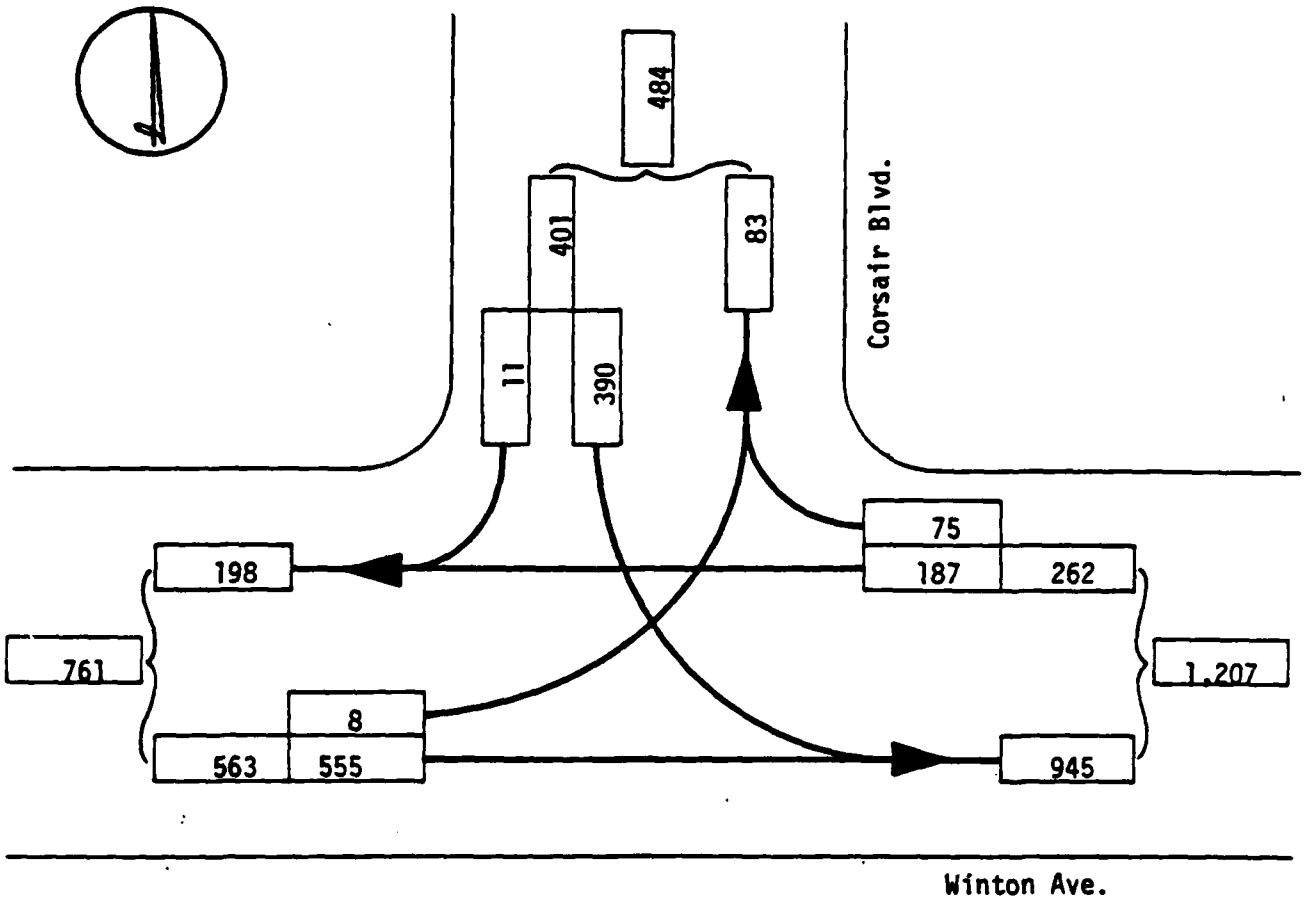
PERIOD 4:30 - 5:30 PM Thursday 1-7-82

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND CALIFORNIA

Figure A-1



LOCATION Winton Ave. and Corsair Blvd.

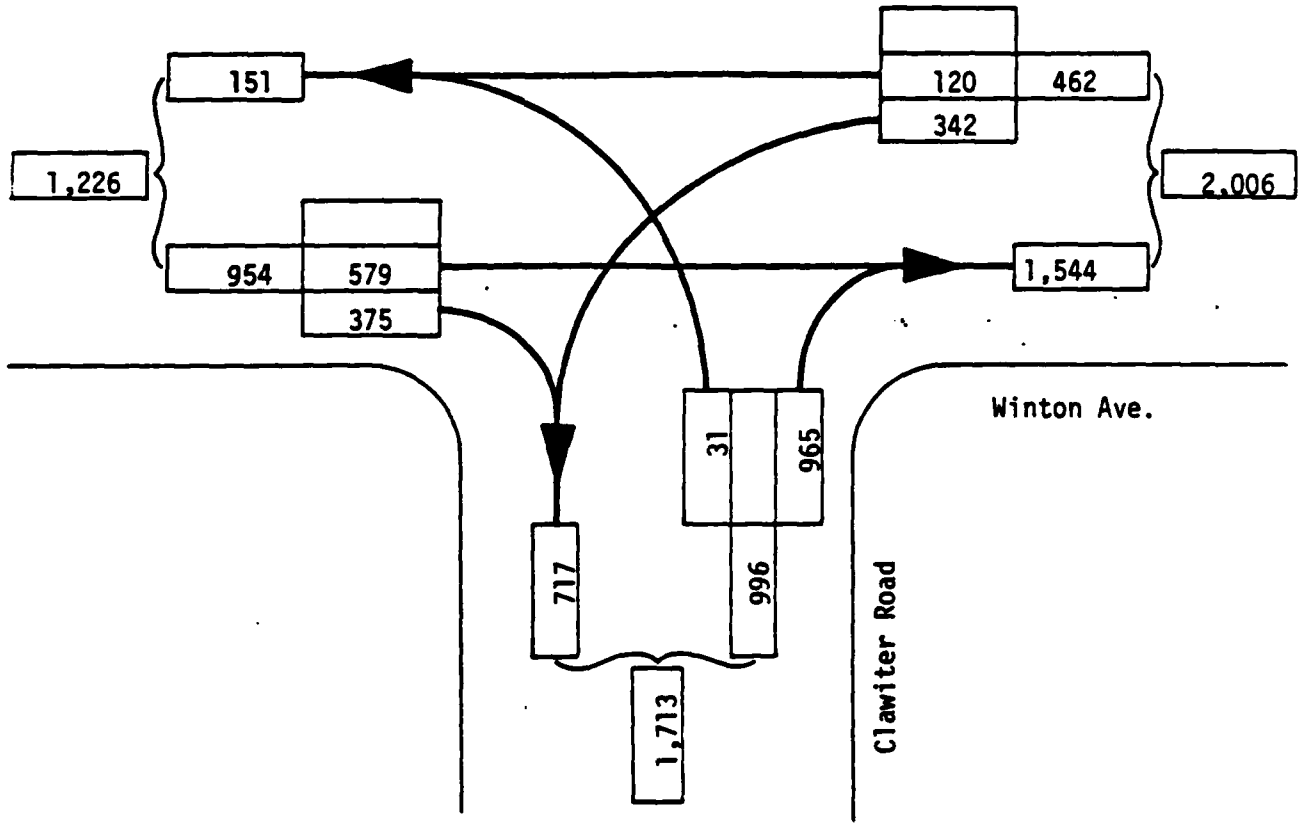
PERIOD 4:30 - 5:30 PM Thursday 1-7-82

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND CALIFORNIA

Figure A-2



LOCATION Winton Ave. and Clawiter Road

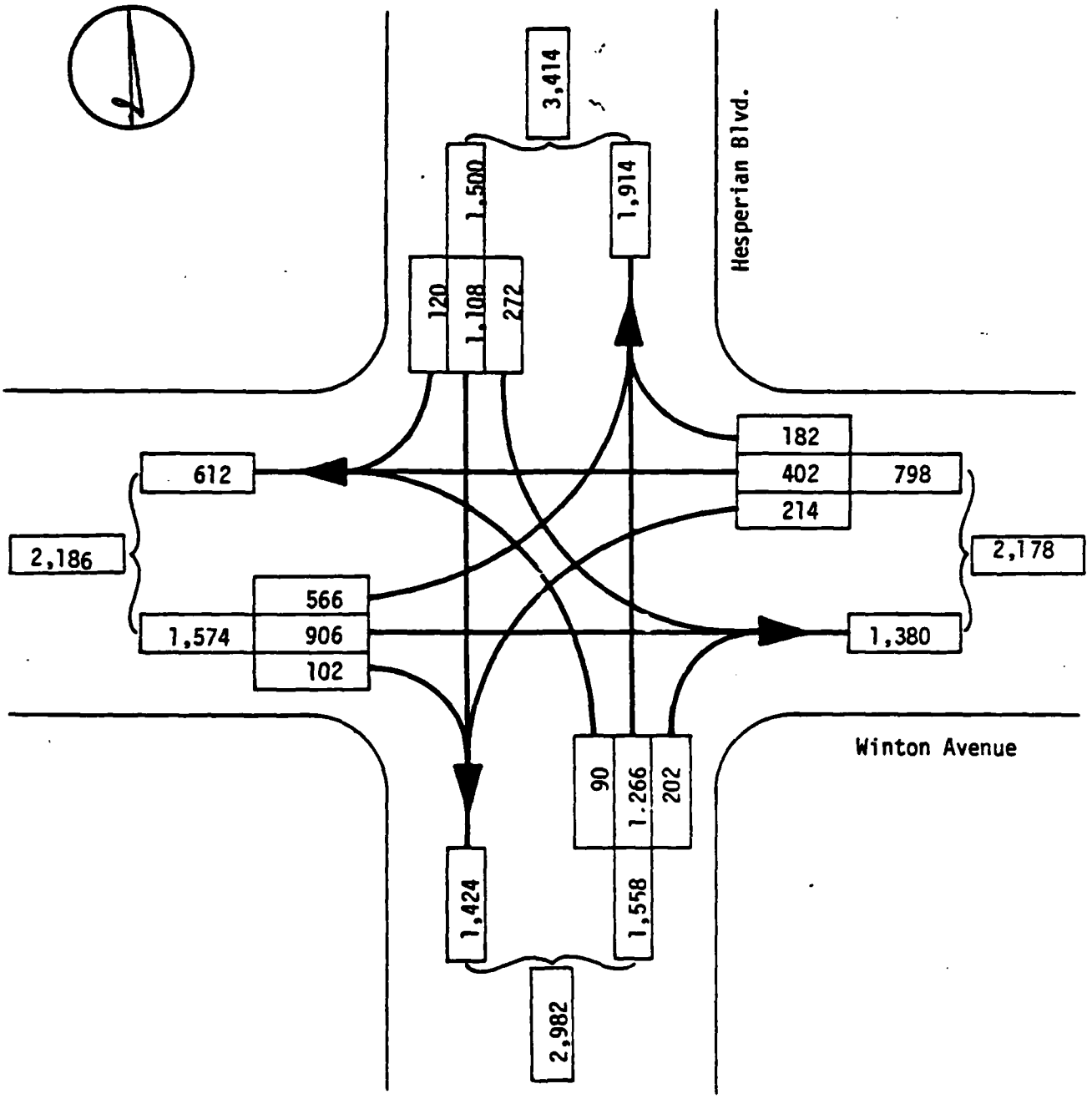
PERIOD 4:30 - 5:30 PM, Wed. 12-2-81

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND CALIFORNIA

Figure A-3



LOCATION Winton Avenue & Hesperian Blvd.

PERIOD 4:00 - 5:00 PM Wednesday 12-2-91

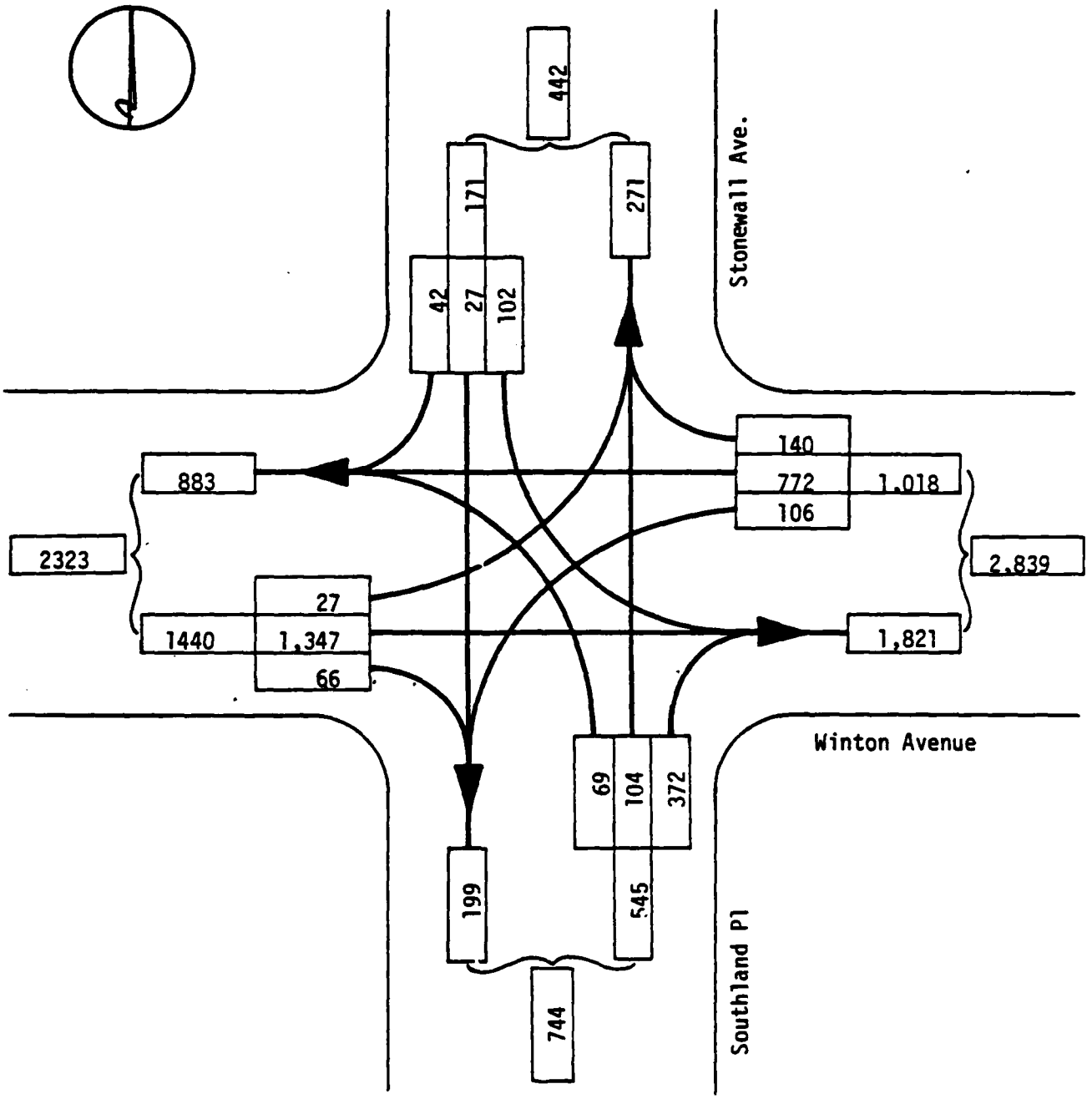
INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL

CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure A-4



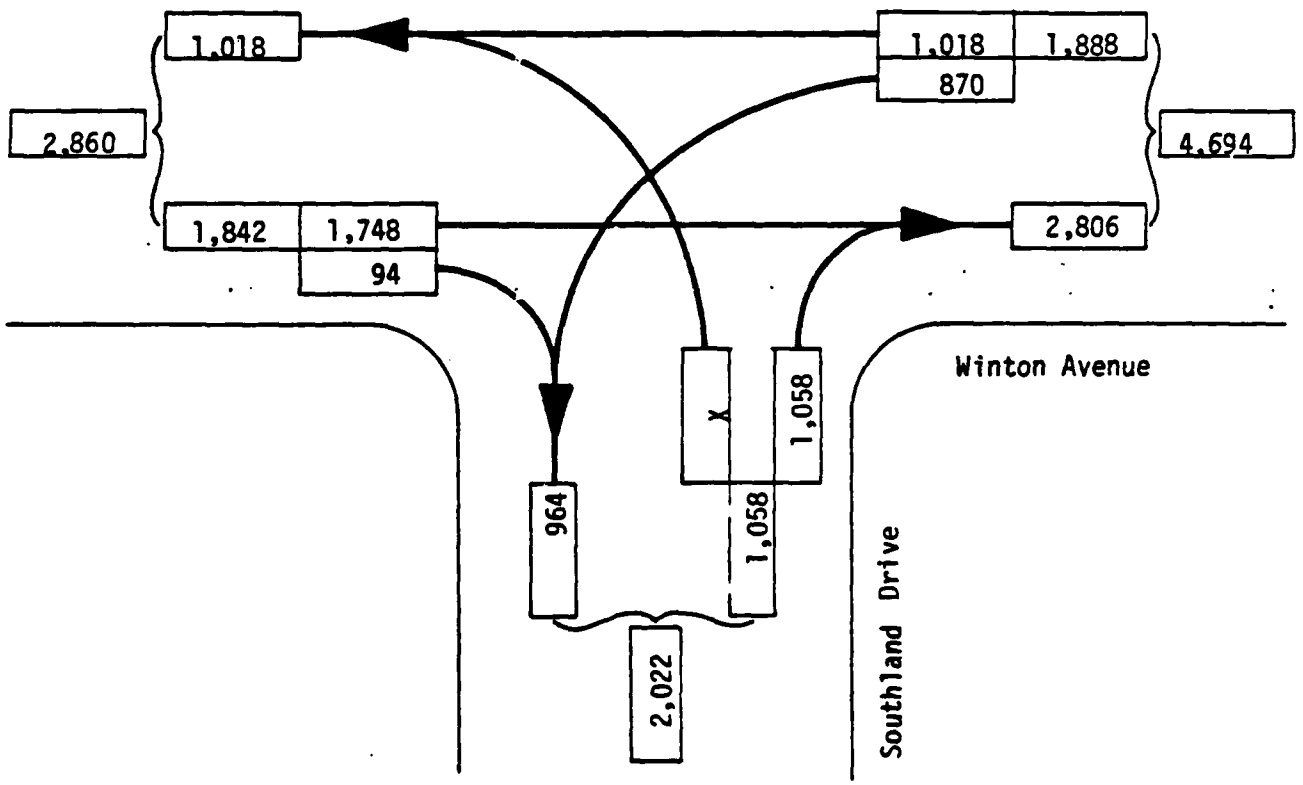
LOCATION Winton Ave. and Southland Dr/Stonewall Ave.

PERIOD 4:00 - 5:00 PM Thursday 1-7-82

INTERSECTION TURNING MOVEMENTS

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure A-5



LOCATION Winton Avenue and Southland Drive

PERIOD 4:00 - 5:00 PM Wednesday 12-2-81

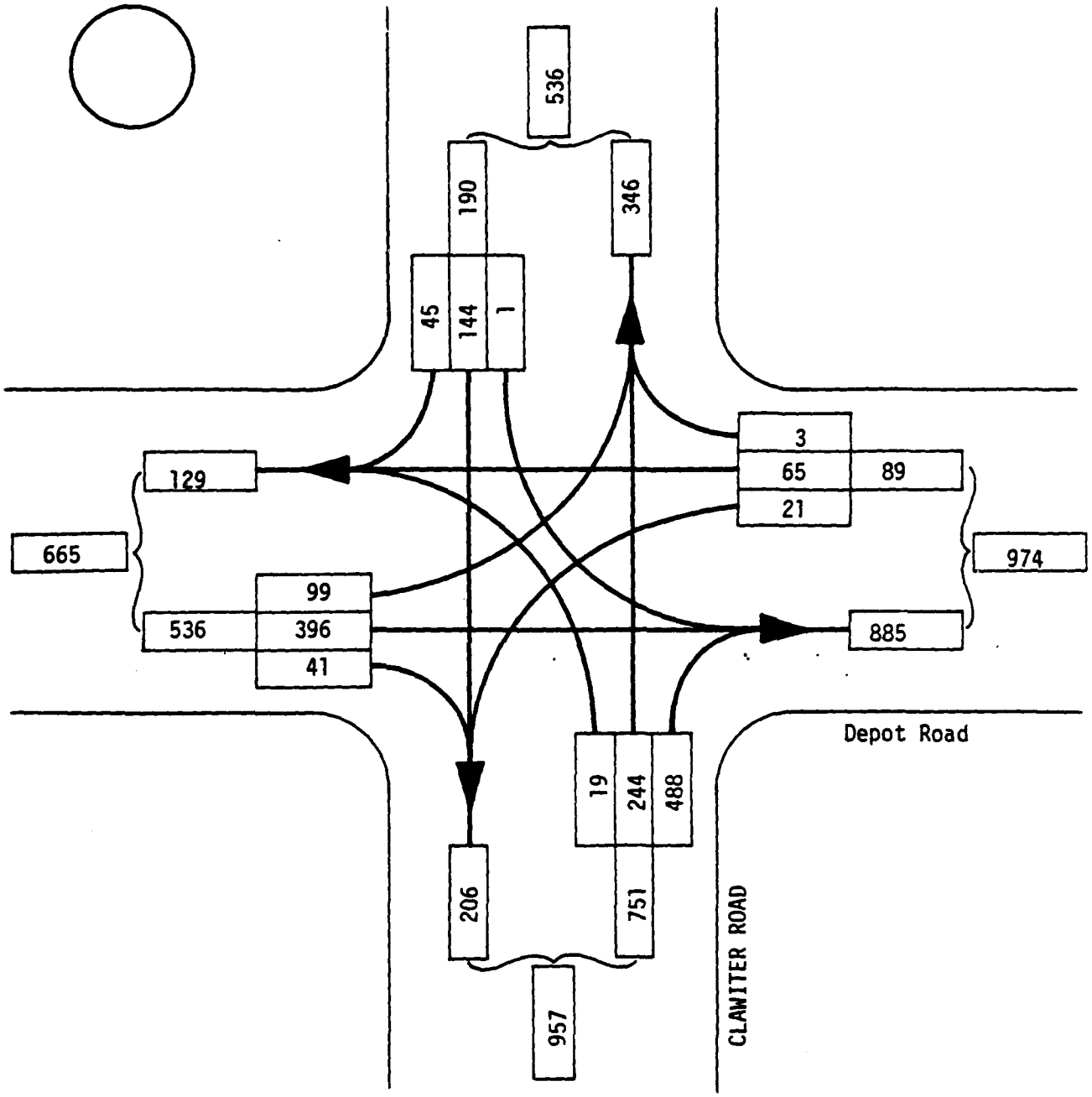
INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL

CONSULTING TRAFFIC ENGINEER
OAKLAND CALIFORNIA

Figure A-6



LOCATION DEPOT ROAD - CLAWITER ROAD

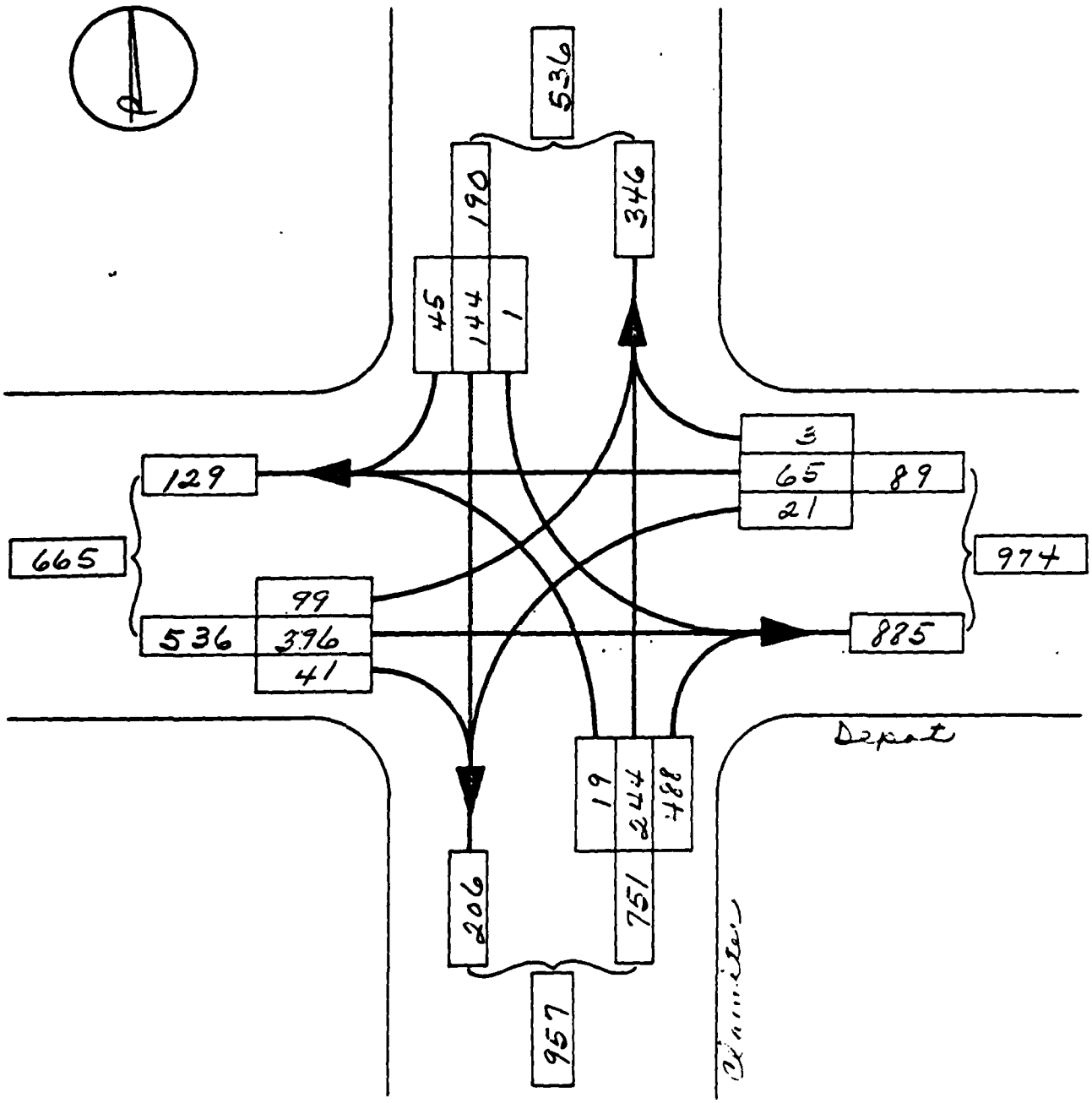
PERIOD 5:00 - 6:00 PM

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure 7A



LOCATION Depot Rd. · Chanslor Rd.

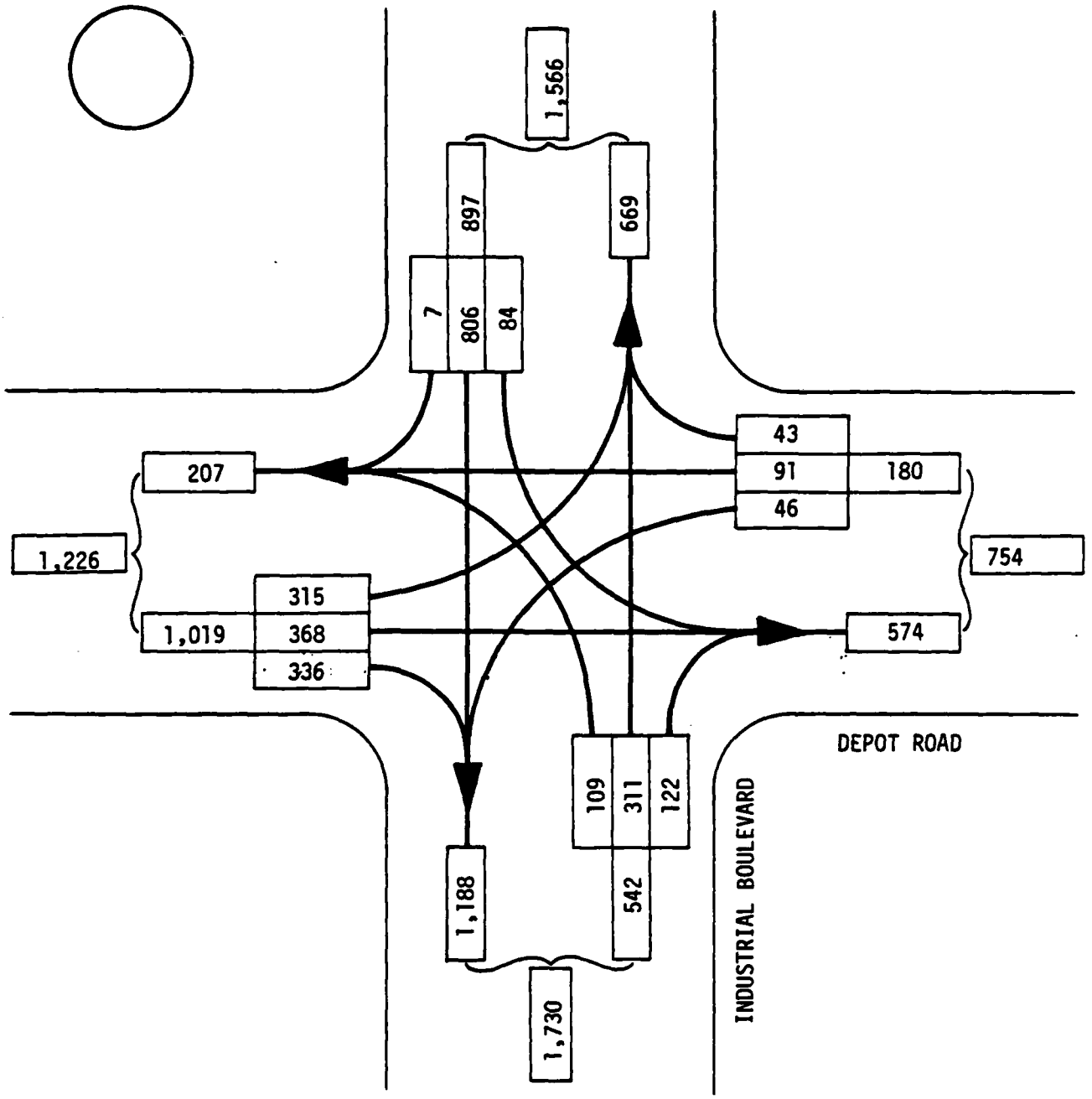
PERIOD 5:00 - 6:00 PM

INTERSECTION TURNING MOVEMENTS

Existing Volumes

JOHN J. FORRISTAL

CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA



LOCATION DEPOT ROAD - INDUSTRIAL BOULEVARD

PERIOD 4:30 - 5:30 PM

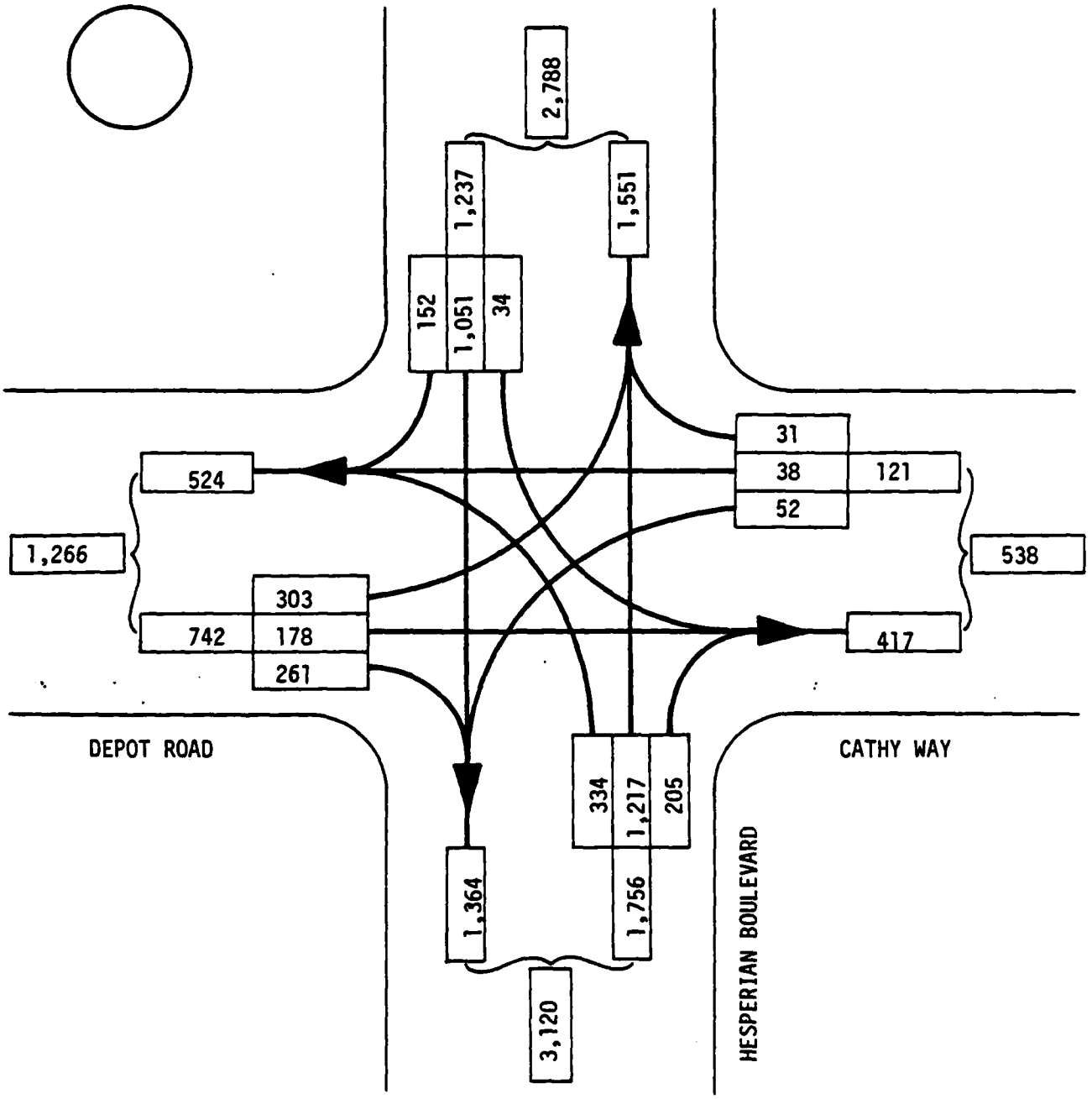
INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL

CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure 8A



LOCATION DEPOT ROAD/CATHY WAY - HESPERIAN BOULEVARD

PERIOD 3:45 - 4:45 PM

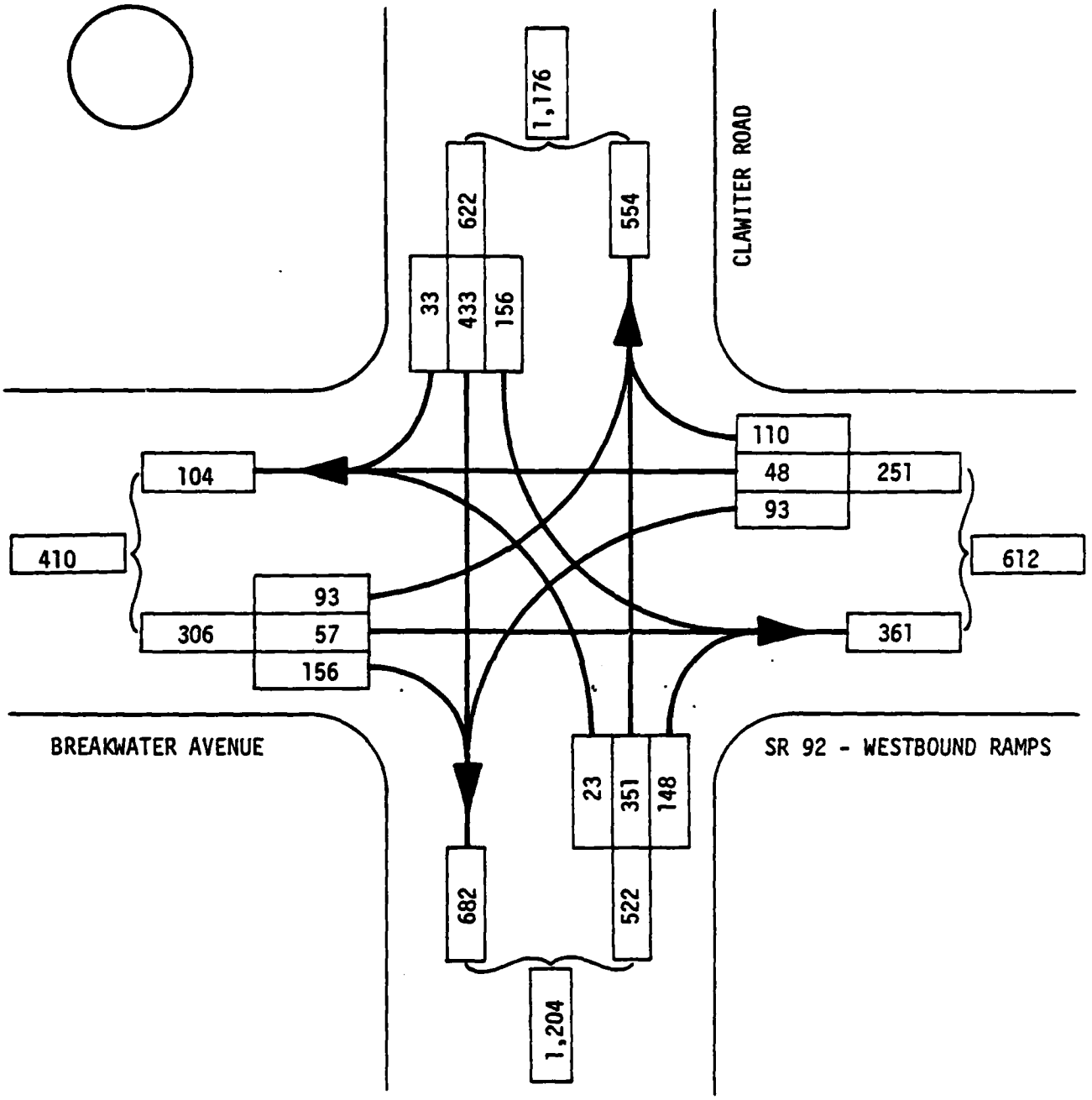
INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL

CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure 9A



LOCATION CLAWITER ROAD - SR 92 WESTBOUND RAMPS/BREAKWATER AVENUE

PERIOD 4:45 PM - 5:45 PM

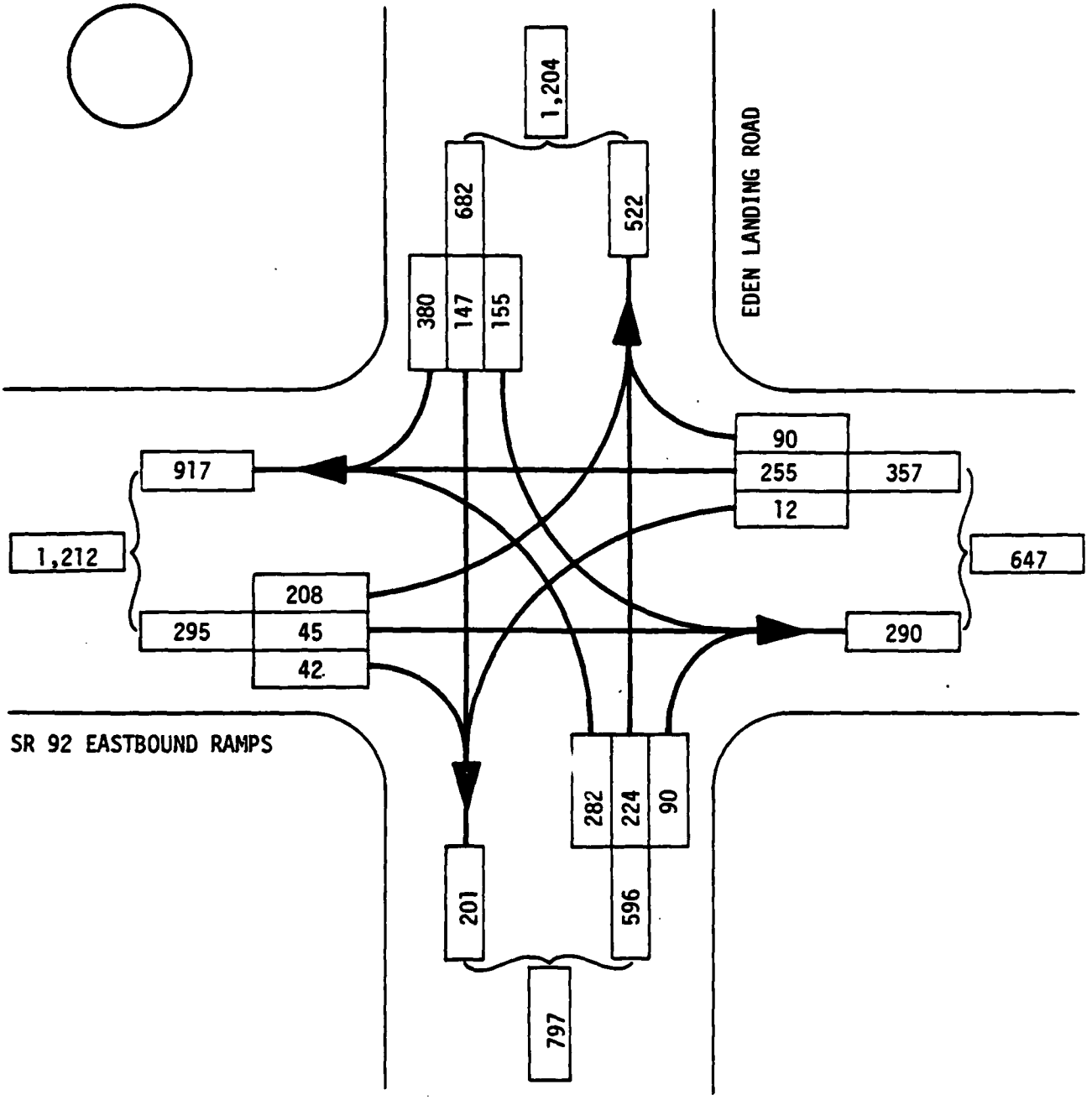
INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL

CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure 10A



LOCATION EDEN LANDING ROAD - SR 92 EASTBOUND RAMPS

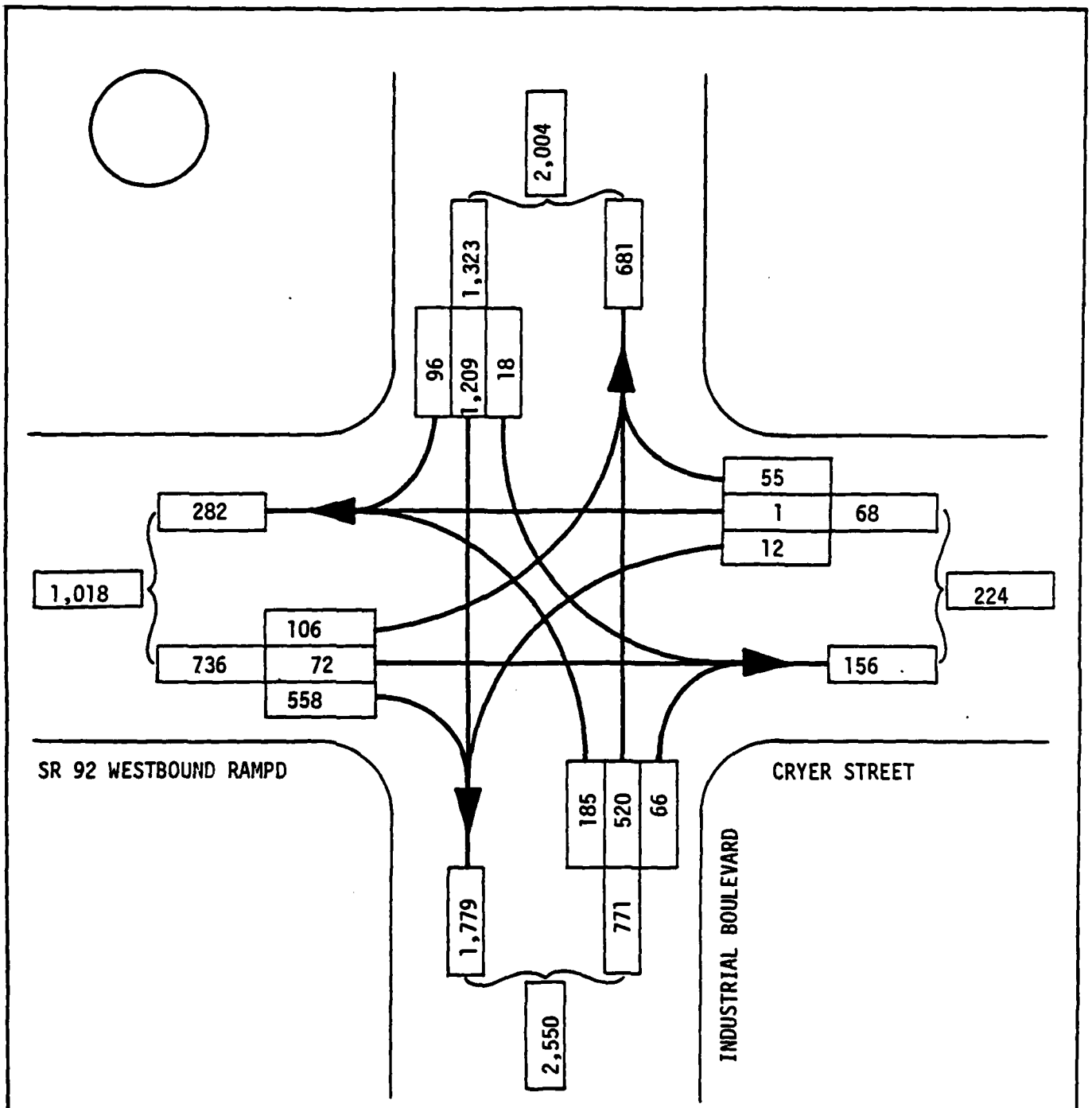
PERIOD 4:45 - 5:45 PM

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure 11A



LOCATION INDUSTRIAL BOULEVARD - SR 92 WESTBOUND RAMPS/CRYER STREET

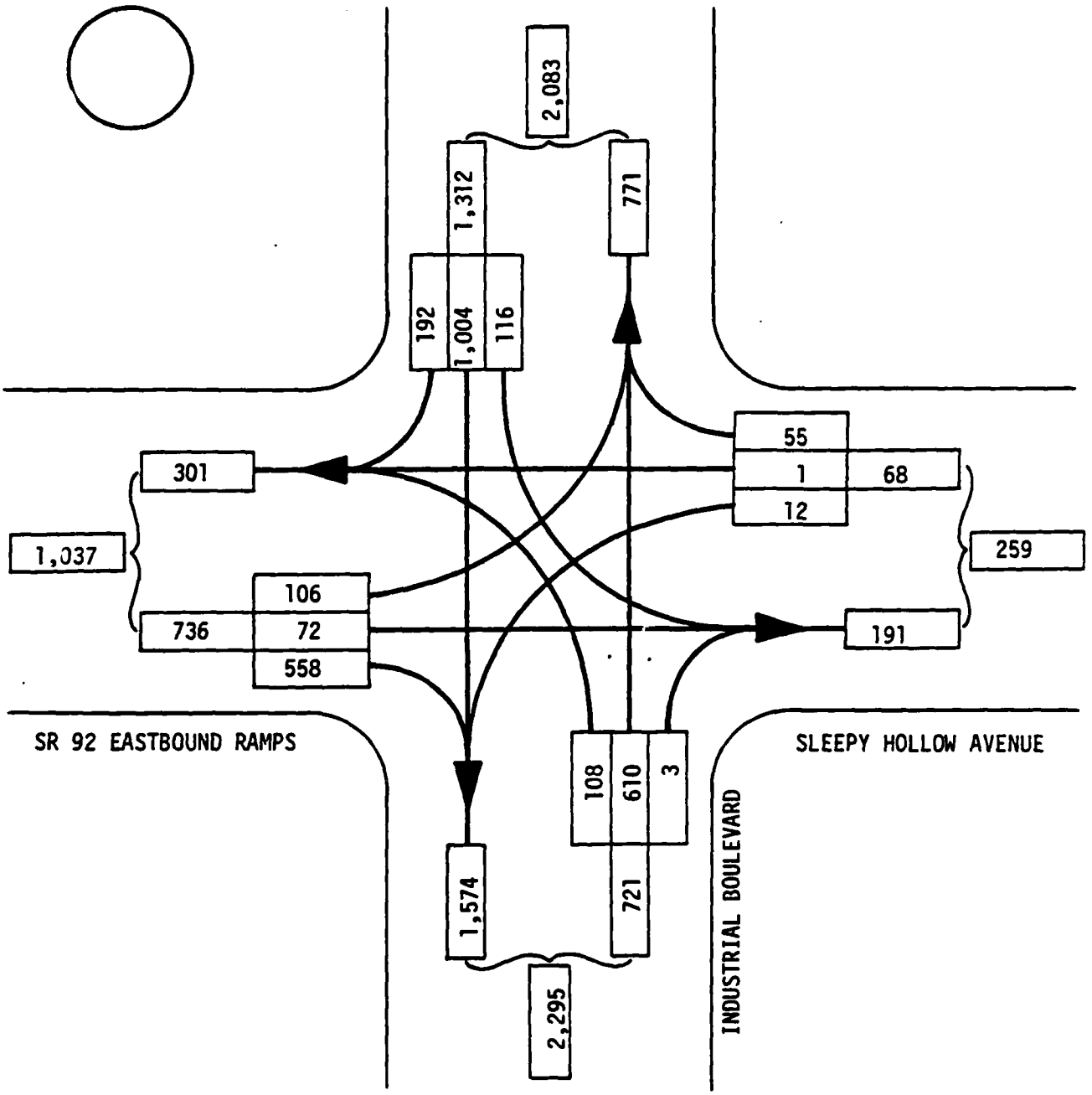
PERIOD _____

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure 12A



LOCATION INDUSTRIAL BOULEVARD - SR 92 EASTBOUND RAMPS/SLEEPY HOLLOW AVE.

PERIOD 4:00 - 5:00 PM

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL

CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure 13A

APPENDIX F:

ARCHAEOLOGICAL RECORDS SEARCH

California
Archaeological
Inventory

ALAMEDA
COLUSA
CONTRA COSTA
DEL NORTE
HUMBOLDT
LAKE
MARIN
MENDOCINO
MONTEREY
NAPA
SAN BENITO
SAN FRANCISCO
SAN MATEO
SANTA CLARA
SANTA CRUZ
SOLANO
SONOMA
YOLO

Northwest Information Center
Department of Anthropology
Sonoma State University
Rohnert Park, California 94928
(707) 664-2494

24 January 1985

File No.: 6080-84-636

Ellen LaPorte
TRS Consultants, Inc.
500 Sutter Street, Suite 615
San Francisco, CA 94102

re: Archaeological records search for a proposed industrial/business park EIR/EIS, City of Hayward, Alameda County.

Dear Ms. LaPorte:

In response to your letter request of 13 December 1984, document on file at the Northwest Information Center were reviewed with regard to the project area shown on your map.

There were no National Register properties, California Inventory of Historic Resources sites or California Historical Landmarks within or adjacent to the project area. An archaeological study which included the subject property did not result in the discovery of cultural resources (Sawyer et al 1978).

In consideration of the above, the project area was determined to be of low archaeological sensitivity and further archaeological study is not recommended at this time. However, in the event that archaeological materials are encountered during project activity, any activity which could damage the resource should be halted until an archaeologist has evaluated the situation and provided recommendations for further procedure.

Prehistoric archaeological materials include but are not limited to obsidian or chert flakes or artifacts, (eg. arrowheads, associated manufacturing debris), grinding tools (eg. pestles), bone, shell deposits or debris, locally darkened soil (midden), and human graves. Historic archaeological materials include but are not limited to stone, brick or adobe foundations, stone alignments, refuse deposits, backfilled wells, square nails, bottles, and glass fragments.

Please sign and return the enclosed confidentiality form. If we can be of further assistance, do not hesitate to contact our office.

Sincerely,

Christian Gerike
Assistant Coordinator

Lisa C. Hagel

Lisa C. Hagel
Researcher II

LITERATURE REVIEWED

In addition to archaeological maps and site records on file at the Northwest Information Center, the following literature was reviewed:

California Department of Parks and Recreation

1976 California Inventory of Historic Resources. The Resources Agency, Sacramento.

1982 California Historical Landmarks (revised). The Resources Agency, Sacramento.

Kroeber, A.L.

1925 Handbook of the Indians of California. Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington, D.C. (Reprinted by Dover Publications, Inc., New York, 1976.)

Levy, Richard

1978 Costanoan. In Handbook of North American Indians, Volume 8: California. Robert F. Heizer, ed. Smithsonian Institution, Washington, D.C.

Nelson, N.C.

1909 Shellmounds of the San Francisco Bay Region. University of California Publications in American Archaeology and Ethnology 7(4):309-356. University of California Press, Berkeley. (Reprinted by Kraus Reprint Corp., New York, 1964.)

Nichols, Donald R., and Nancy A. Wright

1971 Preliminary Map of Historic Margins of Marshland, San Francisco Bay, California. Open File Map. U.S. Geological Survey in cooperation with Department of Housing and Urban Development.

Sawyer, Michael J., Diane C. Watts, et al

1978 An Archaeological Reconnaissance of the Hayward-San Leandro Transportation Corridor, Alameda County, California. The Institute of Cultural Resources, California State University, Hayward.

United States Department of the Interior

1979 National Register of Historic Places, Annual Listing of Historic Properties. In Federal Register 44(26):II. General Services Administration, Washington, D.C.

1980 National Register of Historic Places, Annual Listing of Historic Properties. In Federal Register 45(54):II. General Services Administration , Washington, D.C.

1981 National Register of Historic Places, Annual Listing of Historic Properties. In Federal Register 46(22):II. General Services Administration, Washington.

United States Department of the Interior

1982 National Register of Historic Places, Annual Listing of Historic Properties. In Federal Register 47(22):III. General Services Administration, Washington, D.C.

1983 National Register of Historic Places, Annual Listing of Historic Properties. In Federal Register 48(41):II. General Services Administration, Washington, D.C.

1984 National Register of Historic Places, Annual Listing of Historic Properties. In Federal Register 49(26):IV. General Services Administration, Washington, D.C.

MILLS-CARNEGHI-BAUTOVICH, INC.
CONSULTANTS IN REAL ESTATE & URBAN ECONOMICS

Arlen C. Mills, MAI CRE
Chris L. Carneghi, MAI
James Bautovich, MAI
John C. Hanna
Kathi M. Ridley
Lawrence L. Mansbach
Kathleen C. Christensen
Ellen G. Byrne
Mary-Jon Somers
Jonathon R. Strong
Wendell H. Martin, Jr., MAI

May 2, 1985

Mr. Jim Christian
Assistant General Manager
Marathon U. S. Realties
595 Market Street
Suite 1330
San Francisco, California 94105

Re: 84-MSF-217

Dear Mr. Christian:

This letter is in response to the letters from Mr. Andrew M. Perkins, Jr., Lieutenant Colonel, Army Corps of Engineers and Mr. Charles W. Murray, Jr., Assistant Regional Administrator for Policy and Management, Environmental Protection Agency regarding our alternative site study prepared for the International Commerce Center in Hayward, California. Certain questions regarding the study criteria were raised by Lt. Col. Perkins and Mr. Murray. The questions concern the study market area, the need for rail service in the proposed park, the minimum size criteria and economic data necessary to substantiate potential alternative sites which were disqualified due to a nonindustrial highest and best use. The balance of this letter addresses these questions as they apply to the conclusions of our study.

I. Market Area

The market area of our study was limited to the area between Union City and the Oakland Airport. Both Lt. Col. Perkins and Mr. Murray asked why other communities around the Bay Area, particularly north of the airport area were eliminated from consideration.

The utilization of a market area in real estate analysis embodies the concept of that geographic area within which landlords compete for the same prospective buyers and tenants. From the user's perspective the market area is that area within which the firm will search for an

120 MONTGOMERY ST • SUITE 1776 • SAN FRANCISCO, CALIFORNIA 94104 • 415 • 398-2666
1150 NORTH FIRST ST • SUITE 209 • SAN JOSE, CALIFORNIA 95112 • 408 • 971-0877

acceptable building site or leasable space. As in the case of the subject property, the market area is defined as a concentric circle encompassing surrounding communities with similar locational attributes.

In real estate there is a very strong tenancy for employers to remain within reasonably close proximity to their existing location. This is due to established commute patterns for both business owners and their employees. Proximity to suppliers, customers and other entities the firm does business with is also a key concern in any locational choice. More than 90 percent of the real estate activity in a given community will consist of existing firms already in the community relocating or expanding or firms starting branch operations which are new to the entire metropolitan area. It is relatively infrequent that a company moves 30 miles away within the same urban area.

Another overlay of information relevant to the subject property market area is land cost. Light industrial and warehouse users such as the subject property will serve are at the low end of the Bay Area economic scale in terms of the rent they are willing to pay. High technology electronics firms, office users and retail commercial users all pay higher rents and have forced light industrial warehouse users out of many portions of the Bay Area. As explained in our report, the area to the south of Union City starting with Fremont and extending into Santa Clara County is generally identified as Silicon Valley and serves electronics and other R&D firms. The light industrial and warehouse users served by the subject property cannot compete for locations in these areas.

These conditions are also true for San Mateo County, San Francisco County, Marin County and most of Contra Costa County. These areas are all considerably more expensive than the Hayward area in terms of housing costs, land values, rents and other factors which dictate real estate locational decisions. It is true that over the years many firms have migrated across the San Mateo-Hayward Bridge from the West Bay Area to the locate in the East Bay. This migration has been dictated by the decreasing supply of available land in San Mateo and San Francisco Counties and the transition to highly intensive office, retail and residential development which has pushed land values beyond the economic level for most light industrial users. A similar exodus has occurred in Marin County due to the scarcity of developable, vacant sites and competing land uses which outbid industrial users. These

economics outrule the logic of an East Bay light industrial or warehouse tenant relocating to the West Bay Area and we do not know of a single relocation having occurred within the last 15 years which fits this pattern.

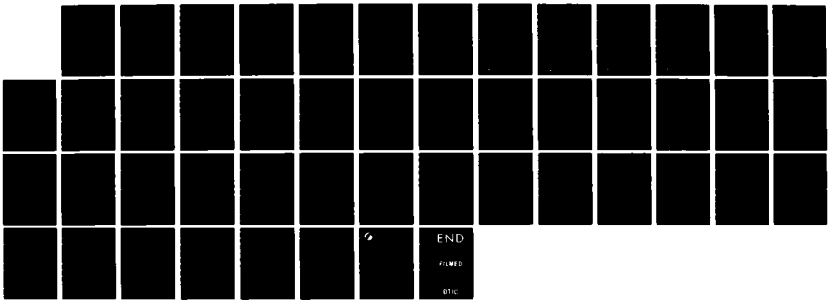
Development today in Contra Costa County and the Pleasanton area of Alameda County is dominated by office construction. Within the last three years numerous corporations, including Bank of America, Standard Oil, Pacific Telephone, Wells Fargo Bank and Pacific Gas and Electric have announced plans to relocate thousands of employees from San Francisco to these areas. A visual inspection of the Interstate 580 corridor shows literally millions of square feet of office space under construction today from Pleasanton to Martinez. This activity has increased land costs dramatically in these areas to the with the low end of the cost range at $5.50 per square foot for finished sites. Light industrial and warehouse users cannot compete from a price standpoint in this market.

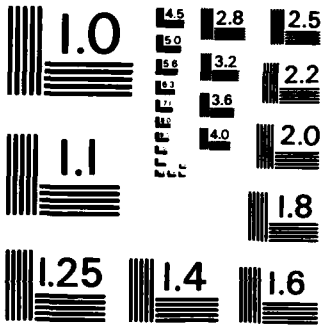
This leaves only the geographic area north of the Oakland Airport through Richmond, North Bay counties such as Solano and the Livermore Valley. The reason we have not included the area north of the Oakland Airport in our definition of the subject property market area has to do with the historical urbanization patterns of the Bay Area. After the development of Sar Francisco, the City of Oakland as well as peripheral cities such as Emeryville, Berkeley and Richmond provided most of the industrial land base in the Bay Area. All of these areas urbanized well before World War II. After World War II development shifted to patterns of suburbanization. While previously most industrial buildings had been multi-story loft structures on deep, narrow urban lots, the post war suburbanization patterns led to one story industrial structures in industrial park settings. This change was brought about by the construction of new freeway systems and widespread use of the automobile. Industrial firms found one story buildings more efficient than multi-story structures and employees, with the use of their own automobile, could commute longer distances to work so intense utilization of industrial land was not as important.

Today, the area from Oakland north through Richmond is still dominated by pre war urban development patterns. Many of the industrial users in Hayward relocated south from the Oakland-Richmond-Berkeley older industrial areas. They did this to take advantage of modern one story warehouse and light industrial facilities in attractive industrial park settings. Within the entire Oakland area only the airport area has vacant land being utilized for industrial park development. This is why the Oakland Airport area was included in our study.

AD-A161 484 DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT PROPOSED..(U) CORPS OF ENGINEERS SAN FRANCISCO CA SAN FRANCISCO DISTRICT OCT 85 4/4

UNCLASSIFIED F/G 6/6 NL





MICROCOPY RESOLUTION TEST CHART

NATIONAL BUREAU OF STANDARDS - 1963 - A

As the Oakland area matured, it served as a spawning ground for firms relocating north and south to new industrial locations. Relocation decisions were made on the basis of items mentioned earlier in this letter, such as employee commute patterns, the location of customers and suppliers and other business factors. Overall, the move from Oakland to Hayward was not a major relocation. Likewise, the move from Berkeley or Richmond north of Pinole or even east of Concord was not a major disruption. The move occurred within the service area of small industries. By the late 1970's this activity had fairly well exhausted itself. Most firms which planned to relocate out of Oakland had already done so with only heavy industrial and limited light industrial users remaining. Suburban industrial communities such as Hayward had grown to the point where they were generating their own demand internally through the expansion of local firms.

The key point is that although the old pre-war Oakland urban area fed suburban industrial development to both the north and south, suburban industrial development on the south did not leapfrog over Oakland and feed industrial parks on the north or vice versa. This pattern is still true today and in fact is reinforced by the traffic congestion on Highway 17 approaching the Bay Bridge. Companies operating south of Oakland will not relocate north of Oakland to Richmond or Solano due to the traffic barrier created by Alameda and Contra Costa County traffic heading into San Francisco via the Bay Bridge. This is particularly true of Solano and other North Bay counties which are far distant from Hayward. The disruption of the employee commute as well as separation from an established trade area are large disincentives.

The City of Livermore has emerged as a focus of industrial development in recent years. However, it is not considered to be part of the Hayward market area for a number of reasons. The first of these reasons is Livermore's distance from the inner East Bay and Highway 17. It is likely that the intersection of Interstates 580 and 680 may form a traffic barrier for commuting from the Hayward area similar to that described above. Secondly, market research indicates that a large portion of recent growth in Livermore has been fueled by the expansion of local firms located in the city or nearby in San Ramon. While it has been projected that the Livermore-Amador Valley area will be absorbed into the southern and central Alameda County industrial market, sales and leasing activities suggest that this transition has not yet occurred. It is more likely that industrial parks in Livermore will serve the growing commercial office sector of eastern Contra Costa County and the Interstate 680 corridor.

II. Need for Rail Service

The proposed International Commerce Center is intended to be a rail served industrial park. Questions have been raised regarding the role of rail service in the industrial park such as the numbers of users requiring rail service, the frequency of rail use and alternatives to rail service. The proposed subdivision for Phase II of the International Commerce Center shows 32 lots, 20 of which are rail served. It is our understanding that rail service can be extended to additional lots via spurs. Because commitments have not yet been made to specific tenants for the proposed park, we have contacted other rail served industrial parks in the market area in an attempt to assemble a profile of the typical rail user. Research suggests that the frequency of rail use, whether daily or weekly, will vary according to the individual users. Goods shipped via rail in the immediate market area include semifinished materials for light manufacturing, finished goods for storage and distribution and foodstuffs and produce. An alternative to transporting goods into the industrial park via rail is truck transportation from central rail yards such as in Oakland. Whether this is a preferred alternative seems to vary between users and is affected by energy costs, traffic considerations and, finally, the availability of rail service.

The alternative site study evaluated 15 potential sites, seven of which had rail service. Of the eight sites which were not served by either the Union or Southern Pacific Railroads, none were eliminated as alternative sites due to the lack of rail service. Hence, the rail service issue, although addressed in the report, was not instrumental in the alternative site selection process.

III. Size Criteria

In his letter dated April 23, 1985, Mr. Charles W. Murray, Jr. comments that the E.P.A. does not consider the term "practicable" as used in the 404(b)(1) guidelines necessarily to mean "comparable" and that a practicable alternative study must include consideration of reconfigured site plans and/or reductions in the scope of the proposed project. However, the guidelines state that in order for an alternative to be practicable, it must be capable of achieving the basic purpose of the project. In preparing the alternative site study, we applied a basic size criteria of 100 to 150 acres to the alternative sites considered based upon our understanding of Marathon U.S. Realties' role as a land developer. The subject property was acquired as raw land with the specific intent of future subdivision, improvement and sale of retail, ready to build lots. Marathon U.S. Realties' role in development is

similar to Southern Pacific and Union Pacific's real estate development companies. The function of a developer who purchases raw land and provides the market with the product of improved lots is separate and different from the developer who buys a finished lot and builds industrial space for purchase or lease. In this context, the purpose of the International Commerce Center is the provision of finished rail served industrial lots within a described market area with Marathon acting as an intermediary, adding value to the land via the subdivision and improvement process. It was also our understanding that the minimum size criteria was confirmed by the Army Corps and the E.P.A. prior to our study.

The alternative site study identifies six sites which are greater than 40 acres in size but considered inadequate as alternatives as they fail to meet the 100 acre minimum size criteria. Half of these sites are located in Union City. Of these three, two potential sites are located in Southern Pacific rail parks, and are specifically not available as raw land for subdivision due to the railroad's policies. The Pacific States Steel site is the third Union City property failing to meet the 100 acre requirement. It is impaired by soil contamination, and in fact, is included on the E.P.A.'s list of toxic waste sites in the East Bay needing cleanup. In Hayward, the industrial sites between 40 and 100 acres in size are again unavailable to Marathon for purchase and subdivision. Finally, 66 acres of industrial property was identified in Oakland, but is planned for future expansion of E.B.M.U.D. facilities and it is also not available for purchase. Overall, the six industrial properties considered inadequate in size to serve as alternatives also have other characteristics which would preclude their eligibility.

We are also informed that Marathon has been required to construct sewer and flood control stations at a cost to Phase II of the development exceeding $1,000,000. Phase II contains 132 gross acres, indicating an allocation of $7,600 per acre for improvement costs. These improvements have been constructed and are in place. To reduce the size of the proposed project would increase the per acre assessment costs for these improvements. Because the project is targeted to the lower end of the industrial market and intends to supply finished sites within the range of $3.50 to $4.50 per square foot, a reduced project is less likely to offer the economies of scale and be successful in meeting this purpose.

Finally, it is desirable in urban land planning to concentrate like uses. This is particularly true with industrial land uses where truck and rail traffic may prove to be a nuisance to more highly improved commercial uses and residential neighborhoods. The subject property is

located within an established industrial district. Smaller sites of less than 100 acres tend to be infill sites and in closer proximity to neighborhoods which may be impacted by industrial operations.

IV. Highest and Best Use for Alternative Sites

Mr. Murray has requested economic data to substantiate our study's conclusion that properties having a highest and best use other than industrial park development are unsuitable as alternative sites. The highest and best use is that use, from among reasonably probable and legal alternative uses, found to be physically possible, appropriately supported, financially feasible and result in the highest land value. Land values are closely related to the amount of financial return expected from development on a particular site. In the case of industrial and commercial properties, this is often measured by expected rent. Aside from location, the amount of rent paid is primarily determined by the type of space occupied, the intensity of improvements and cost of the building structure. Rents receivable for industrial properties are less than those for retail and commercial properties and may be separated into market segments with the lowest rents coming from warehousing and distribution space, a range of rents in the middle from various types of light industrial space, and the highest rents from highly improved R&D space. Therefore, because commercial rents consistently exceed industrial rents, if the highest and best use of a property is commercial, the land value will reflect this potential. Two of the properties evaluated in the study which showed definite commercial potential and were available for purchase had asking prices of $9 and $10 per square foot. Generally, commercial land values in Hayward range from between $9 and $12 per square foot. The prices are clearly out of the range of the proposed project.

Additionally, Mr. Murray has questioned why improved sites, which would include the Pacific States Steel site and the Turk Island dump were not considered to be viable alternatives. As mentioned above, the P.S.S. site has soil contamination problems and is known to the E.P.A. The Turk Island dump is considered to be unsuitable for two reasons, the first being that the dump does have a remaining life and it is most likely that the undisclosed purchase price of this property reflects value attributable to the remaining economic life of this operation which the former owners must be compensated for. The dump property has been purchased by a development company who plans to subdivide the property for a business park.

After review of the comments provided by the Army Corps of Engineers and the E.P.A., it is our conclusion that based upon the established study criteria as agreed to by Marathon U.S. Realties and confirmed by the Army Corps of Engineers and the E.P.A., no suitable alternative sites for the subject development exist within the market area. Please call us if there are any questions in connection with this letter.

Sincerely,

MILLS-CARNEGHI-BAUTOVICH, INC.

Chris Carneghi

Chris Carneghi, M.A.I.

Ellen G Byrne

Ellen G. Byrne

kg

APPENDIX G

SUMMARY SECTION
OF
ALTERNATIVE SITE
ANALYSIS

Prepared by

Mills-Carneghi-Bautovich, Inc.

January 1985

Alternative Site Study - Marathon Industrial Park-Hayward, Ca.

I. ASSIGNMENT AND SUMMARY OF CONCLUSIONS

A. Assignment

This report presents an Alternative Site Study for Phase II of the International Commerce Center in Hayward, California conducted in January, 1985. The International Commerce Center is a 182 acre planned industrial park with rail service. The development site for Phase II contains approximately 132 acres. The U. S. Army Corps of Engineers has advised the project owner, Marathon U.S. Realties, that it believes the site contains 90 acres of wetlands. If so, it is required by Federal law that the project owner demonstrate that there are no practicable alternative sites available for the proposed development before wetland fill operations are permitted. The purpose of this study is to demonstrate the availability or non-availability of suitable sites which could accommodate the subject development in order to fulfill this requirement.

Mills-Carneghi-Bautovich, Inc. is a real estate consulting firm which provides services in the areas of real estate appraisal, market and feasibility analysis, urban land use economics and public land use policy. Our qualifications to prepare this Alternative Site Study include extensive market research experience in the Bay Area and a strong familiarity with the industrial land market in Alameda County. The company has completed a number of appraisals, market studies and land use studies in the market area in recent years for public and private clients.

B. Study Criteria and Methodology

1. Study Criteria

The study analyzes potential alternative sites on the basis of several criteria developed by the project owner and TRS Consultants, the project EIR consultants, and confirmed with the Army Corps of Engineers and the Environmental Protection Agency.

The term practicable as used in the legislation is defined as "available and capable of being done after taking into consideration costs, existing technology and logistics in light of overall project purposes." The criteria for practicable alternative sites have been divided into three sections: a.) a definition of the project purposes, b.) a property's physical characteristics and logistics as defined by the subject site and development requirements, and c.) availability. These criteria are summarized below, and discussed in detail in Chapter II of this report.

a. Project Purposes

The purpose of the proposed development project is to provide a master planned light industrial park for a mixture of tenants in accordance with the highest and best use of the subject property. The park is to be rail served. The defined market area of the development includes the Oakland Airport area, the cities of San Leandro, Hayward and Union City, and the unincorporated community of San Lorenzo. The development will provide finished sites at cost competitive in the market area, currently within the range of $3.50 to $4.50 per square foot.

This type of planned development should also be the highest and best use of any suitable alternative site.

b. Physical Characteristics and Logistics

1. Land Use Designations

The subject is designated under the Hayward General Plan and zoning code for industrial uses. A suitable alternative site should also be designated for industrial uses under local land use plans.

2. Size

The subject is approximately 132 acres. The established size range for alternative sites is 100 to 150 acres.

3. Rail Service

The proposed development requires rail service.

4. Traffic and Access

A suitable alternative must provide equally quick access to both north/south and east/west freeways, as the subject property benefits from proximity to HW 17 and SR 92.

5. Utilities

The subject property offers adequate sewer capacity and adjacent utility services. Alternatives must offer comparable capacity and rights-of-use.

6. Soils

An alternative site should have stable underlying soils, as does the subject property.

7. Slope

The proposed development requires a slope of three percent or less for rail served tenants and larger industrial buildings. An alternative site must meet this requirement.

8. Development Costs

The property owner has been required to construct sewer and pump stations at a cost to Phase II of the development exceeding $1,000,000. To the

extent that these improvements do not benefit another development site, this sunken cost adds to the cost of any alternative site.

c. Ownership and Availability

In the case where a suitable alternative site is identified, it must be available for fee simple purchase by Marathon U.S. Realties. A comprehensive definition of available for purchase would include a marketable fee title free and clear of unusual liens, encumbrances and special assessments other than those normally expected for off-site improvements in the market area. Finally, the property must have a willing seller so that an arm's length, fair market transaction can occur.

2. Survey Methodology

The survey methodology involved contacting the City and County Planning Departments to determine what areas were designated for industrial growth. These districts were then surveyed through extensive field work. Real estate brokers, developers and land development companies were interviewed to determine the status of each potential alternative site.

C. Industrial Land Inventory

The subject market area includes the industrial districts of Union City, Hayward, San Leandro and the Oakland Airport area, and the unincorporated community of San Lorenzo. Within this market area, there are 9,731 acres designated for industrial use by local General Plans and zoning codes. Over 8,200 acres, or 84 percent of this land has been developed or is committed for development either by proposed plans or current purchase agreements. An estimated inventory of 1,529 acres of vacant industrial land remains in the market area.

Of the total 9,731 acres of industrial land, 2,726 acres are contained in 39 industrial parks. Based upon the market survey, 66 percent of this land is developed or committed for development either by proposed plans or current purchase agreements. An inventory of approximately 900 acres, or 59 percent of the total 1,529 vacant industrial acreage is located in the industrial parks. Our market research shows that the majority of this land is for sale as finished development sites ranging in size from one to over fifty acres. The largest parcels which could potentially be considered as alternative sites were evaluated on an individual basis.

The remaining 7,005 acres of land designated for industrial uses is located outside of established industrial parks. A total of 6,379 acres of this land is developed or proposed for development; this leaves 626 acres vacant and potentially available for development outside of existing industrial parks. The study identifies the largest parcels which might be considered as alternative sites for the subject and evaluates them on the basis of the specified criteria.

D. Potential Alternative Sites

A total of 15 relevant sites were identified in the market area both in and outside of existing industrial parks. These properties were selected because they met one or more of the basic alternative site criteria. The 15 sites were located throughout the market area and varied considerably as to size, condition, development status and availability.

Each of the relevant properties was investigated and evaluated on the basis of the established criteria.

E. Conclusions

The alternative site search was conducted on the basis of first identifying vacant land designated for industrial development. Of the 15 sites evaluated, ten are currently designated for industrial uses under local General Plans and zoning

codes. These ten properties ranged from 24 to 100 acres in size. The largest site of 100 acres is owned by the Port of Oakland and is not available for purchase. It is not practicable as an alternative site for the subject development due to the lack of availability as well as highest and best use considerations.

The remaining nine industrially zoned sites were also found to be unsuitable as alternatives due to size restrictions, existing site improvements or location characteristics which dictate a highest and best use other than industrial park development. Many of these sites are not available for purchase by Marathon.

Five of the properties studied were zoned for residential or other nonindustrial uses. They were included in the study because they are either designated for industrial uses under a local General Plan or proposed for some type industrial development. One of the properties, approximately 1,200 acres in size, is currently under option for a major recreational, mixed use development. It is not considered to be a suitable alternative as it far exceeds the subject property in size, and has received preliminary approval for a mixed use development. Two other sites, 150 and 300 acres in size, are planned for residential development, which eliminates their potential status as alternatives. The final two industrially zoned properties are below 50 acres in size, maintain considerable commercial potential, and are not comparable to the subject.

It is a conclusion of this report that based upon the established criteria, no suitable alternative sites for the subject development exist within the market area.

APPENDIX H:

AIR QUALITY ANALYSIS

Air Quality Analysis

for the

Proposed
Marathon Industrial & Commercial
Business Center

CITY OF HAYWARD, CALIFORNIA

TRACT 5167

March 1985

Prepared

for

trs Consultants, Inc.

500 Sutter Street, Suite 615

San Francisco, California 94102

by

Mike O'Connor, Ph. D.

m O'C Physics Applied

4151 Middlefield Road, Room 204

Palo Alto, California 94303

(415) 424-8554

Summary

The air quality of Hayward is now characterized by the annual occurance of only a few exceedances of State or Federal standards. Emissions of pollutants from the light-industrial areas of the City west of Hesperian Boulevard are principally those of vehicular traffic; in contrast, the emissions of heavier industries a few miles to the north in San Leandro are primarily from industrial processes.

If the new developments which would be located on the project site and elsewhere in the area of Hayward west of Hesperian Boulevard and north of SR 92 conform to the existing pattern of industrial development there, vehicular travel would thus be the primary source of new pollutant emissions in the area.

With the notable exceptions of locations along congested segments of the freeways and near congested intersections on Hesperian Boulevard, concentrations of carbon monoxide would be expected to decline in spite of the project and other proposed development in the area, provided that reductions of automotive emissions mandated by the Clean Air Act continue as scheduled. Emissions of other automotive pollutants associated with travel to and from the area, including those principally responsible for smog formation, would also abate if controls are maintained.

Odors from the Oro Loma Sanitary District's sewerage treatment plant could prove to be a nuisance for users of the project site.

Affected Environment

Winds and Climate

The upward escape of pollutants from sources near the ground is sometimes hampered by a blanketing layer of warm air aloft, an "inversion" layer. When the inversion layer is present during the summer smog season, prevailing winds in Hayward are then typically light and from the north or northwest. Under these conditions, some air contaminants from urban areas of the east Bay are brought southward through Hayward and into the Santa Clara Valley.

Inversion layers are also present on cold, still winter nights. Under these conditions high concentrations of some air contaminants can develop from local pollution emissions, for lack of ventilation. On such nights downslope "drainage" flows reverse the daytime pattern of up-slope, up-valley flow, and for several interim hours in the late evening the atmosphere is almost completely still.

The typical pattern of flow on such evenings is revealed in data collected at the Bay Area Air Quality Management District (BAAQMD) monitoring station in Fremont and in carbon monoxide "hotspot" monitoring programs to the north of Hayward in Oakland, and in San José.[1]

The effects of wind and temperature conditions on air quality are discussed in greater detail in the appendix.

Pollutants and Sources

Gaseous pollutants are principally emitted in the combustion of fossil fuels in engines, industrial processes, and in the generation of electrical power. Small particles are also emitted in these combustion processes, but tire wear and resuspension of roadway dust account for most airborne particulate matter.

The principal pollutants from these processes are monitored by the Bay Area Air Pollution Control District (BAAQMD), which maintains an ozone monitoring station in Hayward at 3466 La Mesa Drive. The district has a more complete station for air pollution and meteorological monitoring in Fremont at 40733 Chapel Way, and other stations in twenty other locations in the Bay area. The highest levels of pollution recorded in Fremont and in Hayward in recent years are shown in table A.

Ozone is a gas produced from "precursor" compounds of hydrocarbons and oxides of nitrogen, which react in warm air under sunlight over a period of hours. Because there is a delay of some hours between emissions of these precursors and the peak production of ozone, the gas is not particularly evident near pollution sources such as roadways. Peak concentrations may be found miles downwind of source areas of precursor emissions.

Table A: Air Quality Control Data

MONITORING IN HAYWARD

Pollutant	Principal Sources	Objective	Standard	Year	Concentrations	Days Standard
ozone	NOX, HC, sunlight and warm temperatures	prevent eye irritation & respiratory difficulties	0.12 ppm* (1-hour) Federal	1980	0.17 ppm*	4
				1981	0.11 ppm	0
				1982	0.10 ppm	0
				1983	0.17 ppm	3

MONITORING IN FREMONT

Pollutant	Principal Sources	Objective	Standard	Year	Concentrations	Days Standard
carbon monoxide	vehicular traffic	prevent carboxy-hemoglobin levels greater than 2%	9.0 ppm (8-hour) Federal	1980	7.1 ppm	0
				1981	4.8 ppm	0
				1982	4.5 ppm	0
				1983	5.1 ppm	0
nitrogen dioxide (NOX)	vehicular traffic & power generation	prevent health risk & control ozone production	0.25 ppm (1-hour) Federal	1980	.23 ppm	0
				1981	.14 ppm	0
				1982	.12 ppm	0
				1983	.15 ppm	0
particulates	roads, construction & demolition visibility	prevent health risk & improve	50 $\mu g/m^3$** State (24-hour)	1980	57 $\mu g/m^3$***	8****
				1981	47 $\mu g/m^3$	0
				1982	46 $\mu g/m^3$	2
				1983	43 $\mu g/m^3$	1

Source: Bay Area Air Quality Management District, Air Quality Handbook, published biennially.

* Parts per million.

** Micrograms per cubic meter. This standard is only applied to particles of less than 10 microns (10 millionth's of a meter) in size.

*** The data pertains to the annual geometric mean of the daily particulate catch, approximately half of which consists of particles of size less than 10 microns.

**** The days of exceedance refer to the old State standard of 100 $\mu g/m^3$ for suspended particles of any size.

The Federal standard for ozone is typically exceeded on an average of two days each year at the Hayward monitoring station. A similar number of exceedances by peak concentrations of this contaminant would be expected in the project vicinity. The standard is maintained for the protection of respiratory health and the control of damage to crops and other vegetation and materials.

Carbon monoxide is a clear, odorless gas. Principal emissions of this pollutant are as vehicular tailpipe effluent, and the greatest concentrations are therefore to be found near roadways. However, when the blanketing effect of strong nocturnal thermal inversions of winter cause "cold-start" emissions of this gas to spread out like ground fog, significant concentrations can be found well away from major roadways.

The Federal 8-hour standard for carbon monoxide has not been exceeded at the Fremont monitoring station in recent years. Nor have carbon monoxide concentrations reached a less frequently exceeded 1-hour State standard of 20 ppm there.

However, the highest carbon monoxide levels recorded at the monitoring station is Fremont are not to be presumed to be truly representative of the highest levels to be found in those areas of Hayward which would be affected by the proposed project. Busy freeways and arterials are to be found within two miles of the proposed project site.

Concentrations of this contaminant probably exceed the Federal standard at some locations along the SR 17 corridor in Hayward on at least one day each year. Exceedances of the State standard may occur in the immediate vicinity of SR 17 and at congested intersections along Hesperian Boulevard during the evening commute period. Both standards are for maintenance of health, to prevent impairment of the ability of the blood to carry oxygen.

Oxides of nitrogen, emitted in gaseous form, have an important role in the formation of ozone. The Federal standard has not been exceeded in the Bay area since 1980, in San José.

The fine, "re-suspended" fugitive dust particles from paved and unpaved roadway surfaces are visible as haze. Other particulates are produced by demolition and construction activities and as industrial effluent. Toxic substances, such as lead from the combustion of gasoline, may also be present in suspended particles.

Particulate levels in Hayward probably exceed the State standard at least one day in most years, as in Fremont.

Local Sources

The site is at the northern end of anindustrial area of Hayward which lies between Hesperian Boulevard and the Bay, north of SR 92 and south of Grant Avenue. This area contains 1700 industrially-zoned acres, and is used and referred to below as a "study area" for the determination and assessment of project emissions. Other light industries are located outside of the study area, a few hundred feet north of the site and just across the Bockman Canal, in San Lorenzo.

Few of the dozens of industries situated in these two areas are listed on the BAAQMD's computerized inventory of particulate, organic, nitrogen-oxide, sulphur-oxide and carbon monoxide pollutant emissions. Within 10 kilometers (7 miles) of central Hayward are 59 industrial sources listed in the inventory. Most of the 59 industries are located in San Lorenzo, as are most of the "heavier" sources among them. There are five inventoried sources within 3 kilometers (2 miles) of the project site. These and major sources among the 59 are listed in a table in the appendix.

The entire list of 59 industries in and around Hayward includes only a few minor non-mobile sources of carbon monoxide in Hayward. The Hudson Lumber Company site, which is estimated to emit 931 pounds of carbon monoxide per day, is about 5 kilometers (3.5 miles) north of the project site in San Leandro. The Continental White Cap facility at 24493 Clawiter Road in Hayward is a significant source of organic (hydrocarbon) air pollutants, releasing about 600 pounds per day.

Toxic Air Contaminants

Nearly fifty chemical compounds are now under consideration by the US Environmental Protection Agency (US EPA) and the State Air Resources Board for regulation as toxic air contaminants, to join a list of already-regulated substances such as asbestos, lead, beryllium, mercury, hydrogen sulfide and other reduced sulphur compounds, vinyl chloride, florides, and sulphuric acid mist. These are subject to BAAQMD and US EPA controls on emissions.

Industries in Hayward, San Lorenzo, San Leandro and Union City emit regulated and as yet un-regulated toxic compounds, but neither the BAAQMD nor the US EPA now provide information to air quality consultants on emissions of regulated toxic air contaminants in a given geographic area.[2] Information is available only on a case-by-case basis, upon request for data pertaining to a specific polluter. The consultant is therefore without an orderly and systematic method of assessing existing toxic air contamination in the project site vicinity.[3]

The Oro Loma Sanitary District operates a sewerage treatment plant on a tract of about 40 acres along both sides of Bockman Canal. About 500 pounds of the poisonous gas chlorine is used daily there in the treatment of wastewater. The gas is drawn from a 55-75 ton capacity rail car and is also stored on the site in a 40 ton tank. The plant is equipped with leak detectors, but there is no secondary containment vessel enclosing the storage tank.[4]

The plant is often directly upwind of much of the project site, as northwesterly or westerly winds are prevalent most of the year in Hayward.

Odors

Sludge storage ponds of the facility are on the half of the tract which is south of the canal, and are thus situated within 1000 feet of the northwestern corner of the project site. There are odors emanating from these ponds, which contain solids that have settled out of sewerage.[4] The solids have received "secondary" treatment after settlement by a process of anerobic digestion in which most of the volatile organic compounds in the sludge are reduced by bacteria to harmless and odorless gases, methane and carbon dioxide.

The residual odors are sometimes said to be "sour", or like the smell of "rotten eggs" and are principally due to traces of sulphur compounds in the sludge which are emitted as gases.

There is a regulation of the BAAQMD which limits emissions of hydrogen sulphide, one of the odiferous gases from sludge, to off-site ground level concentrations of less than 0.06 parts per million (ppm) when averaged over three minutes, and to less than 0.03 ppm when averaged over sixty minutes. Another regulation prohibits any detectable odor for which a complaint has been filed. The principal enforcement mechanism for odor complaints is as a public nuisance under the California Health and Public Safety Code.

There have been no formal complaints about odors filed against the Oro Loma Sanitary District at the BAAQMD[5], and there are companies in San Lorenzo just northeast of the sanitary district's tract which are as close to the ponds as is much of the project site. There are no plans to improve or alter the facility.[4]

Regional Plans

The air quality of the south Bay is now characterized by several exceedances of the Federal standards for ozone and carbon monoxide each year. The BAAQMD's 1982 Bay Area Air Quality Plan is focused on the reduction of emissions of hydrocarbons (as ozone precursors) and carbon monoxide, to attain air quality meeting Federal standards for acceptability.

The principal programs of the plan are the vehicle inspection and maintenance program now being implemented by the State, and the District's increasingly stringent controls on industrial emissions of hydrocarbons. The BAAQMD expects that the new controls will lead to attainment of acceptable air quality in the south Bay, as defined by Federal standards, by the Clean Air Act deadline in 1987.

Environmental Consequences

Project Emissions

The principal air pollutant emissions due to the project would be that of vehicular commute travel associated with employment on the site. These have been incorporated in Tables B, C and D.

Table B: Project Emissions (Tons/Day)

Pollutant	Alameda County* (1982)	Project Vehicular Emissions** Alt. 1 (1992)	Alt. 3 (1992)	Alt. 5 (1992)
Carbon monoxide	630	1.05	0.81	0
Oxides of nitrogen	80	0.07	0.05	0
Hydrocarbons	340	0.09	0.07	0

* The total emissions of the County are offered for comparison with the emissions due to the project alone. The County inventory includes emissions of non-mobile, industrial sources. See note 6.

** Alt. 1 is the project as proposed, with use of the entire site by light industry similar to that of the study area. Development under Alt. 3 would be restricted to 104 acres east of the proposed loop roadway on the site. Alt. 5 is the no-project alternate.

Direct emissions by industries which would be located on sub-parcels of the site, to local concentrations of carbon monoxide, particulates, and smog-precursive hydrocarbons and oxides of nitrogen would be expected to be less than the vehicular contribution. This conclusion rests on the assumption that industry to be located on the site would be similar in character to the light industry which currently exists on the 1360 developed acres of the study area, which is the area which extends southward of Grant Avenue to SR 92, and westward of Hesperian Boulevard to the marsh.

Carbon Monoxide

Carbon monoxide concentrations due to existing traffic, project-generated traffic, and traffic associated with other development were estimated at roadside locations near intersections and near SR17 as shown on figure 1.

During the evening period when the highest 8-hour averages of carbon monoxide concentrations are recorded, the areas which would be most affected by carbon monoxide emissions associated with the project would be the residential areas of Hayward west of SR 17 and along SR 92. These areas receive rush-hour emissions from SR 17, and continue to receive some freeway emissions on very light, easterly air flows after the commute.

Table C: Roadway Carbon Monoxide Concentrations

Roadside Locations of Figure 1, PM Peak-hour Average:
(Values Shown Do Not Include The Background Component)*

	Concentrations in Parts per Million**			
	Alt. 1 (1992)	Alt. 3 (1992)	Alt. 5 (1992)	Existing (1985)
Receptor:				
1	26.7	26.2	24.5	18.8
2	10.9	10.7	10.2	4.7
3	10.5	10.4	10.0	10.2
4	7.7	7.7	7.7	8.5
5	6.9	6.8	6.5	7.0

Residential Areas West of SR 17, Percent Change in Highest 8-hour Average:

	Alt. 1 (1992)	Alt. 3 (1992)	Alt. 5 (1992)
Due to development	+19%	+18%	+16%
Due to emissions controls	-28%	-28%	-28%
Total change from existing	-9%	-10%	-12%

* These concentrations are only the component due to emissions on roadways immediately adjacent to the receptor location. There are no data available on existing concentrations in Hayward. It is the consultant's judgement that no reliable method exists for estimating or infering the"background" contribution from more remote roadways, which should be added to these values. Furthermore, the peak hour for carbon monoxide often doesn't coincide with the peak hour for traffic, but occurs later. Use of this table should only be to note the potential for high carbon monoxide levels at some locations and for the purpose of comparing the effects of alternates, rather than for absolute comparisons with State or Federal standards.

** The figures for each alternate in year 1992 include concentrations due to development of about 200 now-vacant but industrially-zoned acres within the study area, which has about 1700 industrially-zoned acres in all.

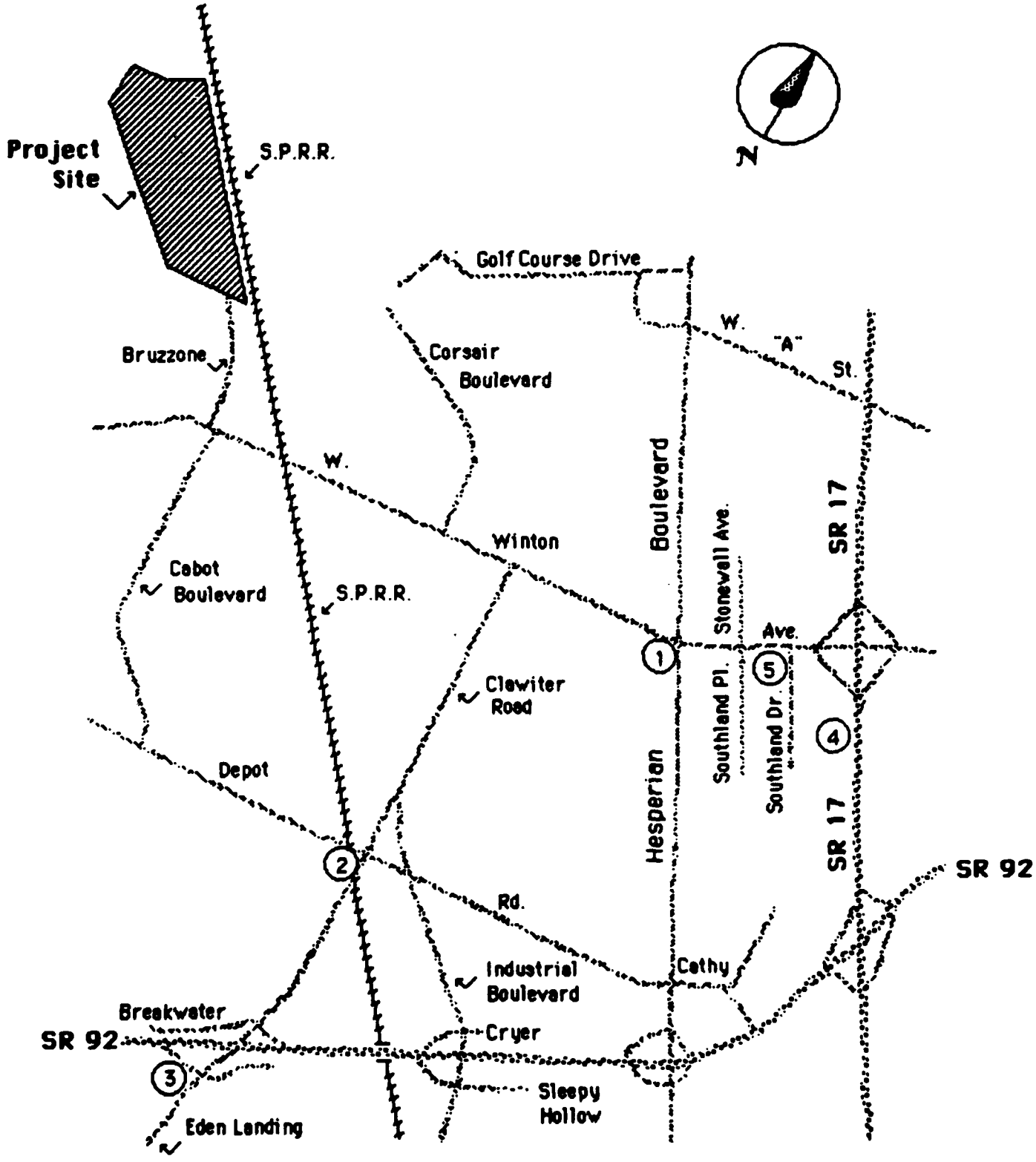


Figure 1: Numbered Receptor Locations For Carbon Monoxide Analysis

These estimates of carbon monoxide levels are based on an assumed wind speed of 1 meter per second bearing from the northeast. Such meteorological conditions are typically present during periods of high carbon monoxide levels in the east Bay, and occur during the peak evening commute period only a few days each year.

The estimates of table C are not sufficiently reliable or complete for absolute comparison with standards. They should principally be used to distinguish between alternates, and to assess the overall trend of carbon monoxide levels changing with time under the competing effects of increasing traffic but decreasing emissions of individual vehicles. The estimates also serve to show that congestion at intersections can cause elevated carbon monoxide levels.

The estimates at Hesperian Boulevard and West Winton Avenue (receptor location #1) are elevated due to predicted congestion at that intersection; no mitigation of traffic conditions there was assumed. Other locations show a decline in carbon monoxide levels due to anticipated reductions in vehicular emissions, as mandated by the Clean Air Act. The levels near the freeway (receptor location #4) are shown for the assumed northeasterly wind bearing; a wind direction more nearly parallel to the freeway would bring levels up to four times as large.

Toxic Air Contaminants

It is likely that at some time there would also be some emissions of toxic air contaminants from the industry which would be located on the site. This could occur by permit to release small quantities of a regulated toxic pollutant into the atmosphere. There could also be breakdowns of an industrial process which makes use of a toxic substance but releases none in normal operation. Intentional and lawful releases of an unregulated substance which is nevertheless toxic could occur, as could unlawful releases of regulated toxic substances.

It is not possible go beyond this mere enumeration of logical possibilities, to assess the hazard of such emissions, when the project as proposed is merely a subdivision of lands. The future industrial uses of the property may only be characterized by the restrictions inherent in the zoning of the property. Zoning controls could bar "smokestack" industries from the site, but "light" and "medium" industries also make use of toxics.

For example, semiconductor "chip" manufacturers operate "light" or "medium" industrial plants which make use of solvents such as methylethylketone, isopropanol, phenol, xylene, trichloroethane, and trichloroethylene, which are organic (hydrocarbon) compounds.[7] The latter two are of little interest as smog precursors,[7] but the latter four are of considerable interest as toxic substances and are on the combined California State Air Resources Board/ US EPA list of candidate compounds for regulation as toxic air contaminants.

Such companies can make use of large quanitities of ~~these~~ some of these solvents. Storage tank leaks from semiconductor plants have contaminated groundwater in the Santa Clara Valley. Some releases into the atmosphere have accompanied the leaks, and there has been routine release of small quantities of solvent vapors at cleaning stations. Such releases are being reduced by increasing automation of the manufacturing processes and regulation by the BAAQMD. However, the existing regulations are aimed at solvents as smog precursors, not as toxic substances.[7]

The plants may also make use of small quantities of "dopant" gases and silane gas in vapor deposition processes. Some of these gases can, through chemical reactions, generate other toxic gases upon escape into the atmosphere. However, their release is generally accidental.[7]

None of these substances is emitted from semiconductor plants as an unavoidable by-product of the manufacturing process, like combustion gases in other industrial processes.

As noted above, the future uses of the project site are not specified by the application for a subdivision. The manufacture of semiconductors has only been used here as an example of an industry which makes use of toxic substances.

Westerly or northwesterly winds are prevalent in Hayward most of the year, and so it is not uncommon for the site of the proposed subdivision to lie downwind of the Oro Loma Sanitary District's sewerage treatment plant. A leak of chlorine gas at the plant could affect persons on the project site, but the railroad tank car and 40 ton tank used to store the gas at the plant are more than 2000 feet from any part of the project site. Residential areas of San Lorenzo are as close. Industrial areas of San Lorenzo nearer to the plant would be most affected in the event of an accidental release of chlorine.

Odors

The proximity of the project site to the sewerage storage ponds and anerobic digestors of the Oro Loma Sanitary District's treatment plant would subject users of the site to some odors, and complaints may follow.

Regularly occuring odors on the project site would be the result of the presence of uncovered sludge and the frequent bearing of winds from the west or northwest, which place portions of the project site directly downwind of the plant. Upsets of normal operations can also occur, causing the sewerage to "sour" and odor to intensify.

It is not necessarliy the case that sewerage treatment odors would lead to complaints from industrial users of the site. Most of the site is more than 1000 feet from the plant. However, should complaints be prosecuted, there could be a fiscal impact on the Oro Loma Sanitary District's operations and a resultant need for improvements in the treatment facility.

Dust

During some phases of construction on the project site, finely pulverized dust from mud tracked onto roadways by construction vehicles would become airborne. The extent to which this occurs could be reduced by mitigating measures discussed in a separate section below.

Cumulative Emissions

Other forseeable development of Hayward will increase pollutant emissions in the City. Presented in table D below are estimates of vehicular emissions.[9]

The table demonstrates that in spite of the new development in the study area, the total vehicular emissions associated with development in the area would be expected to decline under any of the alternates, due to planned reductions of emissions by individual vehicles.

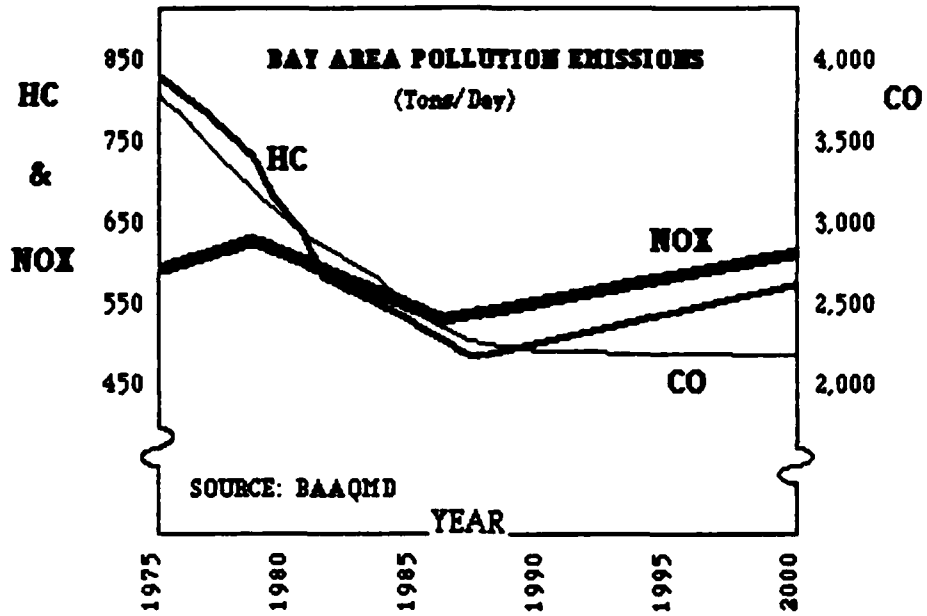
Table D: Cumulative Emissions of Planned Development (Tons/Day)

Pollutant	Alameda County* (1982)	Total Study-Area Vehicular Emissions** Alt. 1 (1992)	Alt. 3 (1992)	Alt. 5 (1992)	Existing (1985)
Carbon monoxide	630	13.2	12.9	12.1	14.0
Oxides of nitrogen	80	0.9	0.9	0.8	1.1
Hydrocarbons	340	1.1	1.1	1.0	1.5

* See note 6. This inventory includes emissions of non-mobile, industrial sources.

** The study area extends southward from Grant Avenue to SR 92 and westward from Hesperian Boulevard to the marsh. These vehicular emissions would be associated with development in the study area, and would be partly emitted on roadways outside of the study area. The figures for all the alternatives, in year 1992, also include emissions from development of about 200 now-vacant but industrially-zoned acres within the study area, which has about 1700 industrially-zoned acres in all. The emissions estimates are shown to decline, in spite of this assumed development, because of scheduled reductions of automotive emissions mandated by the Clean Air Act.

Trends in the control of pollution emissions in the San Francisco air basin are depicted in the figure below. The projections of future emissions show increases due to anticipated growth in vehicular travel and industrial activity as moderated by the effect of the new emissions controls.



Beyond 1987, the effect of the new emissions in Hayward on pollution concentrations downwind in the south Bay area is uncertain. New development elsewhere in the east Bay will cause additional emissions which will be carried by prevailing winds to the south Bay, to join new emissions from new development there. Emission control measures administered by the BAAQMD and other agencies will moderate the increases in emissions beyond 1987, but except for carbon monoxide, the new controls are not necessarily expected to stem the tide.

Conformity and Sensitivity to Plans

The history of the Clean Air Act is one of some compromising of the original goals for improved air quality and for automotive emissions reduction. However, the recently-enacted motor vehicle inspection program should enhance the effectiveness of vehicular emissions controls in California. The vehicular emissions estimates used in this report are based on data supplied by the State Air Resources Board and the US EPA[9], and some allowance for degradation in the performance of control devices with use has been made.

In regard to local effects which would follow if the mandated reductions are not achieved, it should be noted that concentrations of carbon monoxide at the receptor sites of figure 1 are primarily due to traffic not originating in the study area. The increases in local carbon monoxide concentrations due to the project as proposed, Alt.1, may be reckoned by comparison of the concentrations for that alternate with existing concentrations in table C.

A failure to proceed with automotive emissions reductions would result in an overall growth in smog and carbon monoxide concentrations following population growth, so that Bay-area concentrations would increase by 1-2% per year.

The anticipated year of full build-out of the project is 1992, and the seven year period 1985-1992 does not coincide with the 1982-1987 period of the current BAAQMD 5-year plan. A direct comparison of forseeable growth in the study area with growth assumptions incorporated into the BAAQMD's 1982 plan is therefore not possible.

The 1982 plan incorporated a projected growth in employment in all of Hayward's sphere of influence of 5800 jobs (and 8200 residents) in 5 years.[10]

Industrial employment within the study area now totals about 13 persons per developed acre. The project would result in the industrial development of 134 acres of the study area; which contains about 200 other developable acres zoned for industry. Were all these lands developed for uses similar to those now existing in the study area, local employment would be expected to increase by about 4340 persons.

The potential for this and other development in Hayward, such as of the large proposed Shorelands complex south of SR 92, should be a part of the basis of the BAAQMD's 1982 plan revision, which is getting underway this year.

Mitigation

Project Emissions

Any measures taken to reduce the number of vehicle trips to and from the site would reduce pollutant emissions due to the project.

Odor

There are a number of strategies which may be pursued for reduction of odor at a sewerage treatment plant. Basic improvements of the plant's facilities could be required, should odor from the Oro Loma plant prove to be a nuisance to industrial users of the project site.

Dust

The production of dust by construction activities could be reduced by periodic watering and street sweeping. Regulation 6 of the BAAQMD, "Particulate Matter and Visible Emissions" would prohibit excessive dust emissions during construction.

Notes

1 These monitoring programs used trans-portable instruments in attempts to determine the extent to which carbon monoxide levels near busy intersections exceed levels in neighborhoods where vehicular traffic is light. (See BAAQMD, Air Currents , Volume 27, No. 8, August, 1984; and No. 11, November, 1984.)

The surprising result was that during 8-hour averaging periods, considerably less than half of the carbon monoxide found along busy streets could be explained by the emissions of vehicles on the street. Most of the observed concentrations were attributable to emissions in a surrounding urban area of tens of square miles, from which upward dispersion of emissions had not occurred because of the stable and stagnant condition of the atmosphere. Wood burning in stoves and fireplaces may also contribute to high carbon monoxide concentrations on cold winter evenings.

2 Telephone conversations with Milton Feldstein, Air Pollution Control Officer, BAAQMD, on January 3, 1985, and with Chuck Seeley, Chief of the Compliance Section of the US EPA, on March 6, 1985.

3 Information was requested concerning the permitted emissions at the Service Manufacturing Company, as it is just north of the project site, across the Bockman Canal.

The 33 pounds of organics which that company is permitted to let escape into the atmosphere are from drying paint. Much of the emissions are the chemical acetone, which is not under consideration by the State Air Resources Board or the US EPA for regulation as a toxic air contaminant. The other components of the emissions are unknown. (Letter of February 6, 1985, from Steven Hill, Senior Air Quality Engineer, Permit Services Division of the BAAQMD.)

Staffmembers of the BAAQMD and the US EPA were otherwise queried for anecdotal information concerning toxic air contaminants in Hayward. Dick Nelson of the BAAQMD Enforcement Division knew of no problems in Hayward in a telephone conversation of February 13; Chuck Seeley, Chief of Compliance of the US EPA regional office in San Francisco, also knew of no problems in a telephone conversation of March 6, 1985.

4 Telephone conversation with Mr. Gail Stanton, Manager of the Oro Loma Sanitary District, on February 4, and on March 18, 1985.

5 Telephone call to BAAQMD staff, on January 31, 1985.

6 BAAQMD, Base Year 1982 Emissions Inventory: Summary Report, November 1, 1983.

7 Telephone conversation with Steven Hill, Senior Air Quality Engineer, Permit Services Division, BAAQMD, December 10, 1985.

8 Paul E. Benson, Caline 3: A Versatile Dispersion Model For Predicting Air Pollutant Levels Near Highways and Arterial Streets, Office of Transportation Laboratory, California State Department of Transportation, November 1979.

9 Patrick C. Randall and Harry N. C. Ng, AQAT: Air Quality Analysis Tools, California State Air Resources Board, March 1983; EMFAC6C Emissions Factors : California Statewide Mix of Vehicles 1980-2000, General Projects Section of Regional Programs Division of the California State Air Resources Board, October 1981.

10 ABAG, Projections 79: 1980-2000 Population, Employment & Housing, January, 1980.

Appendix

Air Pollution Meteorology Overview

The mountains which rim the San Francisco Bay form an elongated air basin, aligned along a northwest-southeast axis. Surface-level winds in northern California follow a pattern of onshore flow much of the year. Funneled through openings in the coastal range at San Francisco and through San Bruno gap, the wind is then channeled by mountain ranges to flow up the Sonoma and Napa Valleys to the north, eastward up the Sacramento River Valley, or southward up the Santa Clara Valley.

The pattern is most prevalent on summer days and least evident on winter evenings. Winter storm winds disrupt this pattern, and clear the Bay area air basin of pollution.

Winds and temperatures in the surface layer of atmosphere are of greatest interest in the assessment of conditions affecting the development of high concentrations of air pollutants.

Pollution emissions are more rapidly dispersed and diluted if winds are high and turbulence is intense, as polluted air is then more rapidly mixed with the "clean" air. The development of high concentrations of pollutants is favored by stagnant and stable air flows.

Temperatures are of interest in that the stability of a layer of the atmosphere against the outbreak of turbulence is maintained if temperatures within increase with height above the base of the layer, so that the cooler and heavier air is below the lighter and warmer air. Since the overall tendency of the atmosphere is for temperatures to decrease with height, the condition of such stable layers is termed an "inversion".

Inversions act as a barrier to the upward escape of pollutants and can thus lead to the buildup of ground level pollution concentrations, since there is little tendency for cool and heavy and polluted air at the base of such a layer to rise up through the lighter air of warmer layers above.

A ground-based inversion often forms on calm clear nights, trapping emissions near the surface. Light wind conditions often allow the formation of inversion layers aloft during the day, just above a thin surface layer which is turbulent due to solar heating of the ground.

Temperature is also important in its effect on chemical reactions involving pollutants. For example, more carbon monoxide is produced in starting an automobile engine on cold day than on a warm day. Warm air temperatures and sunlight are required for the production of ozone, the principal ingredient of smog, from emissions of precursor hydrocarbon and nitrogen-oxide compounds.

Fremont Winds and Carbon Monoxide

Table A: Winds and Carbon Monoxide Concentrations (January 6, 1983; Fremont)

Hour	Wind Bearing	Wind Speed (meters/second*)	Carbon Monoxide Level (ppm**)
12:00-1:00 pm	S	4	2
1:00-2:00 pm	SW	3	2
2:00-3:00 pm	N	3	2
3:00-4:00 pm	NW	3	2
4:00-5:00 pm	NW	2	2
5:00-6:00 pm	NW	2	3
6:00-7:00 pm	NE	2	4
7:00-8:00 pm	NE	1	3
8:00-9:00 pm	E	1	5
9:00-10:00 pm	SE	1	4
10:00-11:00 pm	E	1	4
11:00-midnight	NE	2	3

* 1 meter per second is 2 miles per hour.
** "ppm" is parts per million.

The carbon monoxide levels in Fremont on the winter day of January 6, 1983 (see the table above) rose by evening when winds abated to about 1 meter per second (2 miles per hour). Note that the wind direction also changed after sunset from the northwest to the easterly, downslope direction. The overall pattern evident in all the data taken in Fremont by the BAAQMD is of development of elevated levels of carbon monoxide after sunset, on still winter evenings when the atmosphere becomes stagnant upon reversal of wind direction from upslope to downslope flow.

Selected Industrial Sources of Air Pollutants in the Hayward Vicinity
(1984 Inventory, BAAQMD)

Company	Particulates	Organics	Oxides of Nitrogen	Oxides of Sulphur	Carbon Monoxide
			(pounds per day)		
Service Manufacturing Co. 2400 Baumann Ave. San Lorenzo	0	33	0	0	0
Kwik Milady Cleaners 664 Brockman Road San Lorenzo	0	17	0	0	0
National Can Corporation 2050 Williams Street San Leandro	1	2006	29	0	4
Continental White Cap, Inc. 24493 Clawiter Road Hayward	18	600	23	0	3
Lafayette Manufacturing 3400 Enterprise Avenue Hayward	295	0	0	0	0
Container General Corp. 22302 Hathaway Avenue Hayward	645	8	1829	513	23
Latchford Glass Company 1940 Fairway Drive San Leandro	246	9	1342	0	1
Crown Zellerbach Corp. 2101 Williams Street San Leandro	1	2278	18	0	4
Packaging Industries, Inc. 2450 Alvaro Street San Leandro	0	1402	8	0	1
Champion Packaging 425 Hester Street San Leandro	0	1146	0	0	0
Hudson Lumber Co. Hudson Ln. & San L. Blvd. San Leandro	27	75	70	142	931

Methods of Analysis

The receptor locations of figure 1 for the peak-hour estimates of table C were chosen near busy intersections, often within or near residential areas. However, the highest 8-hour concentrations of carbon monoxide tend to be uniformly distributed, and do not diminish significantly with distance from intersections which are busy during the commute period. (See the discussion above and in note 1.)

Under these conditions a presentation of estimates of the highest 8-hour concentrations at intersections would be misleading, as it would tend to suggest that levels within neighborhoods would be less. Moreover, the methods used to assess carbon monoxide "hotspots" at intersections cannot be applied to assess trends in the dominant "background" levels.

The consultant has therefore totaled the emissions from traffic on SR 17, SR 92, Depot Road, and Hesperian Boulevard on the segments which lie within (or border) the area from Grant Avenue southward to SR 92 and from SR17 westward to the SPRR tracks, for existing conditions and under each of the alternates. The trends in 8-hour concentrations of carbon monoxide in that area were thus inferred.

Peak-hour concentrations were estimated using the Caline 3 model, developed by Caltrans and recommended for such use by the US EPA.

HARVEY & STANLEY ASSOCIATES, INC.
Ecological Consultants

H. Thomas Harvey
Ecologist

John T. Stanley, Jr.
Naturalist

Sally H. Casey
Botanist

Diane R. Conradson
Environmental Educator

James M. Hale
Wildlife Biologist

Robert L. Hassur
Aquatic Biologist

Natalie A. Hopkins
Botanist

Michael J. Kutilek
Wildlife Ecologist

Fredrick L. McPherson
Resource Manager

L. Richard Mewaldt
Ornithologist

Wanna D. Pitts
Plant Ecologist

Wayne Savage
Plant Taxonomist

Clifford L. Schmidt
Plant Ecologist

Howard S. Shellhammer
Mammalogist

Lawrence R. Silva
Cartographer

Ronald E. Stecker
Entomologist

Steven K. Webster
Marine Biologist

Henry G. Weston
Vertebrate Zoologist

Joseph H. Young
Invertebrate Zoologist

May 8, 1985

RECEIVED MAY - 8 1985

James Christian
Marathon U. S. Realties Inc.
Suite 1330
595 Market Street
San Francisco, CA 94105

RECEIVED MAY - 8 1985

Dear Mr. Christian:

I visited the two H. A. R. D. sites proposed as mitigation sites for the Marathon Hayward project on May 2, 1985. The type and amount of cover is such that I can say that it is highly unlikely that salt marsh harvest mice could be present and that I do not think trapping is necessary. The pickleweed on both sites is sparse, short and separate; there is no appropriate cover.

Sincerely,

Howard Shellhammer, Ph.D.

cc: R. Duke

906 Elizabeth Street, Drawer E, Alviso, CA 95002 (408) 263-1814

END

FILMED

1-86

DTIC