DCN 1480

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ASSESSMENT OF FUTURE NOISE AND SAFETY COMPLIANCE AT NAS CORPUS CHRISTI

Prepared for:
Navy Meridian Team

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May 1995

Aviation Planning • Environmental Studies • Economic Analysis

Executive Summary

The consolidation of all T-45 strike training at NAS Kingsville by 1998, coupled with the use of NAS Corpus Christi (NASCC) as an outlying field, would result in adverse and incompatible safety and noise impacts on the community immediately surrounding NASCC. The Navy would be violating both the spirit and letter of its own standards for safety and noise impacts on the civilian community. Civilian land uses which would be affected include Texas A&M University at Corpus Christi on Ward Island and the neighborhood of Flour Bluff, which contains significant residential as well as industrial and business land uses. Current aircraft operational noise levels are estimated to be entirely compatible with the surrounding community land uses with the average day-night sound levels below 65 LDN for the area. Projected sound levels with the transfer of the T-45 would result in severe noise impacts (> 80 LDN) on portions of the Flour Bluff community and adverse incompatible impacts encompassing the entire campus of Texas A&M University at Corpus Christi. Student classrooms, residences, the library, and religious centers are all within the clearly unacceptable range; some are subject to noise levels above 75 LDN.

Furthermore, no analysis was undertaken by the Navy of the proposed base realignment impacts on airport safety and noise zones at Corpus Christi or Kingsville prior to its recommendations for closure and realignment.

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1.0 Introduction

1.1 Background

During the past several years the Department of Defense has been in the process of redefining its mission, forces requirements, and supporting training programs and military base assets. The reduction of the number of Naval carrier air wings from eleven to ten is the announced rationale for consolidating all Naval strike training at NAS Kingsville. Kingsville would use an outlying field, NAS Corpus Christi (NASCC), to supplement its facilities in order to meet the Pilot Training Rate (PTR) targets. This study was commissioned by the Navy Meridian Team to assess whether the consolidation of the Naval strike training at Kingsville and its associated outlying field, Corpus Christi would comply with the Navy's Air Installation Compatible Use Zone (AICUZ) standards for airport noise and accident potential zones.

1.2 1993 Operations at NAS Corpus Christi

Table 1, derived from a 1994 U.S. Navy NOISEMAP dataset[1], provides an account of current operations at NAS Corpus Christi. All Touch and Go (TGO) and Ground Controlled Approaches (GCA) are closed patterns consisting of two operations: an approach and a departure. Appendix A provides additional detail on these operations.

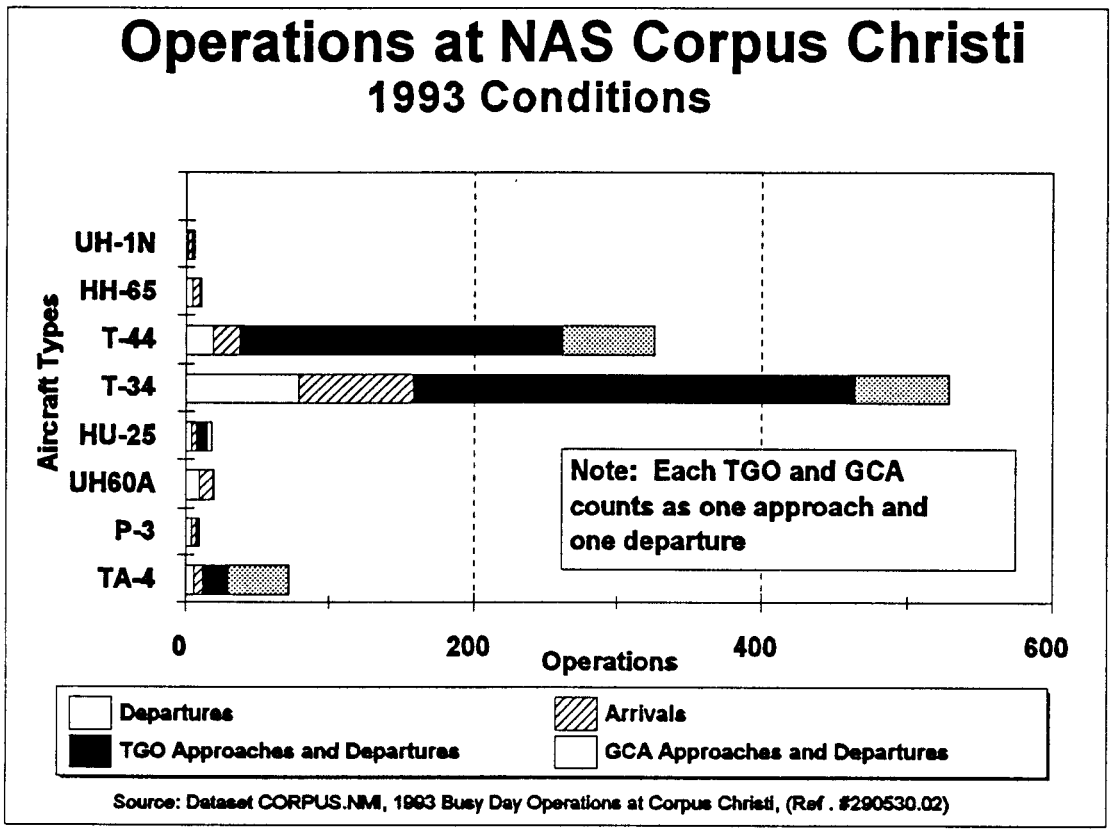
Table 1 -- 1993 Daily Operations at NAS Corpus Christi

Aircraft	Departures	Arrivals	TGO	GCA
TA-4	5.80	5.80	8.94	20.43
P-3	3.76	3.67	0.00	0.00
UH60A	9.40	9.40	0.00	0.00
HU-25	3.80	3.77	3.72	0.93
T-34	78.71	78.70	153.34	31.42
T-44	18.68	18.70	112.23	31.42
HH-65	4.70	4.70	0.00	0.00
UH-1N	1.86	1.90	0.00	0.00
Totals	126.71	126.64	278.23	84.20
	Departures	Arrivals		Operations
	489.14	489.07		978.21

[1] Dataset CORPUS.NMI, 1993 Busy Day Operations at Corpus Christi, (Ref. number #290530.02) modified by M. Bossi on 3/17/94 from earlier database by Nicholas Miller and Elena Langlois, Harris Miller Miller & Hanson, Inc.

Graphical presentation shows the most important aspects of these operations:

Figure 1 -- Operations at NAS Corpus Christi



Note both the large number of operations and the fact that most of these operations involve relatively light and quiet aircraft, the T-34 (a small, single engine, propeller trainer), and the T-44 (the military version of the Beech King Air light transport). Because most of the operations are training operations, rather than arrivals and departures, the airspace use around Corpus Christi is complex and intensely utilized. There are two significant consequences from these two facts:

1) Current noise levels can be expected to be quite low.

2) The large number of current operations limits the capacity of the airfield to absorb additional traffic.

Figure 2 illustrates the complex system of flight tracks. The BRAC recommendation requires the removal of the T-34s and T-44s in order to accommodate the T-45s single base siting at NAS Kingsville with the use of NASCC as an auxiliary field.

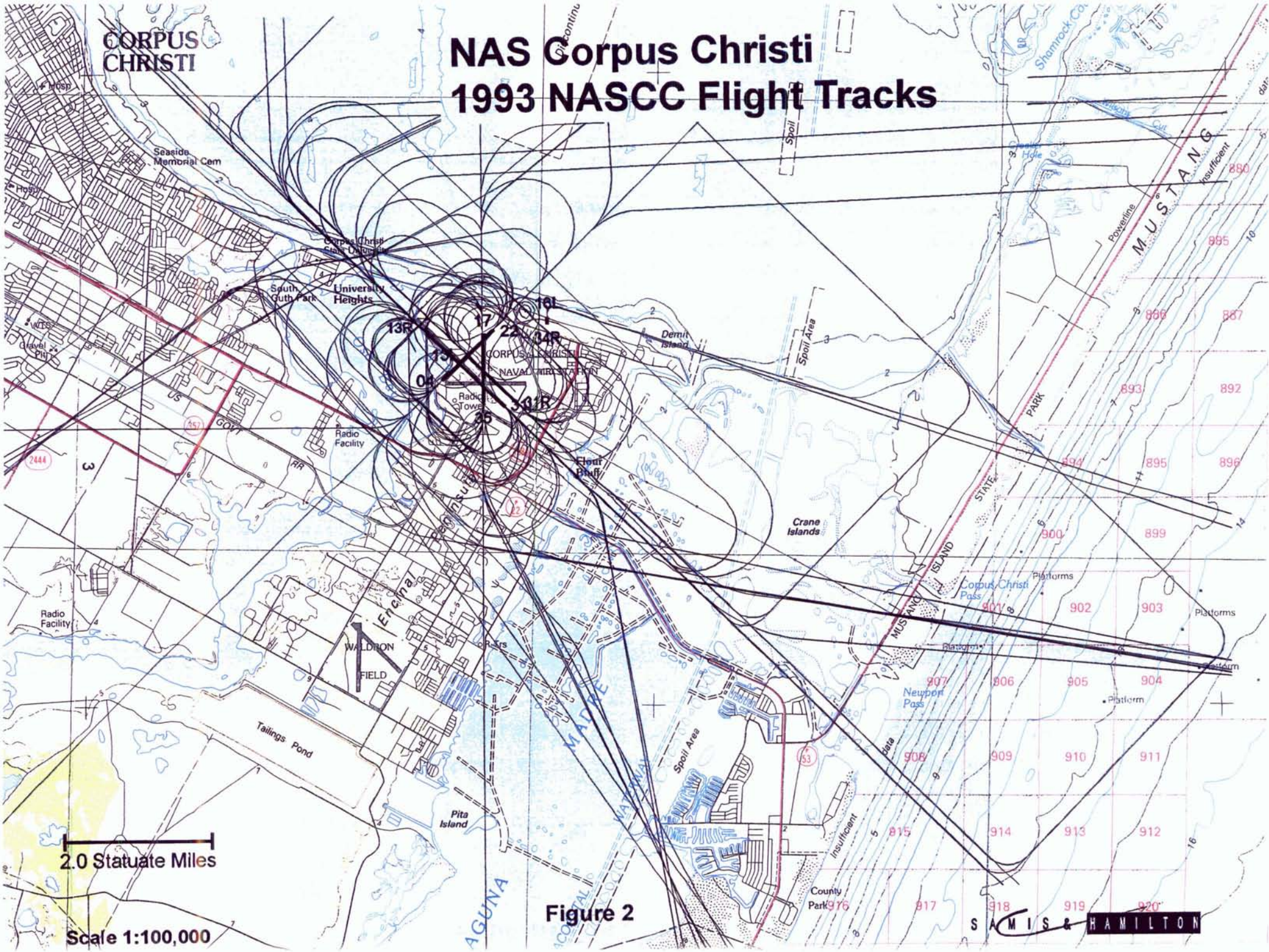

NAS Corpus Christi
1993 NASCC Flight Tracks
CORPUS CHRISTI
Seaside Memorial Cem
Hosp
Corpus Christi State University
South Guth Park
University Heights
Gravel Pit
13R
17
22
16L
34R
15
04
CORPUS CHRISTI NAVAL AIR STATION
Radio Tower
31R
26
Radio Facility
Demit Island
Spoil Area
Flour Bluff
Crane Islands
Radio Facility
WALDRON FIELD
Tailings Pond
Pita Island
Spoil Area
Insufficient data
County Park
Corpus Christi Pass
Newport Pass
Platforms
Platform
MUSTANG ISLAND
STATE PARK
Powerline
Shamrock Cut
Spoil
Insufficient
2.0 Statuate Miles
Scale 1:100,000
SAMIS & HAMILTON

Figure 2

2.0 Assessment Methodology

2.1 Air Installation Compatible Use Zone Program

This assessment utilizes the latest Department of Defense Air Installation Compatible Use Zone (AICUZ) guidance documents and models. The stated goals of the AICUZ program are as follows[2]:

1) to prevent incompatible development, thus promoting public health and safety in areas of high noise and accident potential through the local adoption of compatible land use controls.

2) to protect the operational capability of the air installation from the effects of incompatible land use.

The AICUZ was established in 1973 to respond to growing incompatible urban development (encroachment) around military airfields. The history of this encroachment led to the cessation of flying missions at other bases including Laredo AFB in Texas. The State of Texas is one of only three states that, in the spirit of cooperation, has adopted legislation for planning around airfields. The AICUZ Handbook states that[3]

> ...the most important element to ...the military ... airport noise program was the emphasis placed on working with local government and community planning officials to implement the land use controls <u>necessary</u> to protect the public health, safety, and welfare.

AICUZ is described as having three pillars - noise, height restrictions, and accident potential zones. The noise impacts are developed using the NOISEMAP computer model. The latest versions of the NOISEMAP modeling system were applied (NOISEMAP 6.4, BASEOPS 5.0, NMPLOT 3.01). The height restrictions assure that flight paths are clear of obstructions. The Accident Potential Zone (APZ) is based on an analysis of accidents within 10 nautical miles of an airfield for the period of 1968 - 1980. Three zones are identified, Clear Zone, APZ I, and APZ II. Accident potential on or adjacent to the runway or within the Clear Zone "is so high that few uses are acceptable."[4] APZ I and APZ II land use guidance is based on the following guidelines aimed at preventing uses which:

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[2] <u>AICUZ Handbook: A Guidance Document for Air Installation Compatible Use Zone Program</u>, Volume 1, AICUZ Program Manager's Guide, (working draft), Washington, D.C.: HQ U.S. Air Force, January 1992, pg. 1-7.

[3] <u>Ibid</u>., pg. 1-12, underline added for emphasis.

[4] <u>Ibid</u>., Volume III: Appendices, pg. III-37.

1. Have high residential density characteristics.

2. Have high labor intensity.

3. Involve above ground explosives, fire, toxic, corrosion, or other hazardous characteristics.

4. Promote population concentrations.

5. Involve utilities and services required for area-wide population, where disruption would have an adverse impact (telephone, gas, etc.).

6. Concentrate people who are unable to respond to emergency situations such as children, elderly, handicapped, etc.

7. Pose hazards to aircraft operations.

The DOD recommendation is to limit the number of people exposed through selective land use planning.

Appendix F of Volume III of the AICUZ Handbook also provides guidelines for determining population density for determining compatibility with the Accident Potential Zones. The guidelines state that the average hourly density should not exceed 25 persons per acre or a maximum of 50 persons per acre at any time.

The dimensions for the accident protection zones are as follows:

Clear Zone:	an area 3000 feet long by 3000 feet wide extending outward from the runway threshold.
APZ I:	an area extending from 3000 to 8000 feet longitudinally from the runway threshold and 3000 feet wide.
APZ II:	an area extending from 8000 to 15,000 feet longitudinally from the runway threshold and 3000 feet wide.

Table 2 presents, in a simplified form, the AICUZ land use compatibility standards for noise and accident potential. A more detailed description of this table may be found in Appendix C below.

Table 2 -- AICUZ Land Use Compatibility, Aircraft Noise

Generalized Land Use	LDN Contour Level (decibels)			
	65-70	70-75	75-80	80-85
Residential	No*	No*	No	No
Public and Quasi-public Services	No	No	No	No
Public Assembly	No	No	No	No
Recreation	Yes	Yes	No	No
Agriculture and Mining	Yes	Yes	Yes	Yes
Manufacturing	Yes	Yes	Yes	Yes
Shopping Districts	Yes	Yes	Yes	No
Trade, Business, Offices	Yes	Yes	Yes	No
Transportation, Communication, Utilities	Yes	Yes	Yes	No

* Unless sound attenuation materials are installed.

Source: U. S. Air Force, AICUZ Handbook, Volume III, Appendices (working draft) January 1992.

2.2 NOISEMAP Input Assumptions

The NOISEMAP modeling system requires a series of inputs in order to predict the noise exposure levels associated with aircraft activity at a facility. The Navy provided BASEOPS input files for the latest NAS Corpus Christi noise analysis along with NOISEMAP input files for NAS Kingsville and NAF Orange Grove. The Navy did not have an analysis of these bases with the realigned and expanded mission following the BRAC preliminary recommendations.

Naval air strike training operations activity levels, flight profiles, and track descriptions were provided by Navy flight instructors who are knowledgeable in naval strike training requirements and procedures. All other airfield and aircraft activity information was derived directly from Navy-provided computer files (the HMMH/Navy 1993 Busy Day with the TA-4, T-34, and T-44 operations removed). T-45 noise levels are from the NAS Kingsville data and reflect actual measurements conducted by the Navy's contractor. Detailed description of the NOISEMAP inputs are in Appendix B of this report. The first set of projected noise levels are for 1998 at NAS Corpus Christi. Table 3 presents a summary of the 1998 flight activity projected for NASCC. The strike training activity is assumed to be 60 percent T-2Cs and 40 percent T-45 initially with the T-2Cs replaced entirely by T-45s by the year 2003. The number of operations is based on the Pilot Training Rate and associated number of practice operations and hours for strike training (approximately 1700 operations and 250 hours respectively). Annual operations for strike training at NASCC are projected at 130,000 which would convert to 534 for an average busy day (using a 243 day year). Nighttime operations are restricted to only five (5) percent of total operations.

Table 3 -- NASCC 1998 Flight Activity

Aircraft Type	Arrivals	Departures	Closed	Total
UH60A	9.40	9.40	--	18.80
P-3A	3.67	3.76	--	7.43
HU-25	3.77	3.80	--	7.57
T-2C	--	--	154.95	309.90
T-45	--	--	112.26	224.52
Misc	10.47	10.36	--	20.83
TOTAL	27.31	27.32	267.21	589.05

*** Closed pattern equals two operations**

Flight tracks for the strike trainer closed pattern operations are displayed in Figure 3.

All strike trainer operations are assumed to be closed patterns with turn radii for arrivals of 0.5 to 0.75 nm depending upon the flap setting. These patterns reflect discussion with pilots and feature extended downwind tracks to accommodate multiple aircraft in the pattern. Left patterns are assumed to be used ninety (90) percent of the time and right patterns only ten (10) percent. Ninety-five (95) percent of all departures are flown in the pattern while five (5) percent are straight out. Similarly, seventy-five (75) percent of all arrivals are made from the pattern while twenty-five (25) percent are ILS and GCA approaches. These straight-in instrument approaches are lumped together in this report as GCA approaches and are assumed to follow the GCA patterns established by Corpus Christi Tower.

The operational assumptions are similar to those used previously for the Navy's Base Realignment and Closure study for NAS Kingsville and its outlying field and the Aircraft Noise Survey conducted for NASCC and its outlying fields.[5] Assumptions incorporated into this study may be even more conservative than the previous studies (1700 vs. 2200 operations per Pilot Training Rate, 5 vs. 5-15 percent night operations, 237 vs. 250 average busy days per year). These new operations are added to a set consisting of all the existing operations, with the exception of the TA-4, T-34, and T-44 operations, which are expected to be either relocated or phased out. There is a proposal to operate CH-53 helicopters from Corpus Christi, using either the helipads or the main runways. Since these helicopters would operate out to sea, they would have little noise impact and are not included in these inputs.

2.3 1990 Noise Monitoring Study Findings

The Navy's consultant conducted noise monitoring to ascertain existing community noise levels. The noise measurement findings indicated that only one area is subject to noise levels exceeding LDN 65 and almost all the noise generated at the site was due to the operations of the A-4 aircraft (69.4 of 70.1 LDN). The average busy day predicted sound level was even less, 67 LDN. The average noise level without the A-4 operations should fall to an acceptable level below 65 LDN making NASCC compliant with the AICUZ noise standards. This development would be highly beneficial since a significant number of residences are house trailers which have poor sound insulation and would not have any practical means of sound abatement.

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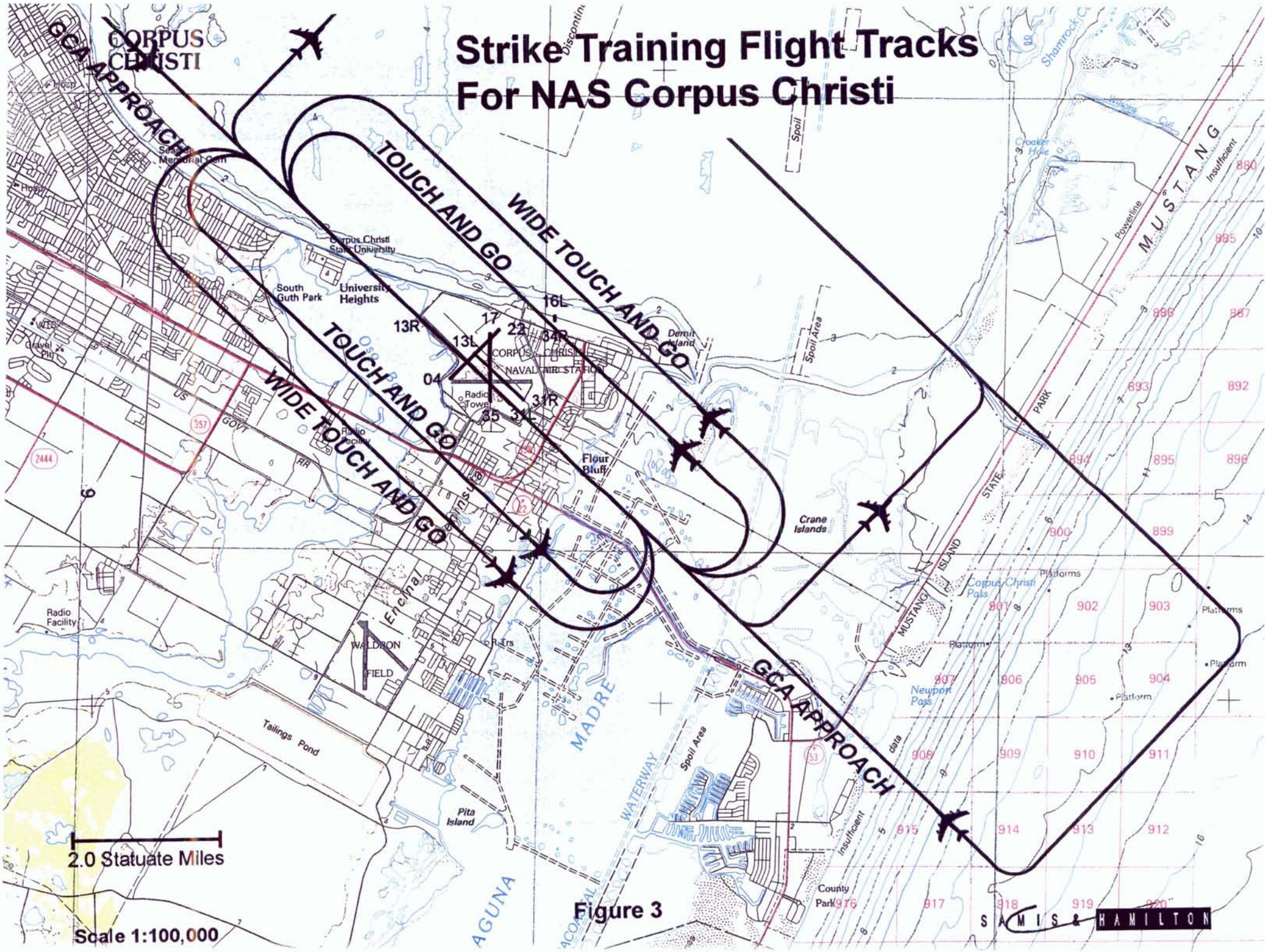
[5] (a) Harris Miller Miller & Hanson, Inc., Base Closure Noise Contour Study, Documentation Report of Noise Contours Developed for Naval Air Station Kingsville, Texas, included noise contours for NALF Orange Grove, Texas, NAS Meridian, MI, NOLF Bravo, MS, prepared for NAVFAC, Oct. 1992.

(b) Harris Miller Miller & Hanson, Inc., Aircraft Noise Survey for Naval Air Station Corpus Christi, Texas, and Naval Auxiliary Landing Field Cabaniss, Naval Auxiliary Landing Field Waldron, prepared for NAVFAC, June 1991.


Strike Training Flight Tracks
For NAS Corpus Christi
CORPUS CHRISTI
GCA APPROACH
TOUCH AND GO
WIDE TOUCH AND GO
TOUCH AND GO
WIDE TOUCH AND GO
GCA APPROACH
Corpus Christi State University
South Guth Park
University Heights
13R
13L
17
22
16L
34R
04
31R
35
31L
CORPUS CHRISTI NAVAL AIR STATION
Radio Tower
Demit Island
Flour Bluff
Crane Islands
Spoil Area
Spoil
Enchanted Bayous
WALDRON FIELD
Tailings Pond
Pita Island
MADRE
WATERWAY
AGUNA
Radio Facility
Gravel Pit
Corpus Christi Pass
Newport Pass
MUSTANG ISLAND
MUSTANG
Platforms
Platform
County Park
Powerline
Insufficient data
2.0 Statuate Miles
Scale 1:100,000
Figure 3
SAMIS & HAMILTON

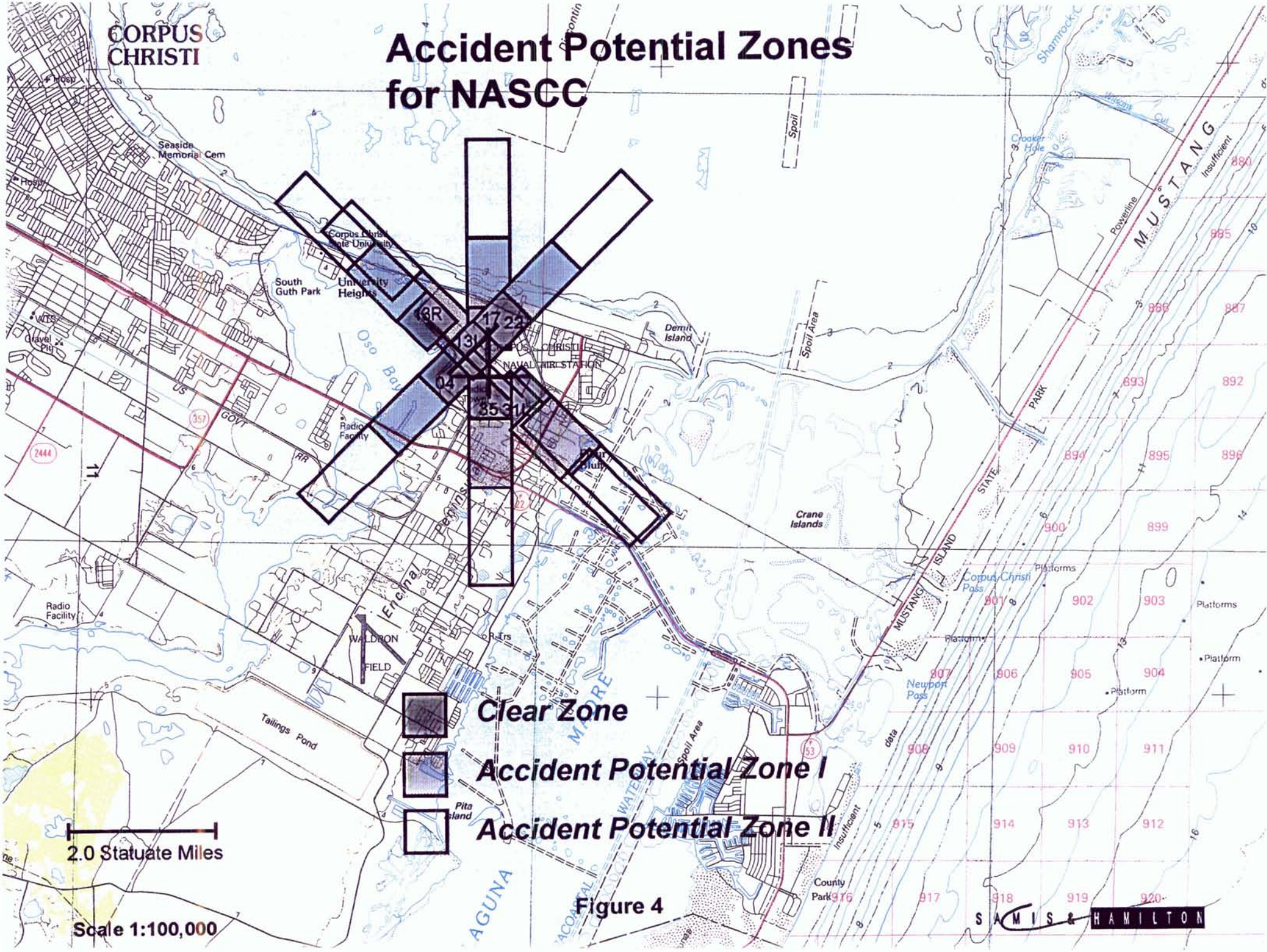
3.0 Findings

3.1 Accident Protection Zones

As mentioned earlier, current flight operations at NASCC encompass a mix of light propeller aircraft training operations (predominantly T-34 and T-44 closed patterns) along with test flight operations for helicopter repair and maintenance. In addition, the Coast Guard and Drug Enforcement Agency also operate several flights a day. An examination of Figure 4 reveals that about one quarter of the Texas A&M University at Corpus Christi lies within Accident Potential Zones (APZ) I and II. The community of Flour Bluff is almost entirely within Accident Potential Zone I. Neither residential nor educational uses are considered compatible with either of these Accident Potential Zones. Furthermore, there has been a local history of aircraft accidents within and just outside these zones.

The proposed strike training operations introduce a large number of higher performance jet aircraft, resulting in a fundamental change in the character of the air facility. The presence of heavier and faster aircraft will significantly increase the potential risk in the event of an accident. This substantially increased risk will occur over areas where land uses are already incompatible by DOD AICUZ standards.

Texas A&M University has an enrollment of approximately 5,000 students at its Corpus Christi campus. This enrollment has increased in the past few years as the campus was absorbed by Texas A&M and expanded from a two year senior to a full four year institution. As part of this expansion the university is adding hundreds of student housing units. Several campus buildings reside within the Accident Potential Zone including the following: Baptist and Catholic student centers, Driftwood and Sandpiper student apartments, Corpus Christi Hall, Center for the Arts, Student Services Center, Seabreeze Hall, and Warren Hall. Other university buildings and residences are adjacent. It is clear that the Accident Potential Zone standard of 25 persons per hour (one classroom) or a maximum of 50 persons in any hour is violated. Furthermore, the university has undertaken a significant expansion in the past few years with new dormitories under construction in or near the APZ II.


CORPUS CHRISTI
Accident Potential Zones for NASCC
Clear Zone
Accident Potential Zone I
Accident Potential Zone II
2.0 Statuate Miles
Scale 1:100,000
SAMIS & HAMILTON
Seaside Memorial Cem
South Guth Park
University Heights
Oso Bay
Demit Island
Spoil
Spoil Area
Crane Islands
Crooker Hole
Powerline
MUSTANG
ISLAND
STATE
PARK
Corpus Christi Pass
Newport Pass
Platforms
Radio Facility
WALDRON FIELD
Tailings Pond
Pita Island
County Park
Insufficient data
Figure 4

3.2 Airport Noise Compatibility

Under the DOD AICUZ Land Use Compatibility Guidelines, residential land use is not compatible for LDN levels of 65 or above unless there is a demonstrated need for new housing stock which can be shielded by insulation and a detailed evaluation of "noise difficulties" is undertaken. Areas falling within LDN 75 are considered to be absolutely incompatible, with no exceptions. Figure 5, based upon the Navy \ Harris Miller dataset, shows that the baseline operations conducted at NASCC are compatible with the surrounding land uses . These flight operations do not produce community noise impacts of LDN 65 except over a portion of Flour Bluff. With the A-4 operations phased out, as we understand is the current situation, noise levels are far below LDN 65 in both areas. In either case, these levels are a major improvement over those of past periods.

The introduction of a large number of T-2 and/or T-45 operations at NASCC would have a significant adverse impact on the surrounding community, particularly all of both Flour Bluff and the campus of Texas A&M at Corpus Christi (Figure 6). The projected flight operations would raise LDN levels far above previous values going back to 1980. Portions of the Texas A&M campus would be over LDN 75 with the entire campus above LDN 65. Sound levels on the campus would increase approximately ten decibels LDN, a highly significant amount which would require an environmental impact statement and analysis of alternatives. It should be noted here that the nature of the campus has been changing to a more residential one and thus the facility will become more noise sensitive with time.

The impact on the Flour Bluff neighborhood would be even more severe because it is closer in and also underlies the predominant departure path. Essentially <u>all</u> areas north of South Padre Island Drive will experience significantly higher noise levels. Aircraft noise levels exceeding 80 LDN would envelop Flour Bluff and aircraft noise levels above 65 LDN would encompass areas south of the Parker Memorial Park and Wrandsky Park on Graham Road. These areas are zoned primarily residential, although there are pockets of business, special purpose, and industrial uses. Of the housing units which would be adversely affected by the proposed operational change, many are trailer homes, for which effective sound insulation is not possible. Significant portions of this neighborhood would be exposed to aircraft sound levels which are known to adversely affect human health and which, over prolonged exposure, would cause hearing loss. The Navy would be liable for such health effects. No study of any kind had been undertaken to determine what "noise difficulties" would arise.

Noise exposures are expected to remain essentially the same after the full complement of T-45 replaces the T-2s. Figure 7 depicts the year 2003 contours.

4.0 Conclusions and Recommendations

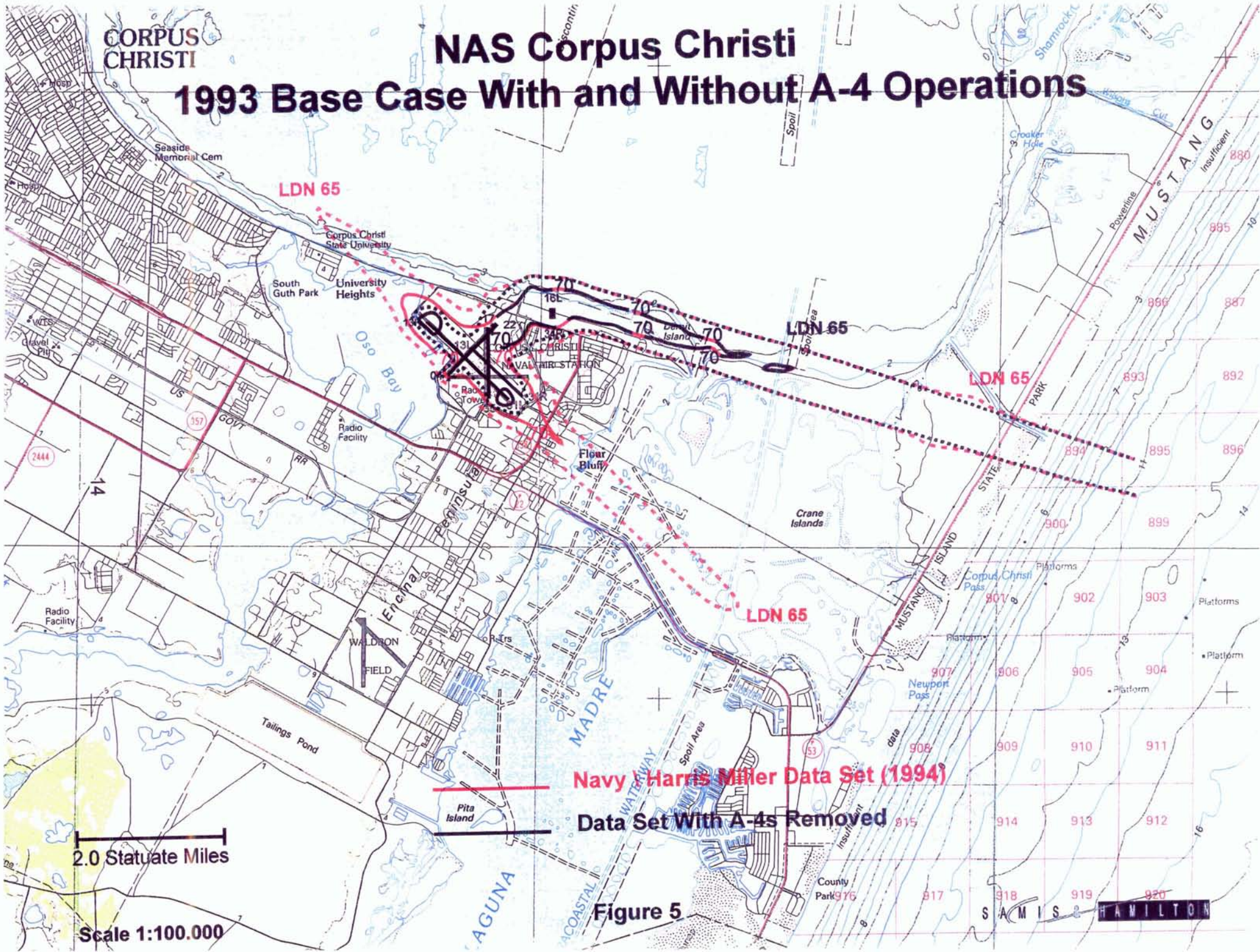
The shifting of the T-45 strike trainer operations to NAS Kingsville and the use of NAS Corpus Christi as the outlying field will result in adverse safety and significant major deleterious and irremediable noise impacts on current land uses near NASCC. The imposition of these additional aircraft operations will result in currently compatible land use being made incompatible. The proposed action would require that a full environmental impact statement be conducted, resulting in the probable need to purchase land in order to mitigate the adverse impacts. Even so, the incompatible land uses resulting from flight paths over a major and expanding public university would remain unaddressed. The Navy would reverse the current favorable trend of environmental improvement in both noise impact and land use compatibility. It has not, at this writing, coordinated the proposed action with the local government.

We make the following recommendations:

- The Navy should reconsider its recommendation to utilize NASCC as a jet-intensive outlying field as part of the single site operation for T-45s at NAS Kingsville.

- The Navy should abide by its own standards of compatible land use planning and not reverse the recent advances achieved at NASCC.

- The Navy should evaluate all costs associated with the transfer of the complete T-45 operations to NAS Kingsville, including the associated environmental consequences and mitigation costs.


CORPUS CHRISTI
NAS Corpus Christi
1993 Base Case With and Without A-4 Operations
LDN 65
LDN 65
LDN 65
LDN 65
70
Seaside Memorial Cem
Corpus Christi State University
South Guth Park
University Heights
Oso Bay
Radio Tower
Radio Facility
Flour Bluff
Crane Islands
Encinal Peninsula
WALDRON FIELD
Tailings Pond
Pita Island
Spoil Area
Spoil
Crocker Hole
Powerline
MUSTANG ISLAND STATE PARK
Corpus Christi Pass
Newport Pass
Platforms
Platform
County Park
Navy / Harris Miller Data Set (1994)
Data Set With A-4s Removed
2.0 Statuate Miles
Scale 1:100.000
Figure 5
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1998 Noise Contours for NASCC

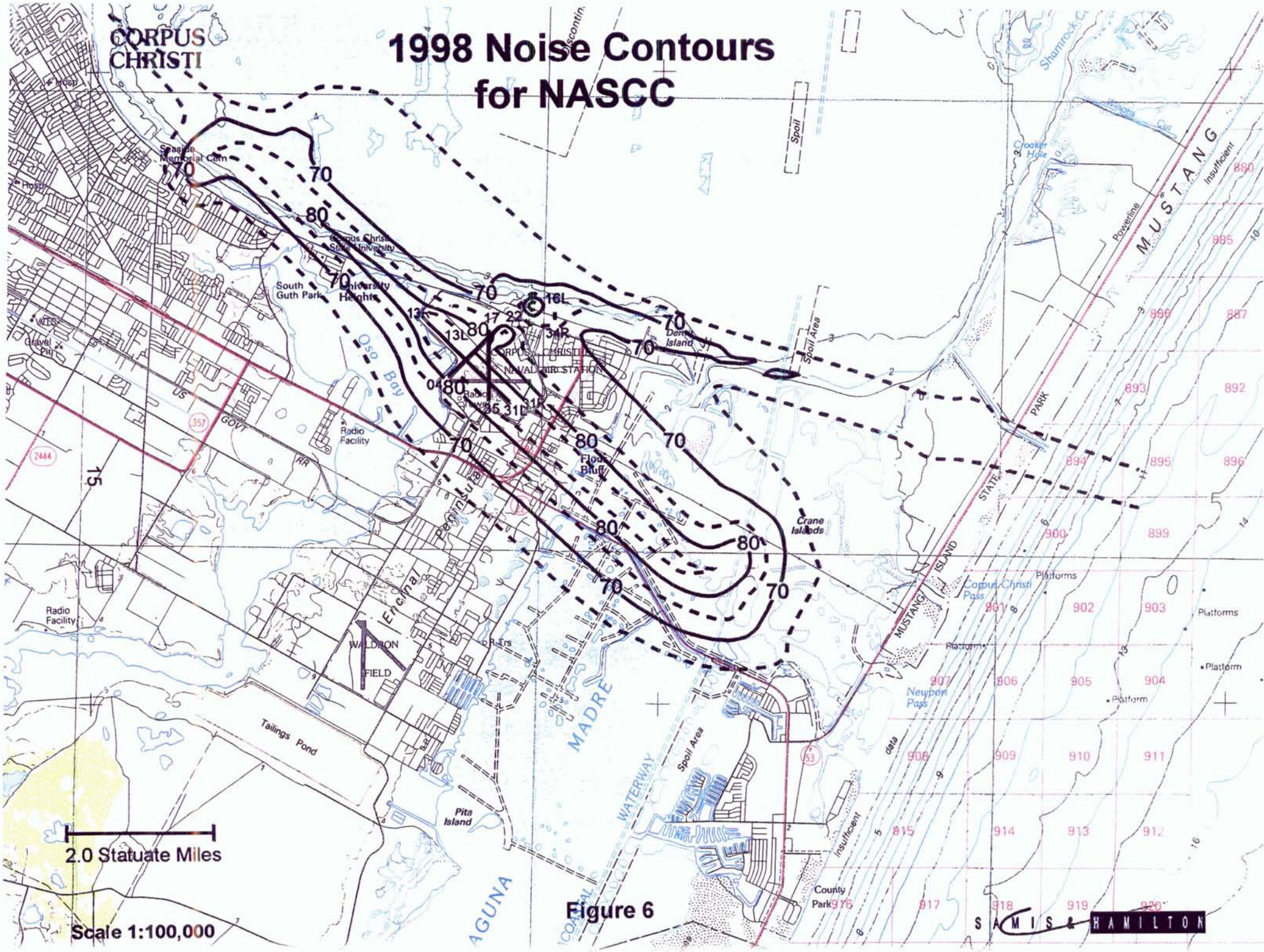
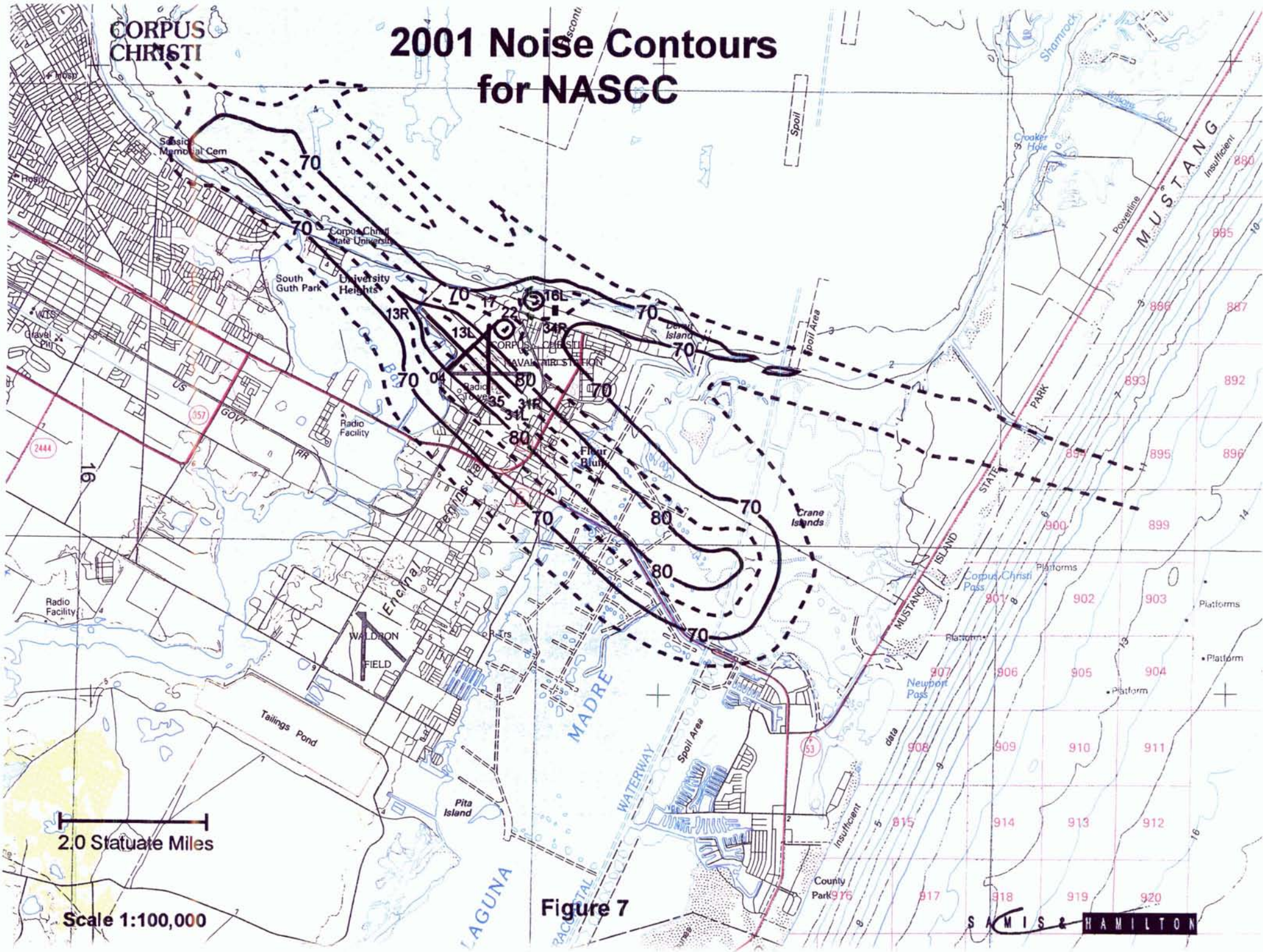


Figure 6


2001 Noise Contours
for NASCC
CORPUS CHRISTI
70
80
13R
13L
16L
34R
31R
31L
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Corpus Christi State University
South Guth Park
University Heights
Radio Facility
Gravel Pit
Spoil
Spoil Area
Dead Island
Fleur Bluff
Crane Islands
Ericina Peninsula
WALDRON FIELD
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Pita Island
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WATERWAY
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Powerline
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STATE PARK
Corpus Christi Pass
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Insufficient data
2.0 Statuate Miles
Scale 1:100,000
Figure 7
SAMIS & HAMILTON

APPENDIX A
Baseline Operations at NAS Corpus Christi

Table A.1
Current Day Operations at NAS Corpus Christi

Aircraft	Departures	Arrivals	TGO	GCA
TA-4	5.68	5.68	8.76	20.43
P-3	3.68	3.67	0.00	0.00
UH60A	9.21	9.21	0.00	0.00
HU-25	3.72	3.71	3.64	0.92
T-34	77.13	77.12	150.28	30.79
T-44	18.31	18.33	110.00	30.79
HH-65	4.61	4.61	0.00	0.00
UH-1N	1.83	1.86	0.00	0.00
Totals	124.17	124.19	272.68	82.93
	Departures	Arrivals		Operations
	479.78	479.80		959.58

Table A.2
Current Night Operations at NAS Corpus Christi

Aircraft	Departures	Arrivals	TGO	GCA
TA-4	0.12	0.12	0.18	0.00
P-3	0.08	0.00	0.00	0.00
UH60A	0.19	0.19	0.00	0.00
HU-25	0.08	0.06	0.08	0.01
T-34	1.58	1.58	3.06	0.63
T-44	0.37	0.37	2.23	0.63
HH-65	0.09	0.09	0.00	0.00
UH-1N	0.03	0.04	0.00	0.00
Totals	2.54	2.45	5.55	1.27
	Departures	Arrivals		Operations
	9.36	9.27		18.63

Table A.3
1993 Total Busy Day Operations at NAS Corpus Christi

Aircraft	Departures	Arrivals	TGO	GCA
TA-4	5.80	5.80	8.94	20.43
P-3	3.76	3.67	0.00	0.00
UH60A	9.40	9.40	0.00	0.00
HU-25	3.80	3.77	3.72	0.93
T-34	78.71	78.70	153.34	31.42
T-44	18.68	18.70	112.23	31.42
HH-65	4.70	4.70	0.00	0.00
UH-1N	1.86	1.90	0.00	0.00
Totals	126.71	126.64	278.23	84.20
	Departures	Arrivals		Operations
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Source:

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APPENDIX B
Operations Inputs for NAS Corpus Christi

NOISEMAP input file (CORPUS.NMI) for additional T-45 and T-2C operations at Corpus Christi.

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COMMENT ARCHIVED
COMMENT 0
COMMENT INPUT FILE
COMMENT CORP0109.BPS
COMMENT CASE NAME
COMMENT NAS CORPUS CHRISTI - T-2C and T-45, inside/outside test1
AIRFLD50000.  150000. 6.3     19.     1000.                          EAST
      NAS CORPUS CHRISTI - T-2C and T-45, inside/outside test1
COMMENT NAS Corpus Christi
COMMENT Corpus Christi, TX
COMMENT 1993 Baseline
COMMENT
COMMENT NOISEMAP input created by MCM v. 1.0 on Apr 07 1995 at 09:03:02 from:
COMMENT NAS CORPUS CHRISTI - T-2C and T-45, inside/outside test1
COMMENT Created by BASEOPS Version 5.0 on 04-07-1995 at 09:01:56
PROCES
DNL
SAELAT                                                                ON
SPROCE
SPECIF108215. 194867.                                                 1
SPECIF99646.  195718.                                                 2
SPECIF93270.  183032.                                                 3
SPECIF89783.  208371.                                                 4
COMMENT ****************************************************
COMMENT **                 FLYOVER   DATA                  **
COMMENT ****************************************************
SEL     139011       2   122.7   121.1   119.4   117.6   115.8   113.9T-2C     1
COMMENT 139011W0 OMEGA10.8 07 Apr 95 T-2C            160 KTS   73 F   76 PCT
COMMENT 139011W0 TURBOJET         N139031AI
COMMENT 139011W0 TAKEOFF POWER        101.6 % RPM
         111.9   109.8   107.5   105.1   102.6    99.9    97.0    93.9T-2C     2
          90.6    87.2    83.6    79.8    75.7    71.5    67.0    62.1T-2C     3
        139011       1   122.7   121.1   119.2   117.2   114.7   112.2T-2C     4
         109.5   106.7   103.9   101.4    98.8    96.2    93.6    91.0T-2C     5
          88.1    84.8    81.0    76.7    71.2    65.3    58.9    52.3T-2C
SEL     139021       2   107.7   106.1   104.5   102.8   101.0    99.2T-2C     1
COMMENT 139021W0 OMEGA10.8 07 Apr 95 T-2C            160 KTS   73 F   76 PCT
COMMENT 139021W0 TURBOJET         N139051AI N139051AI N139031AI
COMMENT 139021W0 TAKEOFF POWER        72.50 % RPM
          97.3    95.3    93.2    91.1    88.8    86.4    83.9    81.3T-2C     2
          78.5    75.6    72.5    69.2    65.7    62.0    58.1    53.9T-2C     3
        139021       1   107.7   106.1   103.7   101.4    99.0    96.4T-2C     4
          93.9    91.2    88.6    86.2    83.8    81.4    79.0    76.6T-2C     5
          73.9    70.9    67.5    63.7    58.9    53.5    47.8    41.7T-2C
SEL     139031       2   107.7   106.1   104.5   102.8   101.0    99.2T-2C     1
COMMENT 139031W0 OMEGA10.8 07 Apr 95 T-2C            160 KTS   73 F   76 PCT
COMMENT 139031W0 TURBOJET         N139051AI
COMMENT 139031W0 APPROACH POWER       72.50 % RPM
          97.3    95.3    93.2    91.1    88.8    86.4    83.9    81.3T-2C     2
          78.5    75.6    72.5    69.2    65.7    62.0    58.1    53.9T-2C     3
        139031       1   107.7   106.1   103.7   101.4    99.0    96.4T-2C     4
          93.9    91.2    88.6    86.2    83.8    81.4    79.0    76.6T-2C     5
          73.9    70.9    67.5    63.7    58.9    53.5    47.8    41.7T-2C
SEL     553011       2   120.7   119.2   117.6   116.0   114.4   112.7T-45     1
COMMENT 553011W0 OMEGA10.5 13 DEC 91 T-45            130 KTS   59 F   70 PCT
COMMENT 553011W0 (1) F405-RR-400  N553031AI
COMMENT 553011W0 TAKEOFF              100% RPM
         110.9   109.1   107.3   105.3   103.3   101.2    99.0    96.7T-45     2
          94.3    91.7    89.0    86.2    83.1    79.8    76.3    72.5T-45     3
        553011       1   115.7   114.2   111.4   108.9   106.4   104.0T-45     4
         101.5    99.0    96.6    94.4    92.2    90.0    87.9    85.8T-45     5
          83.4    80.8    77.9    74.6    70.4    65.7    60.6    55.1T-45
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SEL     553021       2   104.3   102.8   101.3   101.2    99.0    96.7T-45     1
COMMENT 553021W0 OMEGA10.5 13 DEC 91 T-45             120 KTS   73 F   76 PCT
COMMENT 553021W0 (1) F405-RR-400  N553061AI
COMMENT 553021W0 PATTERN              88% RPM
          95.2    93.5    91.8    90.1    88.3    86.4    84.5    82.4T-45     2
          80.2    77.9    75.4    72.8    70.0    67.0    63.7    60.2T-45     3
        553021       1    99.3    97.8    94.1    90.7    88.2    85.8T-45     4
          83.5    81.3    79.1    77.2    75.2    73.3    71.4    69.5T-45     5
          67.4    65.1    62.5    59.6    55.9    51.6    46.9    41.8T-45
SEL     553031       2   104.8   103.4   101.9   100.4    98.8    97.3T-45     1
COMMENT 553031W0 OMEGA10.5 13 DEC 91 T-45             130 KTS   73 F   76 PCT
COMMENT 553031W0 (1) F405-RR-400  N553051AI
COMMENT 553031W0 APPROACH             88% RPM
          95.7    94.1    92.4    90.7    88.9    87.1    85.2    83.1T-45     2
          81.0    78.8    76.4    73.8    71.1    68.2    65.1    61.8T-45     3
        553031       1    99.8    98.4    94.7    91.1    88.5    86.0T-45     4
          83.7    81.4    79.3    77.3    75.4    73.5    71.6    69.6T-45     5
          67.5    65.2    62.6    59.7    55.9    51.6    46.9    41.8T-45
RUNWAY98540.  203837. 104293. 198187. 0.      0.      3.                13R
FLTTRK30434.  0.      1934.   -90.    20436.  0.      1934.   -90.    TKOF3RG1 *
      74061.  0.      1934.   -90.    20436.  0.      1934.   -90.    TKOF3RG1 *
      43627.  0.                                                      TKOF3RG1
COMMENT T45 GCA box on 13R
TODSCR139.    1.        139001                139001  139011. 30434.   139T2C1 *
      139021. 157519. 139031. 202145.                                  139T2C1
ALTUDE  139001        0.      0.      200.    0.      4000.   700.     139T2C1 *
      30434.  1500.   157519. 1500.   201145. 50.                      139T2C1
AIRSPD  139001        0.      130.    200.    130.    4000.   130.     139T2C1 *
      30434.  160.    157519. 130.    201145. 130.                     139T2C1
CLOSED                                                                 139T2C1
FLIGHT139.    001.    0.      0.                                       139T2C1
COMMENT Long closed pattern to 13R
FLTTRK24304.  0.      3038.   -180.   36456.  0.      3038.   -180.   TKOF3RT5 *
      12152.  0.                                                      TKOF3RT5
COMMENT T-2C closed pattern on 13R
TODSCR139.    2.        139002                139002  139011. 30434.   139T2C3 *
      139031. 93000.                                                   139T2C3
ALTUDE  139002        0.      0.      200.    0.      4000.   700.     139T2C3 *
      30434.  1000.   76380.  1000.   92000.  50.                      139T2C3
AIRSPD  139002        0.      130.    200.    130.    4000.   130.     139T2C3 *
      30434.  160.    76380.  160.    92000.  130.                     139T2C3
CLOSED                                                                 139T2C3
FLIGHT139.    002.    0.      0.      0.                               139T2C3
COMMENT Long closed pattern to 13R
FLTTRK24304.  0.      4557.   -180.   36456.  0.      4557.   -180.   TKOF3RT6 *
      12152.  0.                                                      TKOF3RT6
COMMENT T-2C closed pattern on 13R
TODSCR139.    3.        139003                139003  139011. 30434.   139T2C5 *
      139031. 102544.                                                  139T2C5
ALTUDE  139003        0.      0.      200.    0.      4000.   700.     139T2C5 *
      30434.  1000.   76380.  1000.   101544. 50.                      139T2C5
AIRSPD  139003        0.      130.    200.    130.    4000.   130.     139T2C5 *
      30434.  160.    76380.  160.    101544. 130.                     139T2C5
CLOSED                                                                 139T2C5
FLIGHT139.    003.    0.      0.      0.                               139T2C5
RUNWAY104293. 198187. 98540.  203837. 0.      0.      3.                31L
FLTTRK26213.  0.      1934.   90.     20436.  0.      1934.   90.     TKOF1LG1 *
      74061.  0.      1934.   90.     20436.  0.      1934.   90.     TKOF1LG1 *
      47848.  0.                                                      TKOF1LG1
COMMENT T-2c GCA pattern on 31L
TODSCR139.    4.        139004                139004  139011. 26213.   139T2C2 *
      139031. 202145.                                                  139T2C2
ALTUDE  139004        0.      0.      200.    0.      4000.   700.     139T2C2 *
      26213.  1500.   153298. 1500.   201145. 50.                      139T2C2
AIRSPD  139004        0.      130.    200.    130.    4000.   130.     139T2C2 *
      26213.  160.    153298. 130.    201145. 130.                     139T2C2
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CLOSED                                                                  139T2C2
FLIGHT139.    004.    0.      0.      0.                                139T2C2
COMMENT Closed pattern with overhead break on 31L
FLTTRK24304.  0.      3038.   -180.   36456.  0.      3038.   -180.   TKOF1LT5 *
      12152.  0.                                                        TKOF1LT5
TODSCR139.    5.        139005                139005  139011. 30434.   139T2C4 *
      139031. 93000.                                                    139T2C4
ALTUDE  139005        0.      0.      200.    0.      4000.   700.     139T2C4 *
      30434.  1000.   76380.  1000.   92000.  50.                      139T2C4
AIRSPD  139005        0.      130.    200.    130.    4000.   130.     139T2C4 *
      30434.  160.    76380.  160.    92000.  130.                     139T2C4
CLOSED                                                                  139T2C4
FLIGHT139.    005.    0.      0.      0.                                139T2C4
COMMENT Closed pattern with overhead break on 31L
COMMENT (wide)
FLTTRK24304.  0.      4557.   -180.   36456.  0.      4557.   -180.   TKOF1LT6 *
      12152.  0.                                                        TKOF1LT6
TODSCR139.    6.        139006                139006  139011. 30434.   139T2C6 *
      139031. 102544.                                                   139T2C6
ALTUDE  139006        0.      0.      200.    0.      4000.   700.     139T2C6 *
      30434.  1000.   76380.  1000.   101544. 50.                      139T2C6
AIRSPD  139006        0.      130.    200.    130.    4000.   130.     139T2C6 *
      30434.  160.    76380.  160.    101544. 130.                     139T2C6
CLOSED                                                                  139T2C6
FLIGHT139.    006.    0.      0.      0.                                139T2C6
RUNWAY98540.  203837. 104293. 198187. 0.      0.      3.                13R
FLTTRK30434.  0.      1934.   -90.    20436.  0.      1934.   -90.    TKOF3RG1 *
      74061.  0.      1934.   -90.    20436.  0.      1934.   -90.    TKOF3RG1 *
      43627.  0.                                                        TKOF3RG1
COMMENT T45 GCA box on 13R
TODSCR553.    7.        553007                553007  553011. 30434.   553T451 *
      553021. 201145. 553031. 202145.                                   553T451
ALTUDE  553007        0.      0.      200.    0.      4000.   700.     553T451 *
      30434.  1500.   157519. 1500.   201145. 50.                      553T451
AIRSPD  553007        0.      130.    200.    130.    4000.   130.     553T451 *
      30434.  160.    157519. 130.    201145. 130.                     553T451
DSEL    553007        0.      0.7     500.    0.4     3079.   0.4      553T451 *

       4079.  0.0
CLOSED                                                                  553T451
FLIGHT553.    007.    58.62   0.      3.08                              553T451
COMMENT Long closed pattern to 13R
FLTTRK24304.  0.      3038.   -180.   36456.  0.      3038.   -180.   TKOF3RT5 *
      12152.  0.                                                        TKOF3RT5
COMMENT T-45 closed pattern on 13R
TODSCR553.    8.        553008                553008  553011. 30434.   553T453 *
      553021. 92000.  553031. 93000.                                    553T453
ALTUDE  553008        0.      0.      200.    0.      4000.   700.     553T453 *
      30434.  1000.   76380.  1000.   92000.  50.                      553T453
AIRSPD  553008        0.      130.    200.    130.    4000.   130.     553T453 *
      30434.  160.    76380.  160.    92000.  130.                     553T453
DSEL    553008        0.      0.7     500.    0.4     3079.   0.4      553T451 *

       4079.  0.0
CLOSED                                                                  553T453
FLIGHT553.    008.    111.227 0.      7.915                             553T453
COMMENT Long closed pattern to 13R
FLTTRK24304.  0.      4557.   -180.   36456.  0.      4557.   -180.   TKOF3RT6 *
      12152.  0.                                                        TKOF3RT6
COMMENT T-45 closed pattern on 13R
TODSCR553.    9.        553009                553009  553011. 30434.   553T455 *
      553021. 101544. 553031. 102544.                                   553T455
ALTUDE  553009        0.      0.      200.    0.      4000.   700.     553T455 *
      30434.  1000.   76380.  1000.   101544. 50.                      553T455
AIRSPD  553009        0.      130.    200.    130.    4000.   130.     553T455 *
      30434.  160.    76380.  160.    101544. 130.                     553T455
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DSEL    553009        0.      0.7     500.    0.4     3079.   0.4      553T451 *

       4079.  0.0
CLOSED                                                                 553T455
FLIGHT553.    009.    55.613  0       3.958                            553T455
RUNWAY104293. 198187. 98540.  203837. 0.      0.      3.               31L
FLTTRK26213.  0.      1934.   90.     20436.  0.      1934.   90.     TKOF1LG1 *
      74061.  0.      1934.   90.     20436.  0.      1934.   90.     TKOF1LG1 *
      47848.  0.                                                       TKOF1LG1
COMMENT t-45 GCA pattern on 31L
TODSCR553.    10.       553010                  553010  553011. 26213.   553T452 *
      553021. 201145. 553031. 202145.                                   553T452
ALTUDE  553010        0.      0.      200.    0.      4000.   700.     553T452 *
      26213.  1500.   153298. 1500.   201145. 50.                      553T452
AIRSPD  553010        0.      130.    200.    130.    4000.   130.     553T452 *
      26213.  160.    153298. 130.    201145. 130.                      553T452
DSEL    553010        0.      0.7     500.    0.4     3079.   0.4      553T451 *

       4079.  0.0
CLOSED                                                                 553T452
FLIGHT553.    010.    6.52    0.      0.35                             553T452
COMMENT Closed pattern with overhead break on 31L
FLTTRK24304.  0.      3038.   -180.   36456.  0.      3038.   -180.   TKOF1LT5 *
      12152.  0.                                                       TKOF1LT5
TODSCR553.    11.       553011                  553011  553011. 30434.   553T454 *
      553021. 92000.  553031. 93000.                                    553T454
ALTUDE  553011        0.      0.      200.    0.      4000.   700.     553T454 *
      30434.  1000.   76380.  1000.   92000.  50.                      553T454
AIRSPD  553011        0.      130.    200.    130.    4000.   130.     553T454 *
      30434.  160.    76380.  160.   92000.  130.                      553T454
DSEL    553011        0.      0.7     500.    0.4     3079.   0.4      553T451 *

       4079.  0.0
CLOSED                                                                 553T454
FLIGHT553.    011.   12.36    0.      0.675                            553T454
COMMENT Closed pattern with overhead break on 31L
COMMENT (wide)
FLTTRK24304.  0.      4557.   -180.   36456.  0.      4557.   -180.   TKOF1LT6 *
      12152.  0.                                                       TKOF1LT6
TODSCR553.    12.       553012                  553012  553011. 30434.   553T456 *
      553021. 101544. 553031. 102544.                                   553T456
ALTUDE  553012        0.      0.      200.    0.      4000.   700.     553T456 *
      30434.  1000.   76380.  1000.   101544. 50.                      553T456
AIRSPD  553012        0.      130.    200.    130.    4000.   130.     553T456 *
      30434.  160.    76380.  160.   101544. 130.                      553T456
DSEL    553012        0.      0.7     500.    0.4     3079.   0.4      553T451 *

       4079.  0.0
CLOSED                                                                 553T456
FLIGHT553.    012.    6.17    0.      0.462                            553T456
CLEAR                                                                  ALL
COMMENT ****************************************************
COMMENT **                  RUNUP   DATA                   **
COMMENT ****************************************************
AL       08501       0    91.6    89.3    85.8    82.2    79.2    76.0         1
COMMENT 08501W0 OMEGA11.3 07 Apr 95  73 F  76 PCT  29.92 IN HG   CY-085-001 01
COMMENT 08501W0 C-21A                    TFE-731-2-2B             N08504A0
COMMENT 08501W0  MIL PWR                96.00 % NC      818 C EGT    1719 LBS/HR
          72.6    69.1    65.4    61.8    58.2    54.7    51.4    48.4         2
          45.2    41.9    38.3    34.4    29.6    24.4    19.0    13.5         3
         08501      10    94.8    92.5    89.2    85.7    82.6    79.4         4
          76.2    72.7    69.1    65.7    62.3    58.9    55.8    52.8         5
          49.6    46.2    42.5    38.4    33.5    28.0    22.3    16.4         6
         08501      50    95.7    93.5    90.1    86.7    83.7    80.5         7
          77.2    73.8    70.3    67.1    63.9    60.7    57.6    54.7         8
          51.5    48.2    44.7    40.9    36.3    31.2    26.0    20.8         9
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        08501      60    97.9    95.6    92.2    88.8    85.8    82.6        10
         79.3    75.9    72.5    69.2    66.0    62.8    59.8    56.9        11
         53.7    50.3    46.7    42.8    38.0    32.8    27.3    21.9        12
        08501      70    97.9    95.7    92.2    88.9    85.8    82.7        13
         79.5    76.3    73.0    70.0    67.0    64.0    61.1    58.2        14
         55.0    51.8    48.2    44.3    39.5    34.2    28.6    23.0        15
        08501      80   100.0    97.8    94.6    91.3    88.3    85.1        16
         82.0    78.7    75.4    72.3    69.3    66.2    63.2    60.3        17
         57.0    53.7    50.1    46.1    41.2    35.8    30.1    24.3        18
        08501     100   102.4   100.2    96.7    93.3    90.3    87.2        19
         84.2    81.2    78.1    75.3    72.5    69.7    66.9    64.1        20
         61.0    57.7    54.1    50.0    45.1    39.6    33.7    27.6        21
        08501     140   109.2   107.1   102.3    97.7    94.5    91.5        22
         88.6    85.9    83.2    80.7    78.1    75.5    73.0    70.3        23
         67.5    64.5    61.3    57.7    53.3    48.5    43.3    38.2        24
        08501     160   106.0   104.0    99.1    94.3    91.1    88.0        25
         85.2    82.5    79.9    77.3    74.8    72.3    69.7    67.1        26
         64.2    61.3    58.1    54.6    50.4    45.9    41.2    36.7        27
        08501     180    86.0    84.0    79.1    74.3    71.1    68.0        28
         65.2    62.5    59.9    57.3    54.8    52.3    49.7    47.1        29
         44.2    41.3    38.1    34.6    30.4    25.9    21.2    16.7
RNPPAD106056. 204942. 38.                                          MR2
RUDSCR85.     96.     08501                                        HU25MR2
RUNUP 85.     96.     1.      0.      0.      3600.                HU25MR2
CLEAR
CLEAR                                                              ALL
AREA  85.     80.     75.     70.     65.
END
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NOISEMAP input file for base case. This is the HMMH/Navy file with the A-4s removed to reflect anticipated conditions.

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COMMENT Following modifications made by M. Bossi to CORPUS.NMI on 3/17/94
COMMENT         Modified to run in NMAP 6.3 --
COMMENT            V52FIL  added
COMMENT            SAELAT...ON added
COMMENT            ALIGN   deleted
COMMENT            ADDGRD  deleted
COMMENT            CLRGRD  deleted
COMMENT            DMPGRD  deleted
COMMENT            LIMITS  deleted
COMMENT            PLOT    deleted
COMMENT            PRINT   deleted
COMMENT            RESET   deleted
COMMENT            WIDTH   deleted
COMMENT            CLEAR   changed to CLEAR...ALL
COMMENT
COMMENT         - Runway, runup pad, and specific point locations were changed
COMMENT         to the x and y coordinates calculated by NMAP63.
COMMENT         - Airfield card coordinates were changed to 50000, 150000.
COMMENT         - Grid spacing was set at 1000 feet.
COMMENT         - Flight tracks names were changed to reflect the adopted
COMMENT         convention and rounded to the nearest foot and degree.
COMMENT         - T-44 touch and go profile for Mission 31 had an incorrect
COMMENT         track cumulative distance and was corrected.
COMMENT         - T-44 touch and go profile for Mission 32 was found to be
COMMENT         incorrect and was modified.
COMMENT         - Four GCA Box Pattern tracks (3LG1, 3RG1, 1LG1, and 1RG1) were
COMMENT         created for the T-34, T-44, A-4, and HU-25 based on a sketch
COMMENT         provided by ATC at Corpus Christi.  Flight profiles for these
COMMENT         tracks were derived from the existing touch and go profiles for
COMMENT         each aircraft.  The old GCA Box Pattern tracks were deleted.
COMMENT         - The UH-60A was chosed to represent the operations at the CCAD,
COMMENT         based on conversations with helo pilots during the site visit,
COMMENT         thus replacing the UH-1N that was originally used.  The flight
COMMENT         profiles for the UH-1N were modified and keyed into Baseops for
COMMENT         the UH-60A.  The SEL decks and descriptors provided by Noisemap
COMMENT         were then placed into this file, thus replacing the original
COMMENT         UH-1N data.
COMMENT         - TOROLL was left on for consistency with what HMMH did.
COMMENT         - All operations numbers were modified to reflect the current
COMMENT         conditions existing at Corpus Christi based on the site visit.
COMMENT         - Pre-flight Runups
COMMENT           - Since a T-34 was used to model the T-44 pre-flight runups, a
COMMENT           ratio based on the thrust produced by each aircraft was
COMMENT           applied to the original duration of 90 seconds.  The modeled
COMMENT           duration is 144 seconds.
COMMENT         - Maintenance Runups
COMMENT           - Since a C-21A was used to model the HU-25 maintenance
COMMENT           runups, a ratio based on the thrust produced by each aircraft
COMMENT           engine was applied to the original duration of 3600 seconds.
COMMENT           The modeled duration is 5400 seconds.
COMMENT           - Since a UH-60A was used to model the HH-65 maintenance
COMMENT           runups, a ratio based on the thrust produced by each aircraft
COMMENT           engine was applied to the original duration of 2700 seconds.
COMMENT           The modeled duration is 1227 seconds.
COMMENT
COMMENT ==========================================================
COMMENT
COMMENT   THIS FILE WAS CREATED UNDER U.S. NAVY SPONSORSHIP BY:
COMMENT
COMMENT           HARRIS MILLER MILLER & HANSON, INC.
COMMENT           429 MARRETT ROAD
COMMENT           LEXINGTON, MA  02173
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COMMENT
COMMENT   INQUIRIES SHOULD BE DIRECTED TO:
COMMENT
COMMENT           MR. NICHOLAS P. MILLER
COMMENT           MS. ELENA B. LANGLOIS
COMMENT              (617) 863-1401
COMMENT
COMMENT          PLEASE CITE  FILE NAME : CORPUS
COMMENT                REF. # 290530.02
COMMENT
COMMENT ==========================================================
COMMENT
V52FIL
AIRFLD 50000.  150000. 6.3    19.      1000.                          EAST
      NAS CORPUS CHRISTI, TX - 1993 AVERAGE BUSY DAY OPERATIONS
PROCES
SAELAT                                                                ON
TOROLL                                                                ON
COMMENT ****************** 1990 MEASUREMENT SITES *********************
SPROCE
SPECIF 108215. 194867.                                                FS1
SPECIF  99646. 195718.                                                FS2
SPECIF  93270. 183032.                                                FS3
SPECIF  89783. 208371.                                                FS4
COMMENT
COMMENT ***************************************************************
COMMENT                         T-34C AIRCRAFT
COMMENT ***************************************************************
COMMENT   T-34C NOISE AND PERFORMANCE
COMMENT    SEL PROFILE ADJUSTED BY  -9.0 dB
COMMENT:   INCLUDING -3.0 dB FOR SINGLE ENGINE AIRCRAFT
SEL     934111     2.0    86.9    85.6    84.3    83.0    81.7    80.3HC6100  3
COMMENT: INM AIRCRAFT #69  DHC6    ,NOISEMAP AC NUMBER 934
COMMENT: USED TO MODEL T-34C  DEPARTURES AT 98% (1015 FT-LBS) & 120 KTS
          78.9    77.5    76.1    74.4    73.0    71.4    69.7    68.0HC6100  3
          66.1    64.1    61.8    59.6    57.2    54.5    51.5    48.4HC6100  3
        934111     1.0    84.6    82.8    80.9    78.7    76.5    74.1HC6100  3
          71.5    69.0    66.3    63.3    60.8    58.2    55.9    54.1HC6100  3
          52.2    50.2    47.9    45.7    43.3    40.6    37.6    34.5HC6100
COMMENT    SEL PROFILE INTERPOLATED BETWEEN 1015 & 250 FT-LBS OF TORQUE
SEL     934121     2.0    86.6    85.3    84.0    82.6    81.3    79.8HC6100  3
COMMENT: INM AIRCRAFT #69  DHC6    ,NOISEMAP AC NUMBER 934
COMMENT: USED TO MODEL T-34C  DEPARTURES AT 775 FT-LBS & 120 KTS
          78.5    77.1    75.7    74.0    72.5    70.9    69.2    67.5HC6100  3
          65.5    63.5    61.2    59.0    56.5    53.7    50.5    47.2HC6100  3
        934121     1.0    84.3    82.5    80.6    78.3    76.1    73.6HC6100  3
          71.1    68.6    65.9    62.9    60.3    57.7    55.4    53.6HC6100  3
          51.6    49.6    47.3    45.1    42.6    39.8    36.6    33.0HC6100
COMMENT    SEL PROFILE ADJUSTED BY  -4.2 dB
COMMENT:   INCLUDING  -3.0 dB FOR SINGLE ENGINE AIRCRAFT
SEL     934511     2.0    87.1    85.8    84.4    83.0    81.6    80.2DHC-6    3
COMMENT: INM AIRCRAFT #69  DHC6    ,NOISEMAP AC NUMBER 934
COMMENT: USED TO MODEL T-34C  APPROACH POWER AT 250 FT-LBS & 90 KTS
          78.8    77.4    75.9    74.2    72.7    71.0    69.3    67.5DHC-6    3
          65.5    63.4    61.0    58.7    56.0    53.0    49.4    45.8DHC-6    3
        934511     1.0    84.8    82.9    80.9    78.7    76.5    74.0DHC-6    3
          71.4    68.9    66.1    63.1    60.5    57.8    55.4    53.6DHC-6    3
          51.6    49.5    47.1    44.8    42.1    39.1    35.5    31.9DHC-6
COMMENT    SEL PROFILE ADJUSTED BY  -1.9 dB
COMMENT:   INCLUDING  -3.0 dB FOR SINGLE ENGINE AIRCRAFT
COMMENT    SEL PROFILE ADJUSTED BY  ADDITIONAL -2.2 dB
SEL     934311     2.0    87.2    85.9    84.5    83.1    81.7    80.3DHC-6    3
COMMENT: INM AIRCRAFT #69  DHC6    ,NOISEMAP AC NUMBER 934
COMMENT: USED TO MODEL T-34C  APPROACH POWER AT 550 FT-LBS & 100 KTS
COMMENT: T/G DOWNWIND POWER
          78.9    77.5    76.0    74.3    72.8    71.1    69.4    67.6DHC-6    3
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          65.6    63.5    61.1    58.8    56.1    53.1    49.5    45.9DHC-6    3
        934311     1.0    84.9    83.0    81.0    78.8    76.6    74.1DHC-6    3
          71.5    69.0    66.2    63.2    60.6    57.9    55.5    53.7DHC-6    3
          51.7    49.6    47.2    44.9    42.2    39.2    35.6    32.0DHC-6
COMMENT
COMMENT T34 STRAIGHT CLIMB-OUT DEPARTURES ON ALL RUNWAYS
COMMENT MISSION 11
COMMENT
TODSCR     934      11   93411   93411    2000          934111   12000T34      *
        934121   28000  934111 1000000                                 T34
ALTUDE   93411               0       0    1200       0    3700     350T34      *
         12000     500   28000    2500   56750    2500  100000    2500T34
DSEL     93411               0   -2.21    1200     .79    3700     .38T34      *
         12000   -0.35   28000   -1.51   56750   -0.97  100000   -1.51T34
COMMENT
COMMENT T34 STRAIGHT CLIMB-OUT DEPARTURES ON RUNWAYS 13L/R
COMMENT WITH 500' HOLD-DOWN UNTIL JFK CAUSEWAY
COMMENT MISSION 12
COMMENT
TODSCR     934      12   93412   93412    2000          934111    6000T34      *
        934121 1000000                                                 T34
ALTUDE   93412               0       0    1200       0    6000     500T34      *
         28000     500   56750    2500  100000    2500                T34
DSEL     93412               0   -2.21    1200     .79    6000    -.35T34      *
         28000   -1.51   56750   -1.51  100000   -1.51                T34
COMMENT
COMMENT STRAIGHT-IN ARRIVALS TO RUNWAYS 13R(A2)/31R/31L/17/35/04
COMMENT MISSION 51
COMMENT
LNDSCR     934      51   93451   93451    2000          934511   30375T34      *
        934121 1000000                                                 T34
ALTUDE   93451               0      50   30375    1000  100000    1000T34
DSEL     93451               0     .25   30375   -2.76   31375   -1.51T34      *
        100000   -1.51                                                 T34
COMMENT
COMMENT STRAIGHT-IN ARRIVALS TO RUNWAYS 13R(A1) FROM DOWNWIND
COMMENT MISSION 54
COMMENT
LNDSCR     934      54   93454   93454    2000          934511   25514T34      *
        934121 1000000                                                 T34
ALTUDE   93454               0      50    6326     800   13719    1000T34      *
         25514    1000  100000    1000                                T34
DSEL     93454               0     .25    6326    -.46   13719    -.46T34      *
         25514   -2.76   26514   -1.51  100000   -1.51                T34
COMMENT
COMMENT OVERHEAD ARRIVAL TO RUNWAYS 13L/22/04/35/17
COMMENT MISSION 52
COMMENT
LNDSCR     934      52   93452   93452    2000          934511    7033T34      *
        934311   16275  934121 1000000                                 T34
ALTUDE   93452               0      50    7033     800   13133    1000T34      *
         16275    1000   24416    1000  100000    1000                T34
DSEL     93452               0     .25    7033    -.46    8033     .00T34      *
         13133     .00   16275   -2.30   17275   -1.51   24416   -1.51T34      *
        100000   -1.51                                                 T34
COMMENT
COMMENT OVERHEAD ARRIVAL TO RUNWAYS 31L
COMMENT MISSION 53
COMMENT
LNDSCR     934      53   93453   93453    2000          934511    6383T34      *
        934311   17825  934121 1000000                                 T34
ALTUDE   93453               0      50    6383     800   14683    1000T34      *
         17825    1000   28966    1000  100000    1000                T34
DSEL     93453               0     .25    6383    -.46    7383     .00T34      *
         14683     .00   17825   -2.30   18825   -1.51   28966   -1.51T34      *
        100000   -1.51                                                 T34
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COMMENT
COMMENT T34 TOUCH AND GO PATTERNS ON ALL RUNWAYS EXC. RWY 13R/31L
COMMENT MISSION 31
COMMENT
TODSCR     934      31   93431   93431    2000          934111    8142T34      *
        934311   20424  934511   24566                              T34
ALTUDE   93431               0       0     200       0    5000     500T34      *
          8142     800   11283     800   17283     800   20424     400T34      *
         24566      50                                              T34
DSEL     93431               0    1.50     200    1.50    5000     .79T34      *
          8142     .79    9142     .00   11283     .00   17283     .00T34      *
         20424     .46   21424     .00   24566     .25               T34
COMMENT
COMMENT T34 TOUCH AND GO PATTERNS ON RWY 13R/31L
COMMENT MISSION 32
COMMENT
TODSCR     934      32   93432   93432    2000          934111   11342T34      *
        934311   26825  934511   30966                              T34
ALTUDE   93432               0       0     200       0    8200     500T34      *
         11342     800   14483     800   23683     800   26825     400T34      *
         30966      50                                              T34
DSEL     93432               0    1.50     200    1.50    8200     .79T34      *
         11342     .79   12342     .00   14483     .00   23683     .00T34      *
         26825     .46   27825     .00   30966     .25               T34
COMMENT
COMMENT T34 GCA BOX PATTERN ON RUNWAY 13L
COMMENT MISSION 41
COMMENT
TODSCR     934      41   93441   93441                    934111   26800T34      *
        934311  152285  934511  199546                              T34
ALTUDE   93441               0       0     200       0    5000     500T34      *
         26800    1500   39656    1500  152285    1500  199546      50T34
DSEL     93441               0    1.50     200    1.50    5000     .79T34      *
         26800     .79   39656     .00  152285     .00  199546     .25T34
COMMENT
COMMENT T34 GCA BOX PATTERN ON RUNWAY 13R
COMMENT MISSION 42
COMMENT
TODSCR     934      42   93442   93442                    934111   30434T34      *
        934311  157519  934511  201146                              T34
ALTUDE   93442               0       0     200       0    8200     500T34      *
         30434    1500   43690    1500  157519    1500  201146      50T34
DSEL     93442               0    1.50     200    1.50    8200     .79T34      *
         30434     .79   43690     .00  157519     .00  201146     .25T34
COMMENT
COMMENT T34 GCA BOX PATTERN ON RUNWAY 31L
COMMENT MISSION 43
COMMENT
TODSCR     934      43   93443   93443                    934111   26213T34      *
        934311  153298  934511  201146                              T34
ALTUDE   93443               0       0     200       0    8200     500T34      *
         26213    1500   39469    1500  153298    1500  201146      50T34
DSEL     93443               0    1.50     200    1.50    8200     .79T34      *
         26213     .79   39469     .00  153298     .00  201146     .25T34
COMMENT
COMMENT T34 GCA BOX PATTERN ON RUNWAY 31R
COMMENT MISSION 44
COMMENT
TODSCR     934      44   93444   93444                    934111   26800T34      *
        934311  152285  934511  199546                              T34
ALTUDE   93444               0       0     200       0    5000     500T34      *
         26800    1500   39656    1500  152285    1500  199546      50T34
DSEL     93444               0    1.50     200    1.50    5000     .79T34      *
         26800     .79   39656     .00  152285     .00  199546     .25T34
COMMENT
COMMENT GROUP 1: ALL T34 ARRIVALS AND DEPARTURES
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COMMENT**************** LANDINGS ****************
RUNWAY  100000  200000  103564  203544                                  04
FLTTRK300000.0     0.0                                                  LAND04A1
FLIGHT    934.      51           0.77    0.02                          04  04A1
FLTTRK   750.0     0.0 2000.0  180.000  6100.0     0.0 2000.00 180.000LAND04O2 *
       10000.0     0.0 2500.0  -80.000300000.0     0.0                 LAND04O2
FLIGHT    934.      52           1.54    0.03                          04  04O2
RUNWAY  101709  201878  105287  198361                                  13L
FLTTRK   750.0     0.0 2000.00 180.000  6100.0     0.0 2000.00 180.000LAND3LO2 *
       17000.0     0.0 3700.00 110.000300000.0     0.0                 LAND3LO2
FLIGHT    934.      52          15.04    0.31                          13L 3LO2
RUNWAY   98540  203837  104293  198187                                  13R
FLTTRK    40.0     0.0 2003.0 -177.0    7393.0     0.0 7247.0   17.0  LAND3RA1 *
      300000.0     0.0                                                  LAND3RA1
FLIGHT    934.      54          14.75    0.30                          13R 3RA1
FLTTRK  8560.0     0.0 3717.0  111.0  300000.0     0.0                 LAND3RA2
FLIGHT    934.      51           4.92    0.10                          13R 3RA2
RUNWAY  102888  203317  102888  198294                                  17
FLTTRK  7445.0     0.0 3569.0   52.0  300000.0     0.0                 LAND17A1
FLIGHT    934.      51           1.54    0.03                          17  17A1
FLTTRK   750.0     0.0 2000.00-180.000  6100.0     0.0 2000.00-180.000LAND17O2 *
       12700.0     0.0 3700.00  52.000300000.0     0.0                 LAND17O2
FLIGHT    934.      52           5.01    0.10                          17  17O2
RUNWAY  103564  203544  100000  200000                                  22
FLTTRK   750.0     0.0 2000.00-180.000  6100.0     0.0 2000.00-180.000LAND22O2 *
      300000.0     0.0                                                  LAND22O2
FLIGHT    934.      52           0.77    0.02                          22  22O2
RUNWAY  104293  198187   98540  203837                                  31L
FLTTRK300000.0     0.0                                                  LAND1LA1
FLIGHT    934.      51           1.30    0.03                          31L 1LA1
FLTTRK  7575.0     0.0 5892.0   36.0  300000.0     0.0                 LAND1LA2
FLIGHT    934.      51           3.33    0.07                          31L 1LA2
FLTTRK   100.0     0.0 2000.00 180.000  8400.0     0.0 2000.00 180.000LAND1LO1 *
       16000.0     0.0 6000.00  36.000300000.0     0.0                 LAND1LO1
FLIGHT    934.      53          13.11    0.27                          31L 1LO1
RUNWAY  105287  198361  101709  201878                                  31R
FLTTRK300000.0     0.0                                                  LAND1RA1
FLIGHT    934.      51          10.80    0.22                          31R 1RA1
RUNWAY  102888  198294  102888  203317                                  35
FLTTRK  5700.0     0.0 6360.0  -26.   300000.0     0.0                 LAND35A1
FLIGHT    934.      51           1.16    0.02                          35  35A1
FLTTRK   750.0     0.0 2000.00 180.000  6100.0     0.0 2000.00 180.000LAND35O2 *
       11000.0     0.0 4900.00 -28.000300000.0     0.0                 LAND35O2
FLIGHT    934.      52           3.08    0.06                          35  35O2
COMMENT**************** TAKEOFFS ****************
RUNWAY  100000  200000  103564  203544                                  04
FLTTRK 15060.0     0.0 5309.0  -48.0  300000.0     0.0                 TKOF04D1
FLIGHT    934.      11           2.31    0.05                          04  04D1
FLTTRK 15165.0     0.0 5045.0   43.0  300000.0     0.0                 TKOF04D2
FLIGHT    934.      11           2.31    0.05                          04  04D2
RUNWAY  101709  201878  105287  198361                                  13L
FLTTRK 21981.0     0.0 8793.0  -36.0  300000.0     0.0                 TKOF3LD1
FLIGHT    934.      12          35.48    0.72                          13L 3LD1
RUNWAY   98540  203837  104293  198187    3400                          13C
FLTTRK 27981.0     0.011932.0  -39.0  300000.0     0.0                 TKOF3CD1
FLIGHT    934.      12          14.65    0.30                          13C 3CD1
RUNWAY  102888  203317  102888  198294                                  17
FLTTRK  5001.0     0.0 9982.0  -78.0  300000.0     0.0                 TKOF17D3
FLIGHT    934.      11           4.63    0.09                          17  17D3
RUNWAY  103564  203544  100000  200000                                  22
FLTTRK  5268.0     0.0 7226.0 -125.0  300000.0     0.0                 TKOF22D3
FLIGHT    934.      11           0.77    0.02                          22  22D3
RUNWAY  104293  198187   98540  203837                                  31L
FLTTRK 20199.0     0.0 7031.0   43.0  300000.0     0.0                 TKOF1LD2
FLIGHT    934.      11           0.93    0.02                          31L 1LD2
FLTTRK 12298.0     0.0 5484.0  133.0  300000.0     0.0                 TKOF1LD4
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FLIGHT    934.      11           2.16    0.04                          31L 1LD4
RUNWAY  105287  198361  101709  201878                                 31R
FLTTRK 20197.0     0.0 6010.0   44.0  300000.0     0.0                 TKOF1RD1
FLIGHT    934.      11           1.85    0.04                          31R 1RD1
FLTTRK 12190.0     0.0 4595.0  133.0  300000.0     0.0                 TKOF1RD3
FLIGHT    934.      11           4.32    0.09                          31R 1RD3
RUNWAY  102888  198294  102888  203317                                 35
FLTTRK300000.0     0.0                                                 TKOF35D1
FLIGHT    934.      11           3.86    0.08                          35  35D1
FLTTRK 15032.0     0.0 4984.0   88.0  300000.0     0.0                 TKOF35D2
FLIGHT    934.      11           3.86    0.08                          35  35D2
COMMENT
COMMENT GROUP 2: ALL T34 TOUCH AND GO PATTERNS
COMMENT*************** TAKEOFFS ****************
RUNWAY  100000  200000  103564  203544                                 04
FLTTRK  5000.0     0.0 2000.00-180.000  6000.0     0.0 2000.00-180.000TKOF04T2 *
        1000.0     0.0                                                 TKOF04T2
FLIGHT    934.      31           9.02    0.18                          04  04T2
RUNWAY  101709  201878  105287  198361                                 13L
FLTTRK  5000.0     0.0 2000.00-180.000  6000.0     0.0 2000.00-180.000TKOF3LT1 *
        1000.0     0.0                                                 TKOF3LT1
FLIGHT    934.      31          69.13    1.41                          13L 3LT1
RUNWAY   98540  203837  104293  198187                                 13R
FLTTRK  8200.0     0.0 2000.00 180.000  9200.0     0.0 2000.00 180.000TKOF3RT2 *
        1000.0     0.0                                                 TKOF3RT2
FLIGHT    934.      32          28.55    0.58                          13R 3RT2
RUNWAY  102888  203317  102888  198294                                 17
FLTTRK  5000.0     0.0 2000.00 180.000  6000.0     0.0 2000.00 180.000TKOF17T2 *
        1000.0     0.0                                                 TKOF17T2
FLIGHT    934.      31           9.02    0.18                          17  17T2
RUNWAY  103564  203544  100000  200000                                 22
FLTTRK  5000.0     0.0 2000.00 180.000  6000.0     0.0 2000.00 180.000TKOF22T2 *
        1000.0     0.0                                                 TKOF22T2
FLIGHT    934.      31           1.50    0.03                          22  22T2
RUNWAY  104293  198187   98540  203837                                 31L
FLTTRK  8200.0     0.0 2000.00-180.000  9200.0     0.0 2000.00-180.000TKOF1LT4 *
        1000.0     0.0                                                 TKOF1LT4
FLIGHT    934.      32           6.01    0.12                          31L 1LT4
RUNWAY  105287  198361  101709  201878                                 31R
FLTTRK  5000.0     0.0 2000.00 180.000  6000.0     0.0 2000.00 180.000TKOF1RT2 *
        1000.0     0.0                                                 TKOF1RT2
FLIGHT    934.      31          12.02    0.25                          31R 1RT2
RUNWAY  102888  198294  102888  203317                                 35
FLTTRK  5000.0     0.0 2000.00-180.000  6000.0     0.0 2000.00-180.000TKOF35T2 *
        1000.0     0.0                                                 TKOF35T2
FLIGHT    934.      31          15.03    0.31                          35  35T2
COMMENT
COMMENT GROUP 3: ALL T34 GCA BOX PATTERNS
COMMENT*************** TAKEOFFS ****************
RUNWAY  101709  201878  105287  198361                                 13L
FLTTRK 26800.0     0.0 1934.0  -90.0   19636.0     0.0 1934.0  -90.0  TKOF3LG1 *
       74061.0     0.0 1934.0  -90.0   19636.0     0.0 1934.0  -90.0  TKOF3LG1 *
       47261.0     0.0                                                 TKOF3LG1
FLIGHT    934.      41          18.47    0.38                          13L 3LG1
RUNWAY   98540  203837  104293  198187                                 13R
FLTTRK 30434.0     0.0 1934.0  -90.0   20436.0     0.0 1934.0  -90.0  TKOF3RG1 *
       74061.0     0.0 1934.0  -90.0   20436.0     0.0 1934.0  -90.0  TKOF3RG1 *
       43627.0     0.0                                                 TKOF3RG1
FLIGHT    934.      42           7.70    0.16                          13L 3RG1
RUNWAY  104293  198187   98540  203837                                 31L
FLTTRK 26213.0     0.0 1934.0   90.0   20436.0     0.0 1934.0   90.0  TKOF1LG1 *
       74061.0     0.0 1934.0   90.0   20436.0     0.0 1934.0   90.0  TKOF1LG1 *
       47848.0     0.0                                                 TKOF1LG1
FLIGHT    934.      43           1.54    0.03                          13L 1LG1
RUNWAY  105287  198361  101709  201878                                 31R
FLTTRK 26800.0     0.0 1934.0   90.0   19636.0     0.0 1934.0   90.0  TKOF1RG1 *
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       74061.0     0.0 1934.0   90.0   19636.0     0.0 1934.0   90.0  TKOF1RG1 *
       47261.0     0.0                                                TKOF1RG1
FLIGHT    934.      44           3.08    0.06                        13L 1RG1
CLEAR                                                                 ALL
COMMENT
COMMENT ***************************************************************
COMMENT                          T-44 AIRCRAFT
COMMENT ***************************************************************
COMMENT    T-44 NOISE AND PERFORMANCE
SEL     944111     2.0    86.0    84.7    83.4    82.1    80.8    79.4HC6100  3
COMMENT: SEL PROFILE ADJUSTED BY  -9.9 dB
COMMENT: INM AIRCRAFT #69  DHC6    ,NOISEMAP AC NUMBER 944
COMMENT: USED TO MODEL T-44A  DEPARTURES AT 1520 FT-LBS (98%) 130 KTS
          78.0    76.6    75.2    73.5    72.1    70.5    68.8    67.1HC6100  3
          65.2    63.2    60.9    58.7    56.3    53.6    50.6    47.5HC6100  3
        944111     1.0    83.7    81.9    80.0    77.8    75.6    73.2HC6100  3
          70.6    68.1    65.4    62.4    59.9    57.3    55.0    53.2HC6100  3
          51.3    49.3    47.0    44.8    42.4    39.7    36.7    33.6DHC6100
SEL     944121     2.0    84.3    83.0    81.6    80.3    78.9    77.5DHC6100 3
COMMENT: INM AIRCRAFT #69  DHC6    ,NOISEMAP AC NUMBER 944
COMMENT: USED TO MODEL T-44A  CRUISE AT 900 FT-LBS  130 KTS
COMMENT: INTERPOLATED BETWEEN 1520 FT-LBS AND 600 FT-LBS
          76.1    74.7    73.2    71.5    70.1    68.4    66.7    64.9HC6100  3
          63.0    60.9    58.5    56.3    53.7    50.8    47.3    43.9HC6100  3
        944121     1.0    82.0    80.2    78.2    76.0    73.7    71.3HC6100  3
          68.7    66.2    63.4    60.4    57.9    55.2    52.9    51.0HC6100  3
          49.1    47.0    44.6    42.4    39.8    36.9    33.4    30.0DHC6100
SEL     944511     2.0    89.6    88.3    86.9    85.5    84.1    82.7DHC-6   3
COMMENT: INM AIRCRAFT #69  DHC6    ,NOISEMAP AC NUMBER 944
COMMENT: USED TO MODEL T-44A  APPROACH POWER AT 300 FT-LBS  100 KTS
COMMENT: SEL PROFILE ADJUSTED BY  -1.7 dB
          81.3    79.9    78.4    76.7    75.2    73.5    71.8    70.0DHC-6    3
          68.0    65.9    63.5    61.2    58.5    55.5    51.9    48.3DHC-6    3
        944511     1.0    87.3    85.4    83.4    81.2    79.0    76.5DHC-6    3
          73.9    71.4    68.6    65.6    63.0    60.3    57.9    56.1DHC-6    3
          54.1    52.0    49.6    47.3    44.6    41.6    38.0    34.4DHC-6
SEL     944311     2.0    83.8    82.5    81.1    79.7    78.3    76.9DHC-6    3
COMMENT: INM AIRCRAFT #69  DHC6    ,NOISEMAP AC NUMBER 944
COMMENT: USED TO MODEL T-44A  T/G DOWNWIND POWER AT 600 FT-LBS 120 KTS
COMMENT: SEL PROFILE ADJUSTED BY  -7.5 dB
          75.5    74.1    72.6    70.9    69.4    67.7    66.0    64.2DHC-6    3
          62.2    60.1    57.7    55.4    52.7    49.7    46.1    42.5DHC-6    3
        944311     1.0    81.5    79.6    77.6    75.4    73.2    70.7DHC-6    3
          68.1    65.6    62.8    59.8    57.2    54.5    52.1    50.3DHC-6    3
          48.3    46.2    43.8    41.5    38.8    35.8    32.2    28.6DHC-6
COMMENT
COMMENT T44 STRAIGHT CLIMB-OUT DEPARTURES ON ALL RUNWAYS
COMMENT MISSION 11
COMMENT
TODSCR     944      11   94411   94411    2000          944111 1000000DHC6
ALTUDE   94411               0       0    1200       0    6000     500DHC6     *
         25000    2500   35000    2500   54483   10000  100000   20000DHC6
DSEL     94411               0   -2.30    1200    1.36    6000     -.62  DHC6TO *
                         25000   -1.16   35000   -1.16                  DHC6TO
COMMENT
COMMENT T44 STRAIGHT CLIMB-OUT DEPARTURES ON RUNWAYS 13L/R
COMMENT WITH 500' HOLD-DOWN UNTIL JFK CAUSEWAY
COMMENT MISSION 12
COMMENT
TODSCR     944      12   94412   94412    2000          944111   12000T34      *
        944121   28000   944111 1000000                              T34
ALTUDE   94412               0       0    1200       0    3700     350T34      *
         12000     500   28000     500   40000    2500  100000    2500T34
DSEL     94412               0   -1.86    1200    1.14    3700     .73T34      *
         12000     .00   28000   -1.17   40000   -0.62  100000   -1.17T34
COMMENT
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COMMENT STRAIGHT-IN ARRIVALS TO RUNWAYS 17/35/04/22/31R AND TO
COMMENT RUNWAYS 13R(A2&I1)/31L(A3&A4)
COMMENT MISSION 51
COMMENT
LNDSCR     944      51           94451    2000          944511 1000000DHC6
DSEL     94451               0     .00    6080    -.79   18240   -2.30T44      *
         19240   -1.17  100000   -1.41                                  T44
COMMENT
COMMENT STRAIGHT-IN ARRIVALS TO RUNWAYS 13R(A1) & 31L(I1) FROM DOWNWIND
COMMENT MISSION 54
COMMENT
LNDSCR     944      54   94454   94454    2000          944511    6320T44      *
        944121 1000000                                                 T44
ALTUDE   94454               0      50    6326     800   13719    1000T44      *
         25514    1000  100000    1000                                  T44
DSEL     94454               0     .00    6326     .00   13719     .00T44      *
         25514   -2.30   26514   -1.17  100000   -1.17                  T44
COMMENT
COMMENT OVERHEAD ARRIVAL TO RUNWAYS 13L/22/04/35/17
COMMENT MISSION 52
COMMENT
LNDSCR     944      52   94452   94452    2000          944511   13942T44_OH   *
        944121 1000000                                                 T44_OH
ALTUDE   94452               0      50     750     400    7033     800T44_OH   *
         13942    1000   18566    1000   40320    1000   46396    1500T44_OH   *
         70000    1500                                                 T44_OH
DSEL     94452               0     .00     750    -.79    7033    -.79T44_OH   *
         13942   -1.76   14942    -.62   18566   -1.17   40320   -1.41T44_OH
COMMENT
COMMENT OVREHEAD ARRIVAL TO RUNWAY 31L
COMMENT MISSION 53
COMMENT
LNDSCR     944      53   94453   94453    2000          944511   16493T44_OH   *
        944121 1000000                                                 T44_OH
ALTUDE   94453               0      50     700     400    6983     800T44_OH   *
         16493    1000   18566    1000   42870    1000   48946    1500T44_OH   *
         80000    1500                                                 T44_OH
DSEL     94453               0     .00     700    -.79    6983    -.79T44_OH   *
         16493   -1.76   17493    -.62   18566   -1.17   42870   -1.41T44_OH
COMMENT
COMMENT T-44 TOUCH AND GO PATTERNS ON ALL RUNWAYS EXC. RWY 13R/31L
COMMENT MISSION 31
COMMENT
TODSCR     944      31   94431   94431    2000          944111   10084T44 T/G  *
        944311   25352  944511   30536                                  T44
ALTUDE   94431               0       0     200       0    6000     500T44      *
         10084     800   21268     800   25352     500   30536      50T44
DSEL     94431               0    1.36     200    1.14    6000     .00T44      *
         10084     .00   11084    -.35   21268     .00   25352     .38T44      *
         26352    -.41   30536     .22                                  T44
COMMENT
COMMENT T-44 TOUCH AND GO PATTERNS ON RWY 13R/31L
COMMENT MISSION 32
COMMENT
TODSCR     944      32   94432   94432    2000          944111   13941T44 T/G  *
        944311   33423  944511   38965                                  T44
ALTUDE   94432       0       0       0     200       0    9700     500T44      *
         13941     800   29182     800   33423     500   38965      50T44
DSEL     94432               0    1.36     200    1.14    9700     .00T44      *
         13941     .00   14941    -.35   29182     .00   33423     .38T44      *
         34423    -.41   38965     .22                                  T44
COMMENT
COMMENT T-44 GCA BOX PATTERN ON RUNWAY 13L
COMMENT MISSION 41
COMMENT
TODSCR     944      41   94441   94441                 944111   26800T44      *
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        944311  152285  944511  199546                                  T44
ALTUDE   94441               0       0     200       0    6000     500T44      *
         26800    1500  152285    1500  199546      50                 T44
DSEL     94441               0    1.36     200    1.14    6000     .00T44      *
         26800     .00  152285     .00  199546     .22                 T44
COMMENT
COMMENT T-44 GCA BOX PATTERN ON RUNWAY 13R
COMMENT MISSION 42
COMMENT
TODSCR     944      42   94442   94442                  944111   30434T44      *
        944311  157519  944511  201146                                  T44
ALTUDE   94442               0       0     200       0    9700     500T44      *
         30434    1500  157519    1500  201146      50                 T44
DSEL     94442               0    1.36     200    1.14    9700     .00T44      *
         30434     .00  157519     .00  201146     .22                 T44
COMMENT
COMMENT T-44 GCA BOX PATTERN ON RUNWAY 31L
COMMENT MISSION 43
COMMENT
TODSCR     944      43   94443   94443                  944111   26213T44      *
        944311  153298  944511  201146                                  T44
ALTUDE   94443               0       0     200       0    9700     500T44      *
         26213    1500  153298    1500  201146      50                 T44
DSEL     94443               0    1.36     200    1.14    9700     .00T44      *
         26213     .00  153298     .00  201146     .22                 T44
COMMENT
COMMENT T-44 GCA BOX PATTERN ON RUNWAY 31R
COMMENT MISSION 44
COMMENT
TODSCR     944      44   94444   94444                  944111   26800T44      *
        944311  152285  944511  199546                                  T44
ALTUDE   94444               0       0     200       0    6000     500T44      *
         26800    1500  152285    1500  199546      50                 T44
DSEL     94444               0    1.36     200    1.14    6000     .00T44      *
         26800     .00  152285     .00  199546     .22                 T44
COMMENT
COMMENT GROUP 4: ALL T44 ARRIVALS AND DEPARTURES
COMMENT*************** LANDINGS ***************
RUNWAY  100000  200000  103564  203544                                 04
FLTTRK300000.0     0.0                                                 LAND04A1
FLIGHT    944.      51           0.25    0.01                          04  04A1
FLTTRK   750.0     0.0 2000.0  180.000  2700.0     0.0 2000.00 180.000LAND04O1 *
        8000.0     0.0 2500.0  -80.000300000.0     0.0                 LAND04O1
FLIGHT    944.      52           0.22    0.00                          04  04O1
FLTTRK  3146.0     0.0 4139.0   45.0  300000.0     0.0                 LAND04A2
FLIGHT    944.      51           0.07    0.00                          04  04A2
RUNWAY  101709  201878  105287  198361                                 13L
FLTTRK   750.0     0.0 2000.00 180.000  2700.0     0.0 2000.00 180.000LAND3LO1 *
       14000.0     0.0 3700.00 110.000300000.0     0.0                 LAND3LO1
FLIGHT    944.      52           3.44    0.07                          13L 3LO1
RUNWAY   98540  203837  104293  198187                                 13R
FLTTRK    40.0     0.0 2003.0 -177.0    7393.0     0.0 7247.0   17.0  LAND3RA1 *
      300000.0     0.0                                                 LAND3RA1
FLIGHT    944.      54           2.01    0.04                          13R 3RA1
FLTTRK  8560.0     0.0 3717.0  111.0  300000.0     0.0                 LAND3RA2
FLIGHT    944.      51           2.05    0.04                          13R 3RA2
FLTTRK  6355.0     0.0 4639.0  -82.0  300000.0     0.0                 LAND3RA4
FLIGHT    944.      51           0.72    0.01                          13R 3RA4
RUNWAY  102888  203317  102888  198294                                 17
FLTTRK  7445.0     0.0 3569.0   52.0  300000.0     0.0                 LAND17A1
FLIGHT    944.      51           0.84    0.02                          17  17A1
FLTTRK   750.0     0.0 2000.00-180.000  2700.0     0.0 2000.00-180.000LAND17O1 *
       10500.0     0.0 3700.00  52.000300000.0     0.0                 LAND17O1
FLIGHT    944.      52           0.60    0.01                          17  17O1
FLTTRK  6917.0     0.0 1736.0 -118.0  300000.0     0.0                 LAND17A2
FLIGHT    944.      51           0.25    0.01                          17  17A2
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RUNWAY  103564  203544  100000  200000                                  22
FLTTRK   750.0     0.0 2000.00-180.000  2700.0     0.0 2000.00-180.000LAND22O1 *
      300000.0     0.0                                                 LAND22O1
FLIGHT    944.      52           0.15    0.00                          22  22O1
RUNWAY  104293  198187   98540  203837                                  31L
FLTTRK300000.0     0.0                                                 LAND1LA1
FLIGHT    944.      51           0.26    0.01                          31L 1LA1
FLTTRK  7575.0     0.0 5892.0   36.0  300000.0     0.0                 LAND1LA2
FLIGHT    944.      51           0.61    0.01                          31L 1LA2
FLTTRK    40.0     0.0 2000.00 181.0   21095.0     0.0 2484.0  -83.0  LAND1LA3 *
      300000.0     0.0                                                 LAND1LA3
FLIGHT    944.      54           0.65    0.01                          31L 1LA3
FLTTRK   700.0     0.0 2000.00 180.000  5300.0     0.0 2000.00 180.000LAND1LO2 *
       12300.0     0.0 6000.00  36.000300000.0     0.0                 LAND1LO2
FLIGHT    944.      53           2.76    0.06                          31L 1LO2
RUNWAY  105287  198361  101709  201878                                  31R
FLTTRK300000.0     0.0                                                 LAND1RA1
FLIGHT    944.      51           2.61    0.05                          31R 1RA1
RUNWAY  102888  198294  102888  203317                                  35
FLTTRK  5700.0     0.0 6360.0  -26.0  300000.0     0.0                 LAND35A1
FLIGHT    944.      51           0.42    0.01                          35  35A1
FLTTRK   750.0     0.0 2000.00 180.000  2700.0     0.0 2000.00 180.000LAND35O1 *
        7700.0     0.0 4900.00 -28.000300000.0     0.0                 LAND35O1
FLIGHT    944.      52           0.30    0.01                          35  35O1
FLTTRK  2470.0     0.0 1236.0  136.0   16662.0     0.0 2450.0  -84.0  LAND35A2 *
      300000.0     0.0                                                 LAND35A2
FLIGHT    944.      51           0.12    0.00                          35  35A2
COMMENT*************** TAKEOFFS ***************
RUNWAY  100000  200000  103564  203544                                  04
FLTTRK 15060.0     0.0 5309.0  -48.0  300000.0     0.0                 TKOF04D1
FLIGHT    944.      11           0.46    0.01                          04  04D1
FLTTRK 15165.0     0.0 5045.0   43.0  300000.0     0.0                 TKOF04D2
FLIGHT    944.      11           0.47    0.01                          04  04D2
FLTTRK  9679.0     0.0 2394.0 -145.0   15709.0     0.012112.0  -28.0  TKOF04D3 *
      300000.0     0.0                                                 TKOF04D3
FLIGHT    944.      11           0.16    0.00                          04  04D3
RUNWAY  101709  201878  105287  198361                                  13L
FLTTRK 21981.0     0.0 8793.0  -36.0  300000.0     0.0                 TKOF3LD1
FLIGHT    944.      12           8.43    0.17                          13L 3LD1
RUNWAY   98540  203837  104293  198187                                  13R
FLTTRK 11760.0     0.0 4093.0  185.0   20781.0     0.0 2262.0  -88.0  TKOF3RD1 *
      300000.0     0.0                                                 TKOF3RD1
FLIGHT    944.      11           0.52    0.01                          13R 3RD1
FLTTRK 27981.0     0.011932.0  -39.0  300000.0     0.0                 TKOF3RD2
FLIGHT    944.      12           2.96    0.06                          13R 3RD2
RUNWAY  102888  203317  102888  198294                                  17
FLTTRK  9627.0     0.0 7151.0  -80.0  300000.0     0.0                 TKOF17D1
FLIGHT    944.      11           0.93    0.02                          17  17D1
FLTTRK  5601.0     0.0 3554.0  140.0   14004.0     0.0 2271.0  -87.0  TKOF17D2 *
      300000.0     0.0                                                 TKOF17D2
FLIGHT    944.      11           0.16    0.00                          17  17D2
RUNWAY  103564  203544  100000  200000                                  22
FLTTRK 10322.0     0.0 4603.0 -125.0  300000.0     0.0                 TKOF22D1
FLIGHT    944.      11           0.16    0.00                          22  22D1
FLTTRK  8060.0     0.0 2344.0   94.0   10536.0     0.0 2331.0  -87.0  TKOF22D2 *
      300000.0     0.0                                                 TKOF22D2
FLIGHT    944.      11           0.03    0.00                          22  22D2
RUNWAY  104293  198187   98540  203837                                  31L
FLTTRK  8232.0     0.0 4203.0  -27.0    7316.0     0.0 6175.0  -55.0  TKOF1LD1 *
      300000.0     0.0                                                 TKOF1LD1
FLIGHT    944.      11           0.11    0.00                          31L 1LD1
FLTTRK 20199.0     0.0 7031.0   43.0  300000.0     0.0                 TKOF1LD2
FLIGHT    944.      11           0.18    0.00                          31L 1LD2
FLTTRK 20115.0     0.0 4436.0  134.0  300000.0     0.0                 TKOF1LD3
FLIGHT    944.      11           0.44    0.01                          31L 1LD3
RUNWAY  105287  198361  101709  201878                                  31R
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FLTTRK 20197.0     0.0 6010.0   44.0  300000.0     0.0                TKOF1RD1
FLIGHT    944.      11           0.44    0.01                         31R 1RD1
FLTTRK 20323.0     0.0 3756.0  135.0  300000.0     0.0                TKOF1RD2
FLIGHT    944.      11           1.03    0.02                         31R 1RD2
RUNWAY  102888  198294  102888  203317                                 35
FLTTRK300000.0     0.0                                                 TKOF35D1
FLIGHT    944.      11           0.77    0.02                         35  35D1
FLTTRK 15032.0     0.0 4984.0   88.0  300000.0     0.0                TKOF35D2
FLIGHT    944.      11           0.79    0.02                         35  35D2
FLTTRK  9749.0     0.0 2007.0  -99.0   11373.0     0.011505.0  -28.0  TKOF35D3 *
      300000.0     0.0                                                 TKOF35D3
FLIGHT    944.      11           0.27    0.01                         35  35D3
COMMENT
COMMENT GROUP 5: ALL T44 TOUCH AND GO PATTERNS
COMMENT**************** TAKEOFFS ****************
RUNWAY  100000  200000  103564  203544                                 04
FLTTRK  6000.0     0.0 2600.00-180.000  7100.0     0.0 2600.00-180.000TKOF04T1 *
        1100.0     0.0                                                 TKOF04T1
FLIGHT    944.      31           6.60    0.13                         04  04T1
RUNWAY  101709  201878  105287  198361                                 13L
FLTTRK  6000.0     0.0 2600.00-180.000  7100.0     0.0 2600.00-180.000TKOF3LT2 *
        1100.0     0.0                                                 TKOF3LT2
FLIGHT    944.      31          50.60    1.03                         13L 3LT2
RUNWAY   98540  203837  104293  198187                                 13R
FLTTRK  9700.0     0.0 2700.00 180.000 11000.0     0.0 2700.00 180.000TKOF3RT1 *
        1300.0     0.0                                                 TKOF3RT1
FLIGHT    944.      32          20.90    0.43                         13R 3RT1
RUNWAY  102888  203317  102888  198294                                 17
FLTTRK  6000.0     0.0 2600.00 180.000  7100.0     0.0 2600.00 180.000TKOF17T1 *
        1100.0     0.0                                                 TKOF17T1
FLIGHT    944.      31           6.60    0.13                         17  17T1
RUNWAY  103564  203544  100000  200000                                 22
FLTTRK  6000.0     0.0 2600.00 180.000  7100.0     0.0 2600.00 180.000TKOF22T1 *
        1100.0     0.0                                                 TKOF22T1
FLIGHT    944.      31           1.10    0.02                         22  22T1
RUNWAY  104293  198187   98540  203837                                 31L
FLTTRK  9700.0     0.0 2700.00-180.000 11000.0     0.0 2700.00-180.000TKOF1LT1 *
        1300.0     0.0                                                 TKOF1LT1
FLIGHT    944.      32           4.40    0.09                         31L 1LT1
RUNWAY  105287  198361  101709  201878                                 31R
FLTTRK  6000.0     0.0 2600.00 180.000  7100.0     0.0 2600.00 180.000TKOF1RT1 *
        1100.0     0.0                                                 TKOF1RT1
FLIGHT    944.      31           8.80    0.18                         31R 1RT1
RUNWAY  102888  198294  102888  203317                                 35
FLTTRK  6000.0     0.0 2600.00-180.000  7100.0     0.0 2600.00-180.000TKOF35T1 *
        1100.0     0.0                                                 TKOF35T1
FLIGHT    944.      31          11.00    0.22                         35  35T1
COMMENT
COMMENT GROUP 6: ALL T44 GCA BOX PATTERNS
COMMENT**************** TAKEOFFS ****************
RUNWAY  101709  201878  105287  198361                                 13L
FLTTRK 26800.0     0.0 1934.0  -90.0   19636.0     0.0 1934.0  -90.0  TKOF3LG1 *
       74061.0     0.0 1934.0  -90.0   19636.0     0.0 1934.0  -90.0  TKOF3LG1 *
       47261.0     0.0                                                 TKOF3LG1
FLIGHT    944.      41          22.00    0.45                         13L 3LG1
RUNWAY   98540  203837  104293  198187                                 13R
FLTTRK 30434.0     0.0 1934.0  -90.0   20436.0     0.0 1934.0  -90.0  TKOF3RG1 *
       74061.0     0.0 1934.0  -90.0   20436.0     0.0 1934.0  -90.0  TKOF3RG1 *
       43627.0     0.0                                                 TKOF3RG1
FLIGHT    944.      42           9.17    0.19                         13L 3RG1
RUNWAY  104293  198187   98540  203837                                 31L
FLTTRK 26213.0     0.0 1934.0   90.0   20436.0     0.0 1934.0   90.0  TKOF1LG1 *
       74061.0     0.0 1934.0   90.0   20436.0     0.0 1934.0   90.0  TKOF1LG1 *
       47848.0     0.0                                                 TKOF1LG1
FLIGHT    944.      43           1.83    0.04                         13L 1LG1
RUNWAY  105287  198361  101709  201878                                 31R
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FLTTRK 26800.0     0.0 1934.0   90.0   19636.0     0.0 1934.0   90.0  TKOF1RG1 *
       74061.0     0.0 1934.0   90.0   19636.0     0.0 1934.0   90.0  TKOF1RG1 *
       47261.0     0.0                                               TKOF1RG1
FLIGHT   944.       44           3.67    0.07                        13L 1RG1
CLEAR                                                                ALL
COMMENT
COMMENT ***************************************************************
COMMENT                          A4 AIRCRAFT
COMMENT ***************************************************************
COMMENT  A4 ALTITUDE DATA FROM NAS MEMPHIS
COMMENT  A4 NOISE DATA TAKEN FROM MERIDIAN,29PALMS,PAX RIVER, KEY WEST
COMMENT  NOISE CURVE IS DATA BASE -9.2 DB
SEL     130111       2   124.9   122.4   119.8   117.2   114.6   112.2A-4      1
COMMENT 130111A0 OMEGA10.5 14 MAR 90 A-4              130 KTS   59 F   72 PCT
COMMENT 130111A0 TURBOJET         N130031A0
COMMENT 130111A0 TAKEOFF POWER        100.0 % RPM
         109.9   107.6   105.3   102.9   100.4    97.9    95.1    92.1A-4      2
          88.9    85.4    81.4    76.9    71.9    66.1    59.6    52.6A-4      3
        130111       1   119.9   117.4   114.1   110.6   107.5   104.4A-4      4
         101.4    98.5    95.6    93.0    90.5    87.9    85.3    82.7A-4      5
          79.7    76.5    72.8    68.6    63.3    57.0    49.7    41.2A-4
COMMENT
COMMENT A4 DEPARTURES
COMMENT  STRAIGHT-OUT DEPARTURE ON RUNWAY 31L
TODSCR    130.     11.  13011.  13011.                 130111. 500000.A4TKOF
ALTUDE  13011.              0.      0.   3000.      0.  16000.   2000.A4TKOF   *
        23000.    2000  75000.  12000. 500000.  12000.                A4TKOF
DSEL    13011.              0.   -1.63   3000.   -0.62  16000.   -0.97A4TKOF   *
        17000.   -3.81  23000.   -2.84  75000.   -0.86  76000.   -4.49A4TKOF   *
       500000.    0.00                                                A4TKOF
COMMENT DSEL ADJ. BOTH SPEED AND POWER PER NAS MEMPHIS
COMMENT SEE CALC. SHEETS FOR COMPLETE DSEL INFORMATION
COMMENT
COMMENT  DEPARTURE ON RUNWAY 13R WITH 500' HOLD-DOWN UNTIL JFK CAUSEWAY
TODSCR    130.     12.  13012.  13012.                 130111. 500000.A4TKOF
ALTUDE  13012.              0.      0.   3000.      0.   6300.    500.A4TKOF   *
        28000.    500.  34330.   2000.  86330.  12000. 500000.  12000.A4TKOF
DSEL    13012.              0.   -1.63   3000.   -0.62   6300.   -5.10A4TKOF   *
        28000.   -0.62  34330.   -2.84  86330.   -0.86  87330.   -4.49A4TKOF   *
       500000.    0.00                                                A4TKOF
COMMENT DSEL ADJ. BOTH SPEED AND POWER PER NAS MEMPHIS
COMMENT SEE CALC. SHEETS FOR COMPLETE DSEL INFORMATION
SEL     130891       2   108.8   107.1   105.3   103.5   101.6    99.6A-4      1
COMMENT 130891W0 OMEGA10.5 19 AUG 88 A-4              130 KTS   59 F   70 PCT
COMMENT 130891W0 TURBOJET         N130051A0 N130041A0 N130051A0
COMMENT 130891W0 APPROACH POWER          85 % RPM
COMMENT FINAL APPROACH
COMMENT ADJUSTED (+2.0 dB) TO MATCH 5/88 MSMTS. AT 29 PALMS
          97.5    95.2    92.9    90.5    88.0    85.3    82.5    79.5A-4      2
          76.3    73.0    69.5    65.7    61.8    57.6    53.1    48.5A-4      3
        130891       1   103.8   102.1    99.9    97.6    95.1    92.4A-4      4
          89.7    86.8    83.9    81.3    78.6    76.0    73.3    70.6A-4      5
          67.6    64.3    60.5    56.3    51.0    45.2    38.8    32.1A-4
COMMENT
COMMENT A4 STANDARD STRAIGHT IN APPROACH TO RUNWAY 13R/31L
COMMENT FROM 29 PALMS
COMMENT
LNDSCR    130.     51.          13051.                 130891. 500000.A4LAND
DSEL    13051.             0.0     0.0  20000.   -0.62  30000.   -2.38A4LAND
COMMENT
SEL     130871       2   113.3   111.6   109.9   108.0   106.0   104.0A-4      1
COMMENT 130871W0 OMEGA10.5 19 AUG 88 A-4              150 KTS   59 F   70 PCT
COMMENT 130871W0 TURBOJET         N130051A0 N130041A0 N130051A0
COMMENT 130871W0 APPROACH POWER          85 % RPM
COMMENT DOWNWIND LEG OF OVERHEAD
COMMENT ADJUSTED (+7.1 dB) TO MATCH 5/88 MSMTS. AT 29 PALMS
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         101.9    99.7    97.4    95.0    92.4    89.8    86.9    84.0A-4      2
          80.8    77.5    74.0    70.2    66.2    62.0    57.6    53.0A-4      3
        130871       1   108.3   106.6   104.4   102.1    99.6    96.9A-4      4
          94.1    91.3    88.3    85.8    83.1    80.4    77.8    75.1A-4      5
          72.1    68.8    65.0    60.7    55.5    49.6    43.3    36.6A-4
SEL     130891       2   108.8   107.1   105.3   103.5   101.6    99.6A-4      1
COMMENT 130891W0 OMEGA10.5 19 AUG 88 A-4              130 KTS   59 F   70 PCT
COMMENT 130891W0 TURBOJET         N130051A0 N130041A0 N130051A0
COMMENT 130891W0 APPROACH POWER          85 % RPM
COMMENT FINAL APPROACH
COMMENT ADJUSTED (+2.0 dB) TO MATCH 5/88 MSMTS. AT 29 PALMS
          97.5    95.2    92.9    90.5    88.0    85.3    82.5    79.5A-4      2
          76.3    73.0    69.5    65.7    61.8    57.6    53.1    48.5A-4      3
        130891       1   103.8   102.1    99.9    97.6    95.1    92.4A-4      4
          89.7    86.8    83.9    81.3    78.6    76.0    73.3    70.6A-4      5
          67.6    64.3    60.5    56.3    51.0    45.2    38.8    32.1A-4
COMMENT
COMMENT A4 OVERHEAD APPROACH TO RUNWAY 13R/31L
COMMENT FROM NAS MEMPHIS
COMMENT
LNDSCR    130.     52.  13052.  13052.   2000.         130891.  15810.A4OVHD   *
       130871. 500000.                                                A4OVHD
ALTUDE  13052.              0.     50.  15810.   1300.  31620.   1800.A4OVHD   *
       100000.   4200.                                                A4OVHD
DSEL    13052.              0.   -0.88   4500.   -0.88  14810.   -0.26A4OVHD   *
        15810.   -0.62  16810.    0.25  31620.   -2.76  99000.   -0.25A4OVHD   *
       100000.                                                        A4OVHD
COMMENT DSEL ADJ. BOTH SPEED AND POWER PER NAS MEMPHIS
COMMENT SEE CALC. SHEETS FOR COMPLETE DSEL INFORMATION
COMMENT
COMMENT A4 TOUCH AND GO PATTERNS
COMMENT
SEL     130111       2   124.9   122.4   119.8   117.2   114.6   112.2A-4      1
COMMENT 130111A0 OMEGA10.5 14 MAR 90 A-4              130 KTS   59 F   72 PCT
COMMENT 130111A0 TURBOJET         N130031A0
COMMENT 130111A0 TAKEOFF POWER        100.0 % RPM
         109.9   107.6   105.3   102.9   100.4    97.9    95.1    92.1A-4      2
          88.9    85.4    81.4    76.9    71.9    66.1    59.6    52.6A-4      3
        130111       1   119.9   117.4   114.1   110.6   107.5   104.4A-4      4
         101.4    98.5    95.6    93.0    90.5    87.9    85.3    82.7A-4      5
          79.7    76.5    72.8    68.6    63.3    57.0    49.7    41.2A-4
COMMENT
COMMENT A4 OVERHEAD APPROACH NOISE DATA FROM 29 PALMS
COMMENT
SEL     130871       2   113.3   111.6   109.9   108.0   106.0   104.0A-4      1
COMMENT 130871W0 OMEGA10.5 19 AUG 88 A-4              150 KTS   59 F   70 PCT
COMMENT 130871W0 TURBOJET         N130051A0 N130041A0 N130051A0
COMMENT 130871W0 APPROACH POWER          85 % RPM
COMMENT DOWNWIND LEG OF OVERHEAD
COMMENT ADJUSTED (+7.1 dB) TO MATCH 5/88 MSMTS. AT 29 PALMS
         101.9    99.7    97.4    95.0    92.4    89.8    86.9    84.0A-4      2
          80.8    77.5    74.0    70.2    66.2    62.0    57.6    53.0A-4      3
        130871       1   108.3   106.6   104.4   102.1    99.6    96.9A-4      4
          94.1    91.3    88.3    85.8    83.1    80.4    77.8    75.1A-4      5
          72.1    68.8    65.0    60.7    55.5    49.6    43.3    36.6A-4
SEL     130891       2   108.8   107.1   105.3   103.5   101.6    99.6A-4      1
COMMENT 130891W0 OMEGA10.5 19 AUG 88 A-4              130 KTS   59 F   70 PCT
COMMENT 130891W0 TURBOJET         N130051A0 N130041A0 N130051A0
COMMENT 130891W0 APPROACH POWER          85 % RPM
COMMENT FINAL APPROACH
COMMENT ADJUSTED (+2.0 dB) TO MATCH 5/88 MSMTS. AT 29 PALMS
          97.5    95.2    92.9    90.5    88.0    85.3    82.5    79.5A-4      2
          76.3    73.0    69.5    65.7    61.8    57.6    53.1    48.5A-4      3
        130891       1   103.8   102.1    99.9    97.6    95.1    92.4A-4      4
          89.7    86.8    83.9    81.3    78.6    76.0    73.3    70.6A-4      5
          67.6    64.3    60.5    56.3    51.0    45.2    38.8    32.1A-4
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COMMENT
COMMENT INTERPOLATED FROM NAS MERIDIAN MEASUREMENTS
COMMENT 130981W0 OMEGA10.4 10 MARCH 86 A-4              130 KTS   62 F   73 PCT
COMMENT 130981W0 TURBOJET         N130031A0 N130051A0 N130031A0
COMMENT 130981W0 TAKEOFF POWER            98 % RPM
SEL   130981.      2.   119.2   116.7   114.1   111.4   108.8   106.3 A-4      1
        103.8   101.5    99.2    96.7    94.2    91.6    88.8    85.8 A-4      2
         82.5    78.9    74.9    70.4    64.9    59.3    52.8    45.7 A-4      3
      130981.      1.   114.2   111.7   109.1   106.4   102.8   101.3 A-4      4
         98.8    96.5    94.1    91.7    89.2    86.6    83.7    80.4 A-4      5
         76.4    71.9    67.6    62.8    57.3    51.0    43.6    37.3 A-4
COMMENT
COMMENT POWER CHANGES/DSEL DATA TAKEN FROM NAS MEMPHIS
COMMENT
TODSCR    130.      31  13031.  13031.                 130111.   4000.A4T/G    *
       130981.  15069. 130871.  27069. 130891.  38138.                A4T/G
ALTUDE  13031.              0.      0.    200.      0.   4000.    700.A4T/G    *
        15069.   1000.  27069.   1000.  38138.     50.                A4T/G
DSEL    13031.            0.0     0.0   4000.    0.62  15069.     0.0A4T/G    *
        27069.   -0.62  38138.     0.0                                A4T/G
COMMENT
COMMENT A4 GCA BOX PATTERN ON RUNWAY 13L
COMMENT
TODSCR    130       41   13041   13041                 130111    2500A4        *
        130981   26800  130871  152285  130891  199546                A4
ALTUDE   13041              0       0     200       0    2500     700A4        *
         26800    1500  152285    1500  199546      50                A4
DSEL     13041              0       0     200       0    2500     .62A4        *
         26800     .00  152285     .00  199546     .00                A4
COMMENT
COMMENT A4 GCA BOX PATTERN ON RUNWAY 13R
COMMENT
TODSCR    130       42   13042   13042                 130111    4000A4        *
        130981   30434  130871  157519  130891  201146                A4
ALTUDE   13042              0       0     200       0    4000     700A4        *
         30434    1500  157519    1500  201146      50                A4
DSEL     13042              0       0     200       0    4000     .62A4        *
         30434     .00  157519     .00  201146     .00                A4
COMMENT
COMMENT A4 GCA BOX PATTERN ON RUNWAY 31L
COMMENT
TODSCR    130       43   13043   13043                 130111    4000A4        *
        130981   26213  130871  153298  130891  201146                A4
ALTUDE   13043              0       0     200       0    4000     700A4        *
         26213    1500  153298    1500  201146      50                A4
DSEL     13043              0       0     200       0    4000     .62A4        *
         26213     .00  153298     .00  201146     .00                A4
COMMENT
COMMENT A4 GCA BOX PATTERN ON RUNWAY 31R
COMMENT
TODSCR    130       44   13044   13044                 130111    2500A4        *
        130981   26800  130871  152285  130891  199546                A4
ALTUDE   13044              0       0     200       0    2500     700A4        *
         26800    1500  152285    1500  199546      50                A4
DSEL     13044              0       0     200       0    2500     .62A4        *
         26800     .00  152285     .00  199546     .00                A4
COMMENT
COMMENT GROUP 7: ALL A4 ARRIVALS AND DEPARTURES
COMMENT**************** LANDINGS ****************
RUNWAY   98540  203837  104293  198187                                  13R
FLTTRK  5557.0     0.0 3870.0 -178.0   28521.0     0.0 5536.0   22.0  LAND3RA3 *
      300000.0     0.0                                                 LAND3RA3
FLIGHT    130.      51           0.14    0.00                          13R 3RA3
FLTTRK  4500.0     0.0 3600.00 180.000  4500.0     0.0 3600.00 180.000LAND3RO1 *
      300000.0     0.0                                                 LAND3RO1
FLIGHT    130.      52           2.70    0.06                          13R 3RO1
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RUNWAY  104293  198187   98540  203837                                31L
FLTTRK  7575.0     0.0 5892.0   36.0  300000.0     0.0                LAND1LA2
FLIGHT    130.      51           0.14    0.00                         31L 1LA2
FLTTRK  4500.0     0.0 3600.00-180.000  4500.0     0.0 3600.00-180.000LAND1LO3 *
      300000.0     0.0                                                 LAND1LO3
FLIGHT    130.      52           2.70    0.06                         31L 1LO3
COMMENT**************** TAKEOFFS ****************
RUNWAY   98540  203837  104293  198187                                13R
FLTTRK 27981.0     0.011932.0  -39.0  300000.0     0.0                TKOF3RD2
FLIGHT    130.      12           2.84    0.06                         13R 3RD2
RUNWAY  104293  198187   98540  203837                                31L
FLTTRK 12298.0     0.0 5484.0  133.0  300000.0     0.0                TKOF1LD4
FLIGHT    130.      11           2.84    0.06                         31L 1LD4
COMMENT
COMMENT GROUP 8: ALL A4 TOUCH AND GOS
COMMENT**************** TAKEOFFS ****************
RUNWAY   98540  203837  104293  198187                                13R
FLTTRK  8000.0     0.0 2250.00-180.000 12000.0     0.0 2250.00-180.000TKOF3RT4 *
        4000.0     0.0                                                 TKOF3RT4
FLIGHT    130.      31           4.38    0.09                         13R 3RT4
RUNWAY  104293  198187   98540  203837                                31L
FLTTRK  8000.0     0.0 2250.00 180.000 12000.0     0.0 2250.00 180.000TKOF1LT3 *
        4000.0     0.0                                                 TKOF1LT3
FLIGHT    130.      31           4.38    0.09                         31L 1LT3
COMMENT
COMMENT GROUP 9: ALL A4 GCA BOX PATTERNS
COMMENT**************** TAKEOFFS ****************
RUNWAY  101709  201878  105287  198361                                13L
FLTTRK 26800.0     0.0 1934.0  -90.0   19636.0     0.0 1934.0  -90.0  TKOF3LG1 *
       74061.0     0.0 1934.0  -90.0   19636.0     0.0 1934.0  -90.0  TKOF3LG1 *
       47261.0     0.0                                                 TKOF3LG1
FLIGHT    130.      41          12.26    0.25                         13L 3LG1
RUNWAY   98540  203837  104293  198187                                13R
FLTTRK 30434.0     0.0 1934.0  -90.0   20436.0     0.0 1934.0  -90.0  TKOF3RG1 *
       74061.0     0.0 1934.0  -90.0   20436.0     0.0 1934.0  -90.0  TKOF3RG1 *
       43627.0     0.0                                                 TKOF3RG1
FLIGHT    130.      42           5.11    0.10                         13L 3RG1
RUNWAY  104293  198187   98540  203837                                31L
FLTTRK 26213.0     0.0 1934.0   90.0   20436.0     0.0 1934.0   90.0  TKOF1LG1 *
       74061.0     0.0 1934.0   90.0   20436.0     0.0 1934.0   90.0  TKOF1LG1 *
       47848.0     0.0                                                 TKOF1LG1
FLIGHT    130.      43           1.02    0.02                         13L 1LG1
RUNWAY  105287  198361  101709  201878                                31R
FLTTRK 26800.0     0.0 1934.0   90.0   19636.0     0.0 1934.0   90.0  TKOF1RG1 *
       74061.0     0.0 1934.0   90.0   19636.0     0.0 1934.0   90.0  TKOF1RG1 *
       47261.0     0.0                                                 TKOF1RG1
FLIGHT    130.      44           2.04    0.04                         13L 1RG1
CLEAR                                                                 ALL
COMMENT
COMMENT ****************************************************************
COMMENT                          P3 AIRCRAFT
COMMENT ****************************************************************
COMMENT P3 DEPARTURE POWER
COMMENT
COMMENT TAKEOFF NOISE DATA FROM OMEGA 10.5
SEL     137911       2   107.0   105.4   103.8   102.1   100.4    98.7P-3      1
COMMENT 137911A0 OMEGA10.5 12 OCT 89 P-3             115 KTS   61 F   81 PCT
COMMENT 137911A0 TURBOPROP        N137031A0
COMMENT 137911A0 TAKEOFF POWER         3875 ESHP
          96.9    95.0    93.1    91.2    89.3    87.3    85.4    83.4P-3      2
          81.4    79.3    77.2    75.0    72.7    70.2    67.5    64.6P-3      3
        137911       1   102.0   100.4    97.9    95.4    92.9    90.3P-3      4
          87.6    84.8    81.9    79.4    76.8    74.2    71.7    69.2P-3      5
          66.4    63.6    60.7    57.6    54.2    50.9    47.7    44.8P-3
SEL     137921       2   102.5   100.9    99.3    97.7    96.0    94.3P-3      1
COMMENT 137921A0 OMEGA10.5 12 OCT 89 P-3             190 KTS   61 F   81 PCT
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COMMENT 137921A0 TURBOPROP        N137031A0 N137051A0 N137031A0
COMMENT 137921A0 TAKEOFF POWER         3200 ESHP
          92.5    90.7    88.9    87.0    85.1    83.2    81.3    79.3P-3      2
          77.3    75.3    73.2    71.0    68.7    66.3    63.7    60.8P-3      3
        137921       1    97.5    95.9    93.4    90.9    88.4    85.8P-3      4
          83.2    80.5    77.8    75.3    72.8    70.2    67.7    65.2P-3      5
          62.5    59.8    56.9    53.9    50.6    47.3    44.3    41.4P-3
COMMENT
COMMENT P3 STRAIGHT-OUT DEPARTURE PROFILE
COMMENT
TODSCR    137.     11.  13711.  13711.                 137911.  14000.P3TKOF   *
       137921. 1000000                                           P3TKOF
ALTUDE  13711.              0.      0.   4000.      0.  14000.   1000.P3TKOF   *
        23700.   2500. 100000.   2500.                            P3TKOF
DSEL    13711.              0   -0.39   4000.     0.0 100000.        P3TKOF
COMMENT DSEL ADJ. FOR TOROLL ONLY
COMMENT
COMMENT P3 HOLD-DOWN DEPARTURE PROFILE
COMMENT
TODSCR    137.     12.  13712.  13712.                 137911.  16000.P3TKOF   *
       137921. 1000000                                           P3TKOF
ALTUDE  13712.              0.      0.   4000.      0.  16000.    500.P3TKOF   *
        34000.    500.  54000.   2500. 100000.   2500.                P3TKOF
DSEL    13712.              0   -0.39   4000.     0.0  16000.   -0.9P3TKOF   *
        25000.   -0.9   34000.     0.0 100000.                        P3TKOF
COMMENT DSEL ADJ. FOR TOROLL ONLY
COMMENT DSEL FOR 500' HOLD-DOWN POWER REDUCTION FROM 3200 TO 2620 ESHP
COMMENT
COMMENT P3 APPROACH POWER
COMMENT
COMMENT P3 TAKEN DIRECTLY FROM NASBP -- 1/89
COMMENT OMEGA 10.4 07 MAY 1985 P-3 800 ESHP    160 KTS
COMMENT ADJUSTED BY +0.8 DB LEAST SQUARES FIT OF NAS BRUNSWICK DATA
SEL   137801. 2.      95.5    94.1    92.6    91.0    89.5    87.9    P-3      1
      86.3    84.7    83.0    81.3    79.6    77.9    76.1    74.3    P-3      2
      72.5    70.6    68.7    66.7    64.7    62.5    60.2    57.8    P-3      3
      137801. 1.      90.6    89.1    87.6    86.0    84.3    82.5    P-3      4
      80.6    78.7    76.5    74.3    71.9    69.3    66.4    63.3    P-3      5
      59.8    56.2    53.1    49.7    46.2    42.4    39.6    34.9    P-3
COMMENT OMEGA 10.4 07 MAY 1985 P-3 1200 ESHP   160 KTS
COMMENT ADJUSTED BY +2.8 DB LEAST SQUARES FIT OF NAS BRUNSWICK DATA
SEL   137121. 2.      99.0    97.5    95.9    94.3    92.8    91.1    P-3 DNWD01
      89.5    87.9    86.2    84.5    82.8    81.1    79.3    77.5    P-3 DNWD02
      75.6    73.7    71.8    69.8    67.7    65.5    63.2    60.8    P-3 DNWD03
      137121. 1.      94.0    92.5    90.9    89.3    87.6    85.8    P-3 DNWD04
      83.9    81.9    79.7    77.5    75.1    72.4    69.6    66.4    P-3 DNWD05
      62.9    59.2    56.1    52.8    49.2    45.5    41.6    37.8    P-3 DNWD
COMMENT
COMMENT P3 APPROACH PROFILE
COMMENT
LNDSCR    137.     51.          13751.                 137801.  17000.P3LAND   *
       137801. 1000000                                           P3LAND
DSEL    13751.              0.   -1.94   1000.    1.07  17000.     0.58P3LAND   *
        18000.    3.59 100000.    0.58                             P3LAND
COMMENT DSEL FOR 0-1000 FT = -1.94 DUE TO SPD (160/125) AND PWR (400/800)
COMMENT DSEL FOR 1000-17000 FT = 1.07 DUE TO SPD (160/125)
COMMENT DSEL FOR 17000-18000 FT = 0.58 DUE TO SPD (160/140)
COMMENT DSEL FOR 18000-100000 FT = 3.59 DUE TO SPD (160/140) & PWR (1600/800)
COMMENT
COMMENT GROUP 10: ALL P3 ARRIVALS AND DEPARTURES
COMMENT*************** LANDINGS ***************
RUNWAY   98540  203837  104293  198187                                13R
FLTTRK  8560.0     0.0 3717.0  111.0  300000.0     0.0                LAND3RA2
FLIGHT    137.      51           0.66    0.01                        13R 3RA2
FLTTRK  5557.0     0.0 3870.0 -178.0   28521.0     0.0 5536.0   22.0  LAND3RA3 *
      300000.0     0.0                                                LAND3RA3
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FLIGHT    137.      51           0.66    0.01                          13R 3RA3
FLTTRK300000.0     0.0                                                 LAND3RA5
FLIGHT    137.      51           0.33    0.01                          13R 3RA5
RUNWAY  102888  203317  102888  198294                                 17
FLTTRK  7445.0     0.0 3569.0   52.0  300000.0     0.0                 LAND17A1
FLIGHT    137.      51           0.18    0.00                          17  17A1
RUNWAY  104293  198187   98540  203837                                 31L
FLTTRK300000.0     0.0                                                 LAND1LA1
FLIGHT    137.      51           0.99    0.02                          31L 1LA1
FLTTRK  7575.0     0.0 5892.0   36.0  300000.0     0.0                 LAND1LA2
FLIGHT    137.      51           0.66    0.01                          31L 1LA2
RUNWAY  102888  198294  102888  203317                                 35
FLTTRK  5700.0     0.0 6360.0  -26.0  300000.0     0.0                 LAND35A1
FLIGHT    137.      51           0.16    0.00                          35  35A1
FLTTRK300000.0     0.0                                                 LAND35A3
FLIGHT    137.      51           0.03    0.00                          35  35A3
COMMENT*************** TAKEOFFS ***************
RUNWAY   98540  203837  104293  198187                                 13R
FLTTRK 27981.0     0.011932.0  -39.0  300000.0     0.0                 TKOF3RD2
FLIGHT    137.      12           1.84    0.04                          13R 3RD2
RUNWAY  104293  198187   98540  203837                                 31L
FLTTRK 12298.0     0.0 5484.0  133.0  300000.0     0.0                 TKOF1LD4
FLIGHT    137.      11           1.84    0.04                          31L 1LD4
COMMENT
COMMENT ************************************************************
COMMENT                    HU-25 FALCON 20 AIRCRAFT
COMMENT ************************************************************
COMMENT: U.S. COAST GUARD HU-25 FALCON 20
SEL    88701.0     2.0   111.3   109.7   108.1   106.4   104.6   102.8SABR80_3 3
COMMENT: INM AIRCRAFT #56  SABR80  ,NOISEMAP AC NUMBER 887
COMMENT: DEPARTURE CURVE
         100.8    99.0    96.9    94.7    92.6    90.2    87.7    85.1SABR80_3 3
          82.2    79.2    75.8    72.7    69.2    65.4    61.4    57.4SABR80_3 3
       88701.0     1.0   109.0   106.9   104.6   102.1    99.5    96.6SABR80_3 3
          93.5    90.5    87.2    83.5    80.4    77.0    73.8    71.2SABR80_3 3
          68.3    65.3    62.0    58.8    55.4    51.5    47.5    43.5SABR80_3
SEL    88702.0     2.0   104.2   102.7   101.1    99.5    97.8    96.1SABR80_2 3
          94.2    92.5    90.6    88.6    86.7    84.5    82.2    79.9SABR80_2 3
          77.3    74.7    71.7    68.9    65.8    62.3    58.7    55.1SABR80_2 3
       88702.0     1.0   101.9    99.8    97.6    95.2    92.7    89.9SABR80_2 3
          86.9    84.0    80.9    77.4    74.5    71.3    68.4    66.0SABR80_2 3
          63.5    60.8    57.8    55.0    51.9    48.4    44.8    41.2SABR80_2
COMMENT  HU25    MISSION  11
COMMENT  STRAIGHT-OUT DEPARTURE ON RUNWAY 31L
TODSCR     887      11   88711   88711                   88701.   11566SABR80   *
         88702 1000000                                                SABR80
ALTUDE   88711               0       0    4500       0    9584    1000SABR80O1 *
         11566    1245   12566    1307   23730    2005   29452    3000SABR80O1 *
         49587    5500   65563    7500   88516   10000                SABR80O1
DSEL     88711               0   -5.09    4500   -2.07    9584   -2.07SABR80_1 *
                         11566   -2.37   12566    2.53   23730    0.87SABR80_1 *
                         29452    0.87   30452   -0.09   34591   -0.38SABR80_1
COMMENT  HU25    MISSION  12
COMMENT  DEPARTURE ON RUNWAY 13R WITH 500' HOLD-DOWN UNTIL JFK CAUSEWAY
TODSCR     887      12   88712   88712                   88701    7126SABR80   *
         88702 1000000                                                SABR80
ALTUDE   88712               0       0    4500       0    7126     500SABR80O1 *
         28000     500   48135    3000  100000   10000                SABR80O1
DSEL     88712               0   -5.09    4500   -2.07    7126   -2.31SABR80_1 *
                         28000    0.86   48135   -0.38  100000   -0.38SABR80_1
COMMENT:  U.S. COAST GUARD HU-25 FALCON 20
SEL    88705.0     2.0   100.7    99.0    97.2    95.3    93.3    91.2SABR_850 3
COMMENT:  INM AIRCRAFT #56  SABR80  ,NOISEMAP AC NUMBER 887
COMMENT:  ARRIVAL CURVE
          88.7    86.4    83.9    81.2    78.7    76.3    73.9    71.4SABR_850 3
          68.8    66.2    63.3    60.5    57.6    54.4    50.9    47.4SABR_850 3
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       88705.0     1.0    98.4    96.1    93.7    91.0    88.1    85.0SABR_850 3
          81.4    77.9    74.1    70.1    66.5    63.1    60.1    57.5SABR_850 3
          55.0    52.3    49.4    46.6    43.7    40.5    37.0    33.5SABR_850
COMMENT   HU-25    MISSION  51
LNDSCR     887      51            88751                   88705. 1000000SABR80
DSEL     88751               0   -1.47   18076   -1.47   60050   -1.47SABR80   *
                         75314   -3.84                                  SABR80
COMMENT   HU-25 MISSION 31
COMMENT   TOUCH & GO PATTERNS ON RWY 13R/31L
TODSCR     887      31   88731   88731    2000           88701   20566HU25     *
         88705   49133                                                  HU25
ALTUDE   88731               0       0    2500       0   20566    1000HU25     *
         26566    1000   32566    1000   45132     400   49133      50HU25
DSEL     88731               0    1.25    2500     .58   20566     .00HU25     *
         26566     .58   32566     .58   45132    1.25   49133    1.25HU25
COMMENT
COMMENT HU-25 GCA BOX PATTERN ON RUNWAY 13L
TODSCR     887      41   88741   88741    2000           88701   26800HU25     *
         88705  199546                                                  HU25
ALTUDE   88741               0       0    2500       0   26800    1500HU25     *
        152285    1500  199546      50                                  HU25
DSEL     88741               0    1.25    2500     .58   26800     .58HU25     *
        152285    1.25  199546    1.25                                  HU25
COMMENT
COMMENT HU-25 GCA BOX PATTERN ON RUNWAY 13R
TODSCR     887      42   88742   88742    2000           88701   30434HU25     *
         88705  201146                                                  HU25
ALTUDE   88742               0       0    2500       0   30434    1500HU25     *
        157519    1500  201146      50                                  HU25
DSEL     88742               0    1.25    2500     .58   30434     .58HU25     *
        157519    1.25  201146    1.25                                  HU25
COMMENT
COMMENT HU-25 GCA BOX PATTERN ON RUNWAY 31L
TODSCR     887      43   88743   88743    2000           88701   26213HU25     *
         88705  201146                                                  HU25
ALTUDE   88743               0       0    2500       0   26213    1500HU25     *
        153298    1500  201146      50                                  HU25
DSEL     88743               0    1.25    2500     .58   26213     .58HU25     *
        153298    1.25  201146    1.25                                  HU25
COMMENT
COMMENT HU-25 GCA BOX PATTERN ON RUNWAY 31R
TODSCR     887      44   88744   88744    2000           88701   26800HU25     *
         88705  199546                                                  HU25
ALTUDE   88744               0       0    2500       0   26800    1500HU25     *
        152285    1500  199546      50                                  HU25
DSEL     88744               0    1.25    2500     .58   26800     .58HU25     *
        152285    1.25  199546    1.25                                  HU25
COMMENT
COMMENT GROUP 11: ALL HU25 ARRIVALS AND DEPARTURES
COMMENT*************** LANDINGS ***************
RUNWAY   98540  203837  104293  198187                                  13R
FLTTRK  5557.0     0.0 3870.0 -178.0   28521.0     0.0 5536.0   22.0  LAND3RA3 *
      300000.0     0.0                                                 LAND3RA3
FLIGHT    887.      51           1.17    0.02                          13R 3RA3
FLTTRK  4500.0     0.0 3600.00 180.000  4500.0     0.0 3600.00 180.000LAND3RO1 *
      300000.0     0.0                                                 LAND3RO1
FLIGHT    887.      51           1.11    0.02                          13R 3RO1
RUNWAY  102888  203317  102888  198294                                  17
FLTTRK  7445.0     0.0 3569.0   52.0  300000.0     0.0                 LAND17A1
FLIGHT    887.      51           0.13    0.00                          17  17A1
RUNWAY  104293  198187   98540  203837                                  31L
FLTTRK300000.0     0.0                                                 LAND1LA1
FLIGHT    887.      51           0.70    0.01                          31L 1LA1
FLTTRK  7575.0     0.0 5892.0   36.0  300000.0     0.0                 LAND1LA2
FLIGHT    887.      51           0.47    0.01                          31L 1LA2
RUNWAY  102888  198294  102888  203317                                  35
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FLTTRK  5700.0     0.0 6360.0  -26.0  300000.0     0.0                LAND35A1
FLIGHT    887.      51           0.11    0.00                         35  35A1
FLTTRK300000.0     0.0                                                LAND35A3
FLIGHT    887.      51           0.02    0.00                         35  35A3
COMMENT*************** TAKEOFFS ***************
RUNWAY   98540  203837  104293  198187                                13R
FLTTRK 27981.0     0.011932.0  -39.0  300000.0     0.0                TKOF3RD2
FLIGHT    887.      12           1.86    0.04                         13R 3RD2
RUNWAY  104293  198187   98540  203837                                31L
FLTTRK 12298.0     0.0 5484.0  133.0  300000.0     0.0                TKOF1LD4
FLIGHT    887.      11           1.86    0.04                         31L 1LD4
COMMENT
COMMENT GROUP 12: ALL HU25 TOUCH AND GOS
COMMENT*************** TAKEOFFS ***************
RUNWAY   98540  203837  104293  198187                                13R
FLTTRK  8000.0     0.0 4000.00 180.000 12000.0     0.0 4000.00 180.000TKOF3RT3 *
        4000.0     0.0                                                TKOF3RT3
FLIGHT    887.      31           1.82    0.04                         13R 3RT3
RUNWAY  104293  198187   98540  203837                                31L
FLTTRK  8000.0     0.0 4000.00-180.000 12000.0     0.0 4000.00-180.000TKOF1LT2 *
        4000.0     0.0                                                TKOF1LT2
FLIGHT    887.      31           1.82    0.04                         31L 1LT2
COMMENT
COMMENT GROUP 13: ALL HU25 GCA BOX PATTERNS
COMMENT*************** TAKEOFFS ***************
RUNWAY  101709  201878  105287  198361                                13L
FLTTRK 26800.0     0.0 1934.0  -90.0   19636.0     0.0 1934.0  -90.0  TKOF3LG1 *
       74061.0     0.0 1934.0  -90.0   19636.0     0.0 1934.0  -90.0  TKOF3LG1 *
       47261.0     0.0                                                TKOF3LG1
FLIGHT    887.      41           0.55    0.01                         13L 3LG1
RUNWAY   98540  203837  104293  198187                                13R
FLTTRK 30434.0     0.0 1934.0  -90.0   20436.0     0.0 1934.0  -90.0  TKOF3RG1 *
       74061.0     0.0 1934.0  -90.0   20436.0     0.0 1934.0  -90.0  TKOF3RG1 *
       43627.0     0.0                                                TKOF3RG1
FLIGHT    887.      42           0.23    0.00                         13L 3RG1
RUNWAY  104293  198187   98540  203837                                31L
FLTTRK 26213.0     0.0 1934.0   90.0   20436.0     0.0 1934.0   90.0  TKOF1LG1 *
       74061.0     0.0 1934.0   90.0   20436.0     0.0 1934.0   90.0  TKOF1LG1 *
       47848.0     0.0                                                TKOF1LG1
FLIGHT    887.      43           0.05    0.00                         13L 1LG1
RUNWAY  105287  198361  101709  201878                                31R
FLTTRK 26800.0     0.0 1934.0   90.0   19636.0     0.0 1934.0   90.0  TKOF1RG1 *
       74061.0     0.0 1934.0   90.0   19636.0     0.0 1934.0   90.0  TKOF1RG1 *
       47261.0     0.0                                                TKOF1RG1
FLIGHT    887.      44           0.09    0.00                         13L 1RG1
COMMENT
COMMENT ************************************************************
COMMENT                          HH65 HELICOPTER
COMMENT ************************************************************
COMMENT HH65 DATA FROM HNM DATA BASE
SEL   99801.       2.0    98.2    97.1    96.0    94.8    93.7    92.5HH65 DEP3
          91.2    90.0    88.6    87.2    85.8    84.2    82.5    80.7HH65 DEP3
          78.8    76.8    74.3    72.0    70.0    67.8    65.6    63.3HH65 DEP3
      99801.       1.0    95.9    94.3    92.5    90.5    88.5    86.3HH65 DEP3
          83.9    81.5    78.9    76.0    73.6    70.9    68.6    66.8HH65 DEP3
          64.9    62.9    60.5    58.1    56.1    53.9    51.7    49.4HH65 DEP
SEL   99805.       2.0    99.0    97.9    96.8    95.7    94.6    93.5HH65 APP3
          92.3    91.1    89.8    88.5    87.2    85.8    84.3    82.7HH65 APP3
          81.0    79.2    77.1    75.2    73.2    71.0    68.8    66.5HH65 APP3
      99805.       1.0    96.7    95.1    93.3    91.4    89.5    87.3HH65 APP3
          84.9    82.6    80.1    77.3    75.0    72.5    70.4    68.8HH65 APP3
          67.1    65.3    63.3    61.3    59.3    57.1    54.9    52.6HH65 APP
TODSCR     998      11   99811   99811                99801.  350000. HH65TKOF
ALTUDE   99811        0.      0.      1000.   200.    3000.   500.    HH65TKOF *
      6000.   1000.   15000.  2500.                                   HH65TKOF
DSEL     99811        0.      8.5     1000.   0.                      HH65TKOF
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LNDSCR     998      51   99851   99851                99805.  350000. HH65LAND
ALTUDE   99851        0.      20.     2000.   500.    100000. 1000.   HH65LAND
DSEL     99851        0.      8.5     2000.   0.                      HH65LAND
COMMENT
COMMENT GROUP 14: ALL HH-65 HELO ARRIVALS AND DEPARTURES
COMMENT**************** LANDINGS ****************
RUNWAY  106056  204942  106056  204441                                  16R
FLTTRK   949.0     0.0 2172.0   94.0    2543.0     0.0 2491.0   61.0  LAND6RA1 *
        2320.0     0.0 5401.0  -50.0  300000.0     0.0                LAND6RA1
FLIGHT    998.      51           4.61    0.09                          16R 6RA1
COMMENT**************** TAKEOFFS ****************
RUNWAY  106056  204441  106056  204942                                  34L
FLTTRK  2373.0     0.0 2778.0  157.0    4805.0     0.0 2646.0  -50.0  TKOF4LD1 *
      300000.0     0.0                                                  TKOF4LD1
FLIGHT    998.      11           4.61    0.09                          34L 4LD1
COMMENT
COMMENT ***************************************************************
COMMENT                          UH-1N HELICOPTER
COMMENT ***************************************************************
COMMENT   UH-1N POWER PROF. FR. OMEGA 10 STD CURVE
SEL     999051       2   101.8   100.4    98.9    97.5    96.0    94.5UH-1N    1
COMMENT 999051A0 OMEGA10.5 05 JAN 89 UH-1N            80 KTS   53 F   69 PCT
COMMENT 999051A0 PT6T-3           N604051A0
COMMENT 999051A0 FLT 27 AT 60 KTS  ****** (REF SPEED IS 80 KTS)********
          93.0    91.4    89.9    88.3    86.6    85.0    83.2    81.4UH-1N    2
          79.6    77.6    75.5    73.3    71.0    68.4    65.7    62.7UH-1N    3
        999051       1    96.8    95.4    91.2    87.3    84.5    81.8UH-1N    4
          79.1    76.7    74.4    72.2    70.2    68.3    66.4    64.5UH-1N    5
          62.5    60.4    58.2    55.8    52.8    49.7    46.5    43.3UH-1N
COMMENT   DEPARTURE PROFILE UH-1N
COMMENT   SPEED AND ALTUDE FR. S. WEYMOUTH DATA PACKAGE
TODSCR     999      11   99911   99911                  999051  500000UH-1N
ALTUDE   99911              0       0    6000     500   16000    1000UH-1N
DSEL     99911              0     9.0    6000       0   16000    -1.0UH-1N
COMMENT  DSEL FOR SPEED ADJ. ONLY  9.0 = 10LOG(10/80) KTS
COMMENT                           -1.0 = 10LOG(100/80)
COMMENT   APPROACH PROFILE UH-1N
COMMENT   SPEED AND ALTUDE FR. S. WEYMOUTH DATA PACKAGE
LNDSCR     999      51   99951   99951                  999051  500000UH-1N
ALTUDE   99951              0       0    6000     500   16000    1000UH-1N
DSEL     99951              0     9.0    6000       0   16000    -1.0UH-1N
COMMENT
COMMENT GROUP 15: ALL NAS/SAR UH-1N HELO ARRIVALS AND DEPARTURES
COMMENT**************** LANDINGS ****************
RUNWAY  100000  200000  103564  203544                                  04
FLTTRK300000.0     0.0                                                  LAND04A1
FLIGHT    999.      51           0.06    0.00                          04  04A1
FLTTRK   732.0     0.0  662.0   80.0   11899.0     0.0 1573.0   71.0  LAND04A3 *
         751.0     0.0 3564.0  -78.0  300000.0     0.0                LAND04A3
FLIGHT    999.      51           0.06    0.00                          04  04A3
RUNWAY  104113  200292  104479  199925                                  14
FLTTRK   503.0     0.0  937.0   50.0  300000.0     0.0                LAND14A1
FLIGHT    999.      51           0.49    0.01                          14  14A1
FLTTRK   458.0     0.0  944.0   50.0    5526.0     0.0 1513.0  107.0  LAND14A2 *
      300000.0     0.0                                                  LAND14A2
FLIGHT    999.      51           0.49    0.01                          14  14A2
RUNWAY  104479  199925  104113  200292                                  32
FLTTRK   160.0     0.0  847.0  -39.0  300000.0     0.0                LAND32A1
FLIGHT    999.      51           0.76    0.02                          32  32A1
COMMENT**************** TAKEOFFS ****************
RUNWAY  104113  200292  104479  199925                                  14
FLTTRK   854.0     0.0 1105.0  -43.0  300000.0     0.0                TKOF14D1
FLIGHT    999.      11           1.23    0.03                          14  14D1
RUNWAY  104479  199925  104113  200292                                  32
FLTTRK  1148.0     0.0  982.0   48.0  300000.0     0.0                TKOF32D1
FLIGHT    999.      11           0.20    0.00                          32  32D1
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FLTTRK  1062.0     0.0 1176.0   48.0    5466.0     0.0 4021.0  104.0  TKOF32D2 *
      300000.0     0.0                                                TKOF32D2
FLIGHT    999.      11           0.20    0.00                        32  32D2
FLTTRK  1168.0     0.0 3396.0  -86.0  300000.0     0.0               TKOF32D3
FLIGHT    999.      11           0.20    0.00                        32  32D3
COMMENT
COMMENT ************************************************************
COMMENT                          UH60A HELICOPTER
COMMENT ************************************************************
SEL     621014       2    93.4    91.8    90.3    88.7    87.1    85.4UH60A    1
COMMENT 621014W0 OMEGA10.8 01 Jun 94 UH60A            40 KTS   73 F   76 PCT
COMMENT 621014W0                 N621854AN
COMMENT 621014W0 TKF LOAD   0 KTS     40.00 KNOTS
          83.6    81.8    80.0    78.0    75.9    73.7    71.4    68.8UH60A    2
          66.1    63.2    60.0    56.6    53.0    49.1    45.3    41.4UH60A    3
        621014       1    88.4    86.8    84.1    81.3    78.9    76.5UH60A    4
          74.2    71.9    69.7    67.6    65.6    63.5    61.4    59.2UH60A    5
          56.6    53.9    50.8    47.4    43.1    38.7    34.5    31.1UH60A
SEL     621024       2    93.4    91.9    90.4    88.9    87.3    85.7UH60A    1
COMMENT 621024W0 OMEGA10.8 01 Jun 94 UH60A            70 KTS   73 F   76 PCT
COMMENT 621024W0                 N621721AN
COMMENT 621024W0 LFO LOAD  70 KTS     70.00 KNOTS
          84.0    82.3    80.5    78.6    76.6    74.6    72.4    70.0UH60A    2
          67.6    64.9    62.1    59.1    55.9    52.6    49.1    45.4UH60A    3
        621024       1    88.4    86.9    83.7    80.7    78.2    75.9UH60A    4
          73.6    71.4    69.2    67.2    65.2    63.1    61.1    58.9UH60A    5
          56.5    53.8    50.9    47.6    43.5    39.2    35.2    31.7UH60A
SEL     621034       2    95.8    94.3    92.8    91.3    89.7    88.1UH60A    1
COMMENT 621034W0 OMEGA10.8 01 Jun 94 UH60A           100 KTS   73 F   76 PCT
COMMENT 621034W0                 N621731AN
COMMENT 621034W0 LFO LOAD 100 KTS     100.0 KNOTS
          86.5    84.8    83.0    81.2    79.3    77.3    75.2    73.0UH60A    2
          70.6    68.0    65.3    62.4    59.2    55.8    52.1    48.2UH60A    3
        621034       1    90.8    89.3    85.7    82.4    79.9    77.5UH60A    4
          75.3    73.1    70.9    69.0    66.9    64.9    62.9    60.8UH60A    5
          58.5    56.0    53.2    50.0    46.1    41.8    37.5    33.6UH60A
SEL     621044       2    96.6    95.1    93.6    92.0    90.4    88.7UH60A    1
COMMENT 621044W0 OMEGA10.8 01 Jun 94 UH60A            40 KTS   73 F   76 PCT
COMMENT 621044W0                 N621795AN
COMMENT 621044W0 LND LOAD   0 KTS     40.00 KNOTS
          86.9    85.1    83.2    81.2    79.1    76.9    74.5    71.9UH60A    2
          69.1    66.1    62.8    59.2    55.4    51.2    47.0    42.7UH60A    3
        621044       1    91.6    90.1    87.4    84.8    82.3    80.0UH60A    4
          77.6    75.4    73.1    71.0    69.0    66.8    64.7    62.5UH60A    5
          60.0    57.2    54.1    50.5    46.0    41.1    36.4    32.4UH60A
TODSCR621.    11.       621011                621011  621014. 6000.    621H60T *
      621024. 16000.  621034. 302660.                                  621H60T
ALTUDE  621011        0.      0.      6000.   500.    16000.  1000.    621H60T *
      200000. 5000.                                                    621H60T
AIRSPD  621011        0.      1.      6000.   1.      16000.  1.       621H60T *
      200000. 1.                                                       621H60T
LNDSCR621.    51.       621051                621051  621044. 100.     621H60L *
      621024. 6000.   621034. 302259.                                  621H60L
ALTUDE  621051        0.      50.     100.    100.    6000.   500.     621H60L *
      16000.  1000.   200000. 5000.                                    621H60L
AIRSPD  621051        0.      1.      100.    1.      6000.   1.       621H60L *
      16000.  1.      200000. 1.                                       621H60L
COMMENT
COMMENT GROUP 16: ALL CCAD UH60A HELO ARRIVALS AND DEPARTURES
COMMENT**************** LANDINGS ****************
RUNWAY  107546  204494  107546  203994                                 16L
FLTTRK   435.0     0.0  656.0  -72.0  300000.0     0.0                LAND6LA1
FLIGHT    621.      51           0.92    0.02                        16L 6LA1
FLTTRK   278.0     0.0  500.0  109.0  300000.0     0.0                LAND6LA2
FLIGHT    621.      51           8.29    0.17                        16L 6LA2
COMMENT**************** TAKEOFFS ****************
```

```
          88.6    85.9    83.2    80.7    78.1    75.5    73.0    70.3        23
          67.5    64.5    61.3    57.7    53.3    48.5    43.3    38.2        24
         08501     160   106.0   104.0    99.1    94.3    91.1    88.0        25
          85.2    82.5    79.9    77.3    74.8    72.3    69.7    67.1        26
          64.2    61.3    58.1    54.6    50.4    45.9    41.2    36.7        27
         08501     180    86.0    84.0    79.1    74.3    71.1    68.0        28
          65.2    62.5    59.9    57.3    54.8    52.3    49.7    47.1        29
          44.2    41.3    38.1    34.6    30.4    25.9    21.2    16.7
COMMENT T34 RUNUP DATA BASED ON CONTROLLED HMMH MEASUREMENTS MADE
COMMENT NAS WHITING 18 APR 84 INTERPOLATED BETWEEN 600 AND 1000 FT LBS
COMMENT 800 FT-LBS = 89.3 @ 200 FT
COMMENT POWER = 80%
AL     93480.0     0.0    89.1    87.0    84.8    82.5    80.2    77.9         1
          75.5    73.0    70.3    67.6    64.8    61.6    58.2    54.4         2
          50.2    45.8    41.8    37.6    33.1    28.2    23.0    17.4         3
      93480.0   180.0    89.1    87.0    84.8    82.5    80.2    77.9         4
          75.5    73.0    70.3    67.6    64.8    61.6    58.2    54.4         5
          50.2    45.8    41.8    37.6    33.1    28.2    23.0    17.4
COMMENT T34 RUNUP DATA BASED ON CONTROLLED HMMH MEASUREMENTS MADE
COMMENT NAS WHITING 18 APR 84 1000 FT LBS = 91.5 @ 200 FT       -11.8
COMMENT MAX POWER (98%)
AL     93410.0     0.0    91.5    89.4    87.2    84.9    82.6    80.3         1
          77.9    75.4    72.7    70.0    67.2    64.0    60.6    56.8         2
          52.6    48.2    44.2    40.0    35.5    30.6    25.4    19.8         3
      93410.0   180.0    91.5    89.4    87.2    84.9    82.6    80.3         4
          77.9    75.4    72.7    70.0    67.2    64.0    60.6    56.8         5
          52.6    48.2    44.2    40.0    35.5    30.6    25.4    19.8
AL        62102       0    91.6    89.5    85.8    82.2    79.2    76.2         1
COMMENT 62102W0 OMEGA11.3 17 May 94  73 F  76 PCT  29.92 IN HG   HE-621-001 01
COMMENT 62102W0 UH60A AT  0 FT AGL        USA-CERL Data 08 Jul 92  N62165A0
COMMENT 62102W0  OGE LOAD              5.000 POWER
          73.4    70.6    67.8    65.2    62.6    60.0    57.4    54.6         2
          51.5    48.3    44.7    40.8    36.1    31.0    26.0    21.7         3
         62102     100    91.6    89.5    85.8    82.2    79.2    76.2         4
          73.4    70.6    67.8    65.2    62.6    60.0    57.4    54.6         5
          51.5    48.3    44.7    40.8    36.1    31.0    26.0    21.7         6
         62102     110    91.6    89.5    85.8    82.2    79.2    76.2         7
          73.4    70.6    67.8    65.2    62.6    60.0    57.4    54.6         8
          51.5    48.3    44.7    40.8    36.1    31.0    26.0    21.7         9
         62102     120    91.6    89.5    85.8    82.2    79.2    76.2        10
          73.4    70.6    67.8    65.2    62.6    60.0    57.4    54.6        11
          51.5    48.3    44.7    40.8    36.1    31.0    26.0    21.7        12
         62102     130    91.6    89.5    85.8    82.2    79.2    76.2        13
          73.4    70.6    67.8    65.2    62.6    60.0    57.4    54.6        14
          51.5    48.3    44.7    40.8    36.1    31.0    26.0    21.7        15
         62102     140    91.6    89.5    85.8    82.2    79.2    76.2        16
          73.4    70.6    67.8    65.2    62.6    60.0    57.4    54.6        17
          51.5    48.3    44.7    40.8    36.1    31.0    26.0    21.7        18
         62102     150    91.6    89.5    85.8    82.2    79.2    76.2        19
          73.4    70.6    67.8    65.2    62.6    60.0    57.4    54.6        20
          51.5    48.3    44.7    40.8    36.1    31.0    26.0    21.7        21
         62102     160    91.6    89.5    85.8    82.2    79.2    76.2        22
          73.4    70.6    67.8    65.2    62.6    60.0    57.4    54.6        23
          51.5    48.3    44.7    40.8    36.1    31.0    26.0    21.7        24
         62102     170    91.6    89.5    85.8    82.2    79.2    76.2        25
          73.4    70.6    67.8    65.2    62.6    60.0    57.4    54.6        26
          51.5    48.3    44.7    40.8    36.1    31.0    26.0    21.7        27
         62102     180    91.6    89.5    85.8    82.2    79.2    76.2        28
          73.4    70.6    67.8    65.2    62.6    60.0    57.4    54.6        29
          51.5    48.3    44.7    40.8    36.1    31.0    26.0    21.7
COMMENT  ************************************************************
COMMENT  ********************* TAXIWAY YANKEE - NORTH END ***********
COMMENT  ************************************************************
COMMENT  --------------------- P-3A/B MAINTENANCE -------------------
RNPPAD  99132. 204198.     038                                        MR1A
RUDSCR    137     100   13793                                         P3A-T56
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RUNUP      137     100                          0.03    0.00     900.   P3A-T56
RNPPAD  99132. 204198.     128                                           MR1B
RUDSCR     137     100   13793                                           P3A-T56
RUNUP      137     100                          0.33    0.00     900.   P3A-T56
RNPPAD  99132. 204198.     173                                           MR1C
RUDSCR     137     100   13793                                           P3A-T56
RUNUP      137     100                          0.03    0.00     900.   P3A-T56
RNPPAD  99132. 204198.     218                                           MR1D
RUDSCR     137     100   13793                                           P3A-T56
RUNUP      137     100                          0.01    0.00     900.   P3A-T56
RNPPAD  99132. 204198.     308                                           MR1E
RUDSCR     137     100   13793                                           P3A-T56
RUNUP      137     100                          0.06    0.00     900.   P3A-T56
RNPPAD  99132. 204198.     353                                           MR1F
RUDSCR     137     100   13793                                           P3A-T56
RUNUP      137     100                          0.05    0.00     900.   P3A-T56
COMMENT  ************************************************************
COMMENT  ********************** USCG SEAWALL AREA ********************
COMMENT  ************************************************************
COMMENT  ---------------------- HU-25 MAINTENANCE --------------------
RNPPAD 106056. 204942.     038                                           MR2A
RUDSCR     085      96   08501                                           HU25-ATF
RUNUP      085      96                          0.01    0.00    5400.   HU25-ATF
RNPPAD 106056. 204942.     128                                           MR2B
RUDSCR     085      96   08501                                           HU25-ATF
RUNUP      085      96                          0.08    0.01    5400.   HU25-ATF
RNPPAD 106056. 204942.     173                                           MR2C
RUDSCR     085      96   08501                                           HU25-ATF
RUNUP      085      96                          0.01    0.00    5400.   HU25-ATF
RNPPAD 106056. 204942.     218                                           MR2D
RUDSCR     085      96   08501                                           HU25-ATF
RUNUP      085      96                          0.00    0.00    5400.   HU25-ATF
RNPPAD 106056. 204942.     308                                           MR2E
RUDSCR     085      96   08501                                           HU25-ATF
RUNUP      085      96                          0.02    0.00    5400.   HU25-ATF
RNPPAD 106056. 204942.     353                                           MR2F
RUDSCR     085      96   08501                                           HU25-ATF
RUNUP      085      96                          0.01    0.00    5400.   HU25-ATF
COMMENT  ---------------------- HH-65 MAINTENANCE --------------------
RNPPAD 106056. 204942.     038                                           MR2A
RUDSCR     998     100   62102                                           HU25-ATF
RUNUP      998     100                          0.06    0.06    1227.   HU25-ATF
RNPPAD 106056. 204942.     128                                           MR2B
RUDSCR     998     100   62102                                           HU25-ATF
RUNUP      998     100                          0.65    0.65    1227.   HU25-ATF
RNPPAD 106056. 204942.     173                                           MR2C
RUDSCR     998     100   62102                                           HU25-ATF
RUNUP      998     100                          0.06    0.06    1227.   HU25-ATF
RNPPAD 106056. 204942.     218                                           MR2D
RUDSCR     998     100   62102                                           HU25-ATF
RUNUP      998     100                          0.01    0.01    1227.   HU25-ATF
RNPPAD 106056. 204942.     308                                           MR2E
RUDSCR     998     100   62102                                           HU25-ATF
RUNUP      998     100                          0.12    0.12    1227.   HU25-ATF
RNPPAD 106056. 204942.     353                                           MR2F
RUDSCR     998     100   62102                                           HU25-ATF
RUNUP      998     100                          0.10    0.10    1227.   HU25-ATF
COMMENT  ************************************************************
COMMENT  ********************** CCAD SEAWALL AREA ********************
COMMENT  ************************************************************
COMMENT  ---------------------- UH60A MAINTENANCE --------------------
RNPPAD 107546. 204494.     038                                           MR3A
RUDSCR     621     100   62102                                           UH60-T40
RUNUP      621     100                          1.20    0.00    7200.   UH60-T40
RNPPAD 107546. 204494.     128                                           MR3B
RUDSCR     621     100   62102                                           UH60-T40
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RUNUP      621     100                          13.00    0.00    7200.   UH60-T40
RNPPAD 107546. 204494.     173                                            MR3C
RUDSCR     621     100   62102                                            UH60-T40
RUNUP      621     100                           1.20    0.00    7200.   UH60-T40
RNPPAD 107546. 204494.     218                                            MR3D
RUDSCR     621     100   62102                                            UH60-T40
RUNUP      621     100                           0.20    0.00    7200.   UH60-T40
RNPPAD 107546. 204494.     308                                            MR3E
RUDSCR     621     100   62102                                            UH60-T40
RUNUP      621     100                           2.40    0.00    7200.   UH60-T40
RNPPAD 107546. 204494.     353                                            MR3F
RUDSCR     621     100   62102                                            UH60-T40
RUNUP      621     100                           2.00    0.00    7200.   UH60-T40
COMMENT  ************************************************************
COMMENT  ******************** SIERRA LINE AREA *********************
COMMENT  ************************************************************
COMMENT  -------------------- T34 MAINTENANCE ----------------------
RNPPAD 104180. 203079.     038                                            MR4A
RUDSCR     934      98   93410                                            T34-PT6
RUNUP      934      98                           0.48    0.05      60.   T34-PT6
RUDSCR     934      80   93480                                            T34-PT6
RUNUP      934      80                           0.48    0.05     300.   T34-PT6
RNPPAD 104180. 203079.     128                                            MR4B
RUDSCR     934      98   93410                                            T34-PT6
RUNUP      934      98                           5.17    0.57      60.   T34-PT6
RUDSCR     934      80   93480                                            T34-PT6
RUNUP      934      80                           5.17    0.57     300.   T34-PT6
RNPPAD 104180. 203079.     173                                            MR4C
RUDSCR     934      98   93410                                            T34-PT6
RUNUP      934      98                           0.48    0.05      60.   T34-PT6
RUDSCR     934      80   93480                                            T34-PT6
RUNUP      934      80                           0.48    0.05     300.   T34-PT6
RNPPAD 104180. 203079.     218                                            MR4D
RUDSCR     934      98   93410                                            T34-PT6
RUNUP      934      98                           0.08    0.01      60.   T34-PT6
RUDSCR     934      80   93480                                            T34-PT6
RUNUP      934      80                           0.08    0.01     300.   T34-PT6
RNPPAD 104180. 203079.     308                                            MR4E
RUDSCR     934      98   93410                                            T34-PT6
RUNUP      934      98                           0.95    0.11      60.   T34-PT6
RUDSCR     934      80   93480                                            T34-PT6
RUNUP      934      80                           0.95    0.11     300.   T34-PT6
RNPPAD 104180. 203079.     353                                            MR4F
RUDSCR     934      98   93410                                            T34-PT6
RUNUP      934      98                           0.80    0.09      60.   T34-PT6
RUDSCR     934      80   93480                                            T34-PT6
RUNUP      934      80                           0.80    0.09     300.   T34-PT6
COMMENT  -------------------- T44 MAINTENANCE ----------------------
RNPPAD 104180. 203079.     120                                            MR4G
RUDSCR     944      98   93410                                            T44-PT6
RUNUP      944      98                           4.58    0.68     900.   T44-PT6
RNPPAD 104180. 203079.     150                                            MR4H
RUDSCR     944      98   93410                                            T44-PT6
RUNUP      944      98                           4.58    0.68     900.   T44-PT6
RNPPAD 104180. 203079.     240                                            MR4I
RUDSCR     944      98   93410                                            T44-PT6
RUNUP      944      98                           4.58    0.68     900.   T44-PT6
COMMENT  ************************************************************
COMMENT  ******************** DESIGNATED RUNUP AREAS ***************
COMMENT  ************************************************************
COMMENT  -------------------- T-34C PREFLIGHT ----------------------
RNPPAD 100000. 200000.     038                                            PR1
RUDSCR     934      80   93480                                            T34-PT6
RUNUP      934      80                           4.62    0.10      20.   T34-PT6
RNPPAD 101709. 201878.     128                                            PR2
RUDSCR     934      80   93480                                            T34-PT6
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RUNUP      934      80                          35.48    0.72      20.   T34-PT6
RNPPAD 102888. 203317.     173                                           PR4
RUDSCR     934      80   93480                                           T34-PT6
RUNUP      934      80                           4.63    0.09      20.   T34-PT6
RNPPAD 103564. 203544.     218                                           PR5
RUDSCR     934      80   93480                                           T34-PT6
RUNUP      934      80                           0.77    0.02      20.   T34-PT6
RNPPAD 104293. 198187.     308                                           PR6
RUDSCR     934      80   93480                                           T34-PT6
RUNUP      934      80                           3.09    0.06      20.   T34-PT6
RNPPAD 105287. 198361.     308                                           PR7
RUDSCR     934      80   93480                                           T34-PT6
RUNUP      934      80                           6.17    0.13      20.   T34-PT6
RNPPAD 102888. 198294.     353                                           PR8
RUDSCR     934      80   93480                                           T34-PT6
RUNUP      934      80                           7.72    0.16      20.   T34-PT6
RNPPAD 101190. 201377.     128                                           PR11
RUDSCR     934      80   93480                                           T34-PT6
RUNUP      934      80                          14.65    0.30      20.   T34-PT6
COMMENT  ************************************************************
COMMENT  ********************** DESIGNATED RUNUP AREAS ***************
COMMENT  ************************************************************
COMMENT  --------------------- T-44A PREFLIGHT ----------------------
RNPPAD 100000. 200000.     038                                           PR1
RUDSCR     944      80   93480                                           T44-PT6
RUNUP      944      80                           1.09    0.02     144.   T44-PT6
RNPPAD 101709. 201878.     128                                           PR2
RUDSCR     944      80   93480                                           T44-PT6
RUNUP      944      80                           8.43    0.17     144.   T44-PT6
RNPPAD  98540. 203837.     128                                           PR3
RUDSCR     944      80   93480                                           T44-PT6
RUNUP      944      80                           3.48    0.07     144.   T44-PT6
RNPPAD 102888. 203317.     173                                           PR4
RUDSCR     944      80   93480                                           T44-PT6
RUNUP      944      80                           1.09    0.02     144.   T44-PT6
RNPPAD 103564. 203544.     218                                           PR5
RUDSCR     944      80   93480                                           T44-PT6
RUNUP      944      80                           0.19    0.00     144.   T44-PT6
RNPPAD 104293. 198187.     308                                           PR6
RUDSCR     944      80   93480                                           T44-PT6
RUNUP      944      80                           0.73    0.01     144.   T44-PT6
RNPPAD 105287. 198361.     308                                           PR7
RUDSCR     944      80   93480                                           T44-PT6
RUNUP      944      80                           1.47    0.03     144.   T44-PT6
RNPPAD 102888. 198294.     353                                           PR8
RUDSCR     944      80   93480                                           T44-PT6
RUNUP      944      80                           1.83    0.05     144.   T44-PT6
COMMENT  ************************************************************
COMMENT  ********************** CCAD SEAWALL AREA ********************
COMMENT  ************************************************************
COMMENT  --------------------- UH60A PREFLIGHT ----------------------
RNPPAD 107546. 203994.     6.3                                           PR9
RUDSCR     621     100   62102                                           UH60-T40
RUNUP      621     100                           2.30    0.05     900.   UH60-T40
RNPPAD 107546. 203994.    96.3                                           PR10
RUDSCR     621     100   62102                                           UH60-T40
RUNUP      621     100                           2.30    0.05     900.   UH60-T40
END
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APPENDIX C
AICUZ Land Use Compatibility
Aircraft Noise and Accident Potential

Air Force AICUZ Land Use Compatibility with respect to Noise and Accident Potential

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CLEAR ZONE	APZ I	APZ II	65-70	70-75	75-80	80+
10	Residential							
11	Household units							
11.11	Single units; detached	N	N	Y[1]	A[11]	B[11]	N	N
11.12	Single units; semidetached	N	N	N	A[11]	B[11]	N	N
11.13	Single units; attached row	N	N	N	A[11]	B[11]	N	N
11.21	Two units; side—by-side	N	N	N	A[11]	B[11]	N	N
11.22	Two units; one above the other	N	N	N	A[11]	B[11]	N	N
11.31	Apartments; walk up	N	N	N	A[11]	B[11]	N	N
11.32	Apartments; elevator	N	N	N	A[11]	B[11]	N	N
12	Group quarters	N	N	N	A[11]	B[11]	N	N
13	Residential hotels	N	N	N	A[11]	B[11]	N	N
14	Mobile home parks or courts	N	N	N	N	N	N	N
15	Transient lodgings	N	N	N	A[11]	B[11]	C[11]	N
16	Other residential	N	N	N[1]	A[11]	B[11]	N	N
20	Manufacturing							
21	Food & kindred products; manufacturing	N	N[2]	Y	Y	Y[12]	Y[13]	Y[14]
22	Textile mill products; manufacturing	N	N[2]	Y	Y	Y[12]	Y[13]	Y[14]
23	Apparel and other finished products made from fabrics, leather, and similar materials; manufacturing	N	N	N[2]	Y	Y[12]	Y[13]	Y[14]
24	Lumber and wood products (except furniture); manufacturing	N	Y[2]	Y	Y	Y[12]	Y[13]	Y[14]
25	Furniture and fixtures; manufacturing	N	Y[2]	Y	Y	Y[12]	Y[13]	Y[14]
26	Paper & allied products; manufacturing	N	Y[2]	Y	Y	Y[12]	Y[13]	Y[14]

LEGEND

SLUCM -Standard Land Use Coding Manual
Y(Yes) - Land use and related structures compatible without restriction
N(No) - Land use and related structures are not compatible and should be prohibited
NLR (Noise Level Reduction) - Noise level reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure (see Appendix E in Volume III for additional NLR information)
Y^x (Yes with Restrictions) - Land use and related structures generally compatible; see notes 1 through 21
Nx (No with exceptions) - See notes 1 through 21
A, B, or C - Land use and related structures generally compatible; measures to achieve NLR for 66-70, 71-75, or 76-80 DNL/CNEL must be incorporated into design and construction of structure.
A*, B*, or C* - Land use generally compatible with NLR: However, measures to achieve an overall noise level reduction do not necessarily solve noise difficulties and additional evaluation is warranted
Ax, Bx - NLR: See footnotes

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO	NAME	CLEAR ZONE	APZ I	APZ II	65-70	70-75	75-80	80+
27	Printing, publishing, and allied industries	N	Y[2]	Y	Y	Y[12]	Y[13]	Y[14]
28	Chemicals and allied products manufacturing.	N	N	N[2]	Y	Y[12]	Y[13]	Y[14]
29	Petroleum refining and related industries	N	N	Y	Y	Y[12]	Y[13]	Y[14]
30	Manufacturing							
31	Rubber and misc. plastic products, manufacturing	N	N[2]	N[2]	Y	Y[12]	Y[13]	Y[14]
32	Stone, clay and glass products manufacturing	N	N[2]	Y	Y	Y[12]	Y[13]	Y[14]
33	Primary metal industries				Y	Y[12]	Y[13]	Y[14]
34	Fabricated metal products; manufacturing	N	N[2]	Y	Y	Y[12]	Y[13]	Y[14]
35	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks manufacturing	N	N	N[2]	Y	A	B	N
39	Miscellaneous manufacturing	N	Y[2]	Y[2]	Y	Y[12]	Y[13]	Y[14]
40	Transportation, communications and utilities							
41	Railroad, rapid rail transit and street railroad transportation	N[3]	Y[4]	Y	Y	Y[12]	Y[13]	Y[14]
42	Motor vehicle transportation	N[3]	Y	Y	Y	Y[12]	Y[13]	Y[14]
43	Aircraft transportation	N[3]	Y[4]	Y	Y	Y[12]	Y[13]	Y[14]
44	Marine craft transportation	N[3]	Y[4]	Y	Y	Y[12]	Y[13]	Y[14]
45	Highway & street right-of-way	N[3]	Y	Y	Y	Y[12]	Y[13]	Y[14]
46	Automobile parking	N[3]	Y[4]	Y	Y	Y[12]	Y[13]	Y[14]
47	Communication	N[3]	Y[4]	Y	Y	A[15]	B[15]	N
48	Utilities	N[3]	Y[4]	Y	Y	Y	Y[12]	Y[13]
49	Other transportation communication and utilities	N[3]	Y[4]	Y	Y	A[15]	B[15]	N
50	Trade							
51	Wholesale trade	N	Y[2]	Y	Y	Y[12]	Y[13]	Y[14]
52	Retail trade—building materials, hardware and farm equipment	N	Y[2]	Y	Y	Y[12]	Y[13]	Y[14]
53	Retail trade—general merchandise	N	N[2]	Y[2]	Y	A	B	N
54	Retail trade—food	N	N[2]	Y[2]	Y	A	B	N

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CLEAR ZONE	APZ I	APZ II	65-70	70-75	75-80	80+
55	Retail trade—automotive, marine craft, aircraft and accessories	N	Y[2]	Y[2]	Y	A	B	N
56	Retails trade—apparel and accessories	N	N[2]	Y[2]	Y	A	B	N
57	Retail trade—furniture, home furnishings and equipment	N	N[2]	Y[2]	Y	A	B	N
58	Retail trade-eating and drinking establishments	N	N	N[2]	Y	A	B	N
59	Other retail trade	N	N[2]	Y[2]	Y	A	B	N
60	Services							
61	Finance, insurance and real estate services	N	N	Y[6]	Y	A	B	N
62	Personal services	N	N	Y[6]	Y	A	B	N
62.4	Cemeteries	N	Y[7]	Y[7]	Y	A	Y[13]	Y[14,21]
63	Business Services	N	Y[8]	Y[8]	Y	A	B	N
64	Repair Services	N	Y[2]	Y	Y	Y[12]	Y[13]	Y[14]
65	Professional services	N	N	Y[6]	Y	A	B	N
65.13	Hospitals, nursing homes	N	N	N	A*	B*	N	N
65.19	Other medical facilities	N	N	N	Y	A	B	N
66	Contract construction services	N	Y[6]	Y	Y	A	B	N
67	Governmental services	N	N	Y[6]	Y*	A*	B*	N
68	Educational services	N	N	N	A*	B*	N	N
69	Miscellaneous services	N	N[2]	Y[2]	Y	A	B	N
70	Cultural, entertainment and recreational							
71	Cultural activities (including churches)	N	N	N[2]	A*	B*	N	N
71.2	Nature exhibits	N	Y[2]	Y	Y*	N	N	N
72	Public assembly	N	N	N	Y	N	N	N
72.1	Auditoriums, concert halls	N	N	N	A	B	N	N
72.11	Outdoor music shells, amphitheaters	N	N	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	N	N	N	Y[17]	Y[17]	N	N
73	Amusements	N	N	Y[8]	Y	Y	N	N
74	Recreational activities (including golf courses, riding stables, water recreation)	N	Y[8,9,10]	Y	Y*	A*	B*	N
75	Resorts and group camps	N	N	N	Y*	Y*	N	N
76	Parks	N	Y[8]	Y[8]	Y*	Y*	N	N

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CLEAR ZONE	APZ I	APZ II	65-70	70-75	75-80	80+
79	Other cultural, entertainment and recreation	N	Y[9]	Y[9]	Y*	Y*	N	N
80	Resource production and extraction							
81	Agriculture (except livestock)	Y	Y	Y	Y[18]	Y[19]	Y[20]	Y[20,21]
81.5	Livestock farming and animal							
81.7	Breeding	N	Y	Y	Y[18]	Y[19]	Y[20]	Y[20,21]
82	Agricultural related activities	N	Y[5]	Y	Y[18]	Y[19]	N	N
83	Forestry activities and related services	N[5]	Y	Y	Y[18]	Y[19]	Y[20]	Y[20,21]
84	Fishing activities and related services	N[5]	Y[5]	Y	Y	Y	Y	Y
85	Mining activities and related services	N	Y[5]	Y	Y	Y	Y	Y
89	Other resource production and extraction	N	Y[5]	Y	Y	Y	Y	Y

*The designation of these uses as "compatible" in this zone reflects individual Federal agencies, and program consideration of general cost and feasibility factors as well as past community experiences and program objectives. Localities, when evaluating the application of these guidelines to specific situations, may have different concerns or goals to consider.

Table 2.1 (continued)

Notes

1. Suggested maximum density 1-2 dwelling units per acre, possibly increased under a Planned Unit Development (PUD) where maximum lot coverage is less than 20 percent.

2. Within each land use category, uses exist where further definition may be needed due to the variation of densities in people and structures.

3. The placing of structures, buildings, or above-ground utility lines in the clear zone is subject to severe restrictions. In a majority of the clear zones, these items are prohibited. See AFR 19-9 for specific guidance.

4. No passenger terminals and no major above-ground transmission lines in APZ I.

5. Factors to be considered: labor intensity, structural coverage, explosive characteristics, air pollution.

6. Low-intensity office uses only. Meeting places, auditoriums, etc., not recommended.

7. Excludes chapels.

(notes continued)

8. Facilities must be low intensity.

9. Clubhouse not recommended.

10. Small areas for people gathering places are not recommended.

11.

a. Although local conditions may require residential use, it is discouraged in DNL/CNEL 65-70 and strongly discouraged in DNL/CNEL 70-75. The absence of viable alternative development options should be determined and an evaluation indicating that a demonstrated community need for residential use would not be met if development were prohibited in these zones should be conducted prior to approvals.

b. Where the community determines that residential uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) for DNL/CNEL 66-70 and DNL/CNEL 71-75 should be incorporated into building codes and be considered in individual approvals. See Appendix E of Volume III for a reference to updated NLR procedures.

c. NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, design and use of berms and barriers can help mitigate outdoor exposure particularly from level sources. Measures that reduce noise at a site should be used whenever practical in preference to measures which only protect interior spaces.

12. Measures to achieve the NLR for 66-70 DNL/CNEL must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

13. Measures to achieve the NLR for 71-75 DNL/CNEL must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

14. Measures to achieve the NLR for 76-80 DNL/CNEL must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

15. If noise sensitive use indicated NLR; if not, use is compatible

16. No buildings.

17. Land use compatible provided special sound reinforcement systems are installed.

18. Residential buildings require the NLR for 66-70 DNL/CNEL.

19. Residential buildings require the NLR for 71-75 DNL/CNEL.

20. Residential buildings not permitted.

21. Land use not recommended; built if community decides use is necessary; hearing protection devices should be worn by personnel.

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NAVY FAMILY HOUSING MARKET ANALYSIS

Naval Station New York
Staten Island, New York

January, 1992

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A. EXECUTIVE SUMMARY

A.1. Executive Summary

The following are the key findings and conclusions of the market analysis of Navy family housing for Naval Station, New York in Staten Island, New York.

- **Demographic, Economic and Housing Stock Characteristics**

* Household growth in the Stapleton market area has been moderate over the last decade and is not anticipated to accelerate in the near future.

* In terms of household growth, both the New York and Northern New Jersey submarkets of the Stapleton market area, each grew by 24,000 households over the last decade.

* Most of the New Jersey household growth occurred in the southernmost areas of Middlesex County and Northern Monmouth County, offsetting household losses in Essex and negligible growth in Hudson and Union.

* Within New York components of the market, Staten Island accounted for two thirds of the net households added to the three borough area with a 16,000 household increase. The number of households in Brooklyn and Queens was effectively unchanged.

* Between 1980 and 1989, over 117,000 building permits were issued in the market area. However, the net increase of households over that time period was only 55,000. Much of the new construction was replacing older, dilapidated units in the market.

* Rental stock accounts for almost two-thirds of the housing stock of the Stapleton market. However, the stock has been shrinking and many of the units are assisted or in a deteriorated state.

* Almost 60 percent of the housing stock in the Stapleton Market area is renter occupied or available for rent. With 37 percent of units available for rent, Staten Island has one of the lowest proportions of rental units in the market.

* Within the Stapleton market area, 432,000 units receive some form of public housing assistance, accounting for 27 percent of the rental housing stock.

* According to the 1990 Census, the median rent recorded for the Stapleton market area in April, 1990 was $477. On average, the New Jersey market's median rent was $496 compared to the New York submarket's median of $465. The low rents reflect the inclusion of publicly assisted and deteriorated or dilapidated units within sections of the market.

* Based on the 1990 Census, the Stapleton market area registered a 1.7 percent vacancy rate of potential owner occupied units and a 4.5 percent vacancy rate of rental units. The rental vacancy rate was twice as high in Northern New Jersey compared to the three boroughs of New York.

- **Current and Future Rental Market**

* There is a limited, tight rental market in Staten Island. Multi family developments have minimal vacancies. Detached and attached units make up a large proportion of the rental stock and have limited availability. There are a number of failed for-sale developments that might supply units on a short term basis.

* Most rental opportunities in Brooklyn and Queens are individual units in cooperatives offered through real estate brokers. Most larger conventional rental developments in stable sections of Brooklyn and Queens have been converted to cooperatives over the last five years. About half of these cooperatives are currently being rented out by landlords.

* On average, asking rents for one bedroom units run from $600 to $700, two bedroom units from $750 to $800, and the few three bedroom units $850 and above.

* The five Northern New Jersey counties have an extensive conventional rental market charging rental rates within Navy guidelines. However, vacancy rates are so low that the market will be unable to absorb much of the demand created by the opening of the base.

* Within New Jersey, one bedroom units average 800 square feet with an average of $637 per month rent. With an average rent of $777 per month, two bedroom apartments offer an average of 1,023 square feet. The average rent for a 3 bedroom unit is $940 per month.

* For those units where rent does not include any utility, the average utility payment is between $70 and $90 per month. Looking at all units surveyed, the average utility payment for one bedroom units in this market is $47, while a two bedroom unit averages $53 in utility costs and three bedroom units average $60.

* Middlesex County has the most extensive inventory with almost 100 communities and 28,600 units. The average rents in Middlesex were the lowest in the region. The

Newark area of Essex County and Hudson County both have a high concentration of subsidized and senior citizen communities.

- **Demand Conditions and Affordability**

* Construction activity in the next 10 years will not be sufficient to alleviate the tight rental market in this region.

* Overall, the New York metropolitan economy is suffering through a severe economic downturn, especially given its emphasis on the financial and service sectors. When the economy recovers, it is unlikely that construction activity will exceed 9,500 units per year on average.

* Once the economy revives, the first wave of home purchasers will in all likelihood begin purchasing the cooperative conversions that began in the 1980's. Therefore, the rental market will continue to shrink.

* Given the overwhelming demand for housing, it is unlikely that any level of construction anticipated during the 1990's will alleviate the tremendous pressure on the rental market.

* The Maximum Allowable Housing Cost for New York and Long Island is competitive with asking rents throughout the Stapleton market area. The problem is to find units available in this market. The supply of rental housing in this market will not expand sufficiently in the near future to loosen up the rental market.

* Based on maximum allowable housing cost by grade, an E4 with a monthly allowance of $781 can afford to rent over 70 percent of the rental units surveyed in conventional rental developments in Northern New Jersey and Staten Island. The housing allowances are also within the range of rents quoted by brokers in Brooklyn and Queens for cooperatives and detached units. However, those units may require payment of a commission to real estate brokers.

- **Conclusions**

* There are significant commuting costs required if Navy personnel live anywhere other than Staten Island. Commuting to Brooklyn ranges from $150 to $200 a month, with an additional $40 per month for car insurance. Monthly commuting costs to New Jersey and Queens will average $280 to $300 a month between tolls and mileage costs, making them even more expensive alternatives.

* All of the assisted housing programs have long waiting lists. They will not be a source for rental housing for service personnel.

* Given the tight rental market, it is questionable whether rental communities will make a special effort to service military personnel. Based on the availability of 1,473 units in Northern New Jersey and Staten Island alone, it is reasonable to assume that Navy personnel would capture 23 percent or 350 of the units available that meet Navy housing criteria.

* Given the scattered nature of the Brooklyn housing stock, the most effective way for Navy personnel to address this market is through the brokerage community. Given the current economy, Navy personnel could reasonably expect to rent 400 to 500 units from this scattered housing stock. However, few of these units would be three bedroom units. Additionally, this rental inventory will shrink as the economy recovers and property owners again begin offering cooperatives for sale.

* An effective way to capture vacant units in the near term may be for the Navy to contract directly with owners of blocks of vacant units in Staten Island and Brooklyn.

A.2 Introduction and Background

The following is an analysis of the current and projected housing market serving the recently opened Naval Station in New York at Stapleton, Staten Island, New York. The intent of this study is to determine the degree to which the local communities will be able to satisfy the housing needs of families of Navy personnel assigned to the Stapleton base.

This study has become particularly important at this time since over 1,700 Navy personnel with families are anticipated to be assigned to this base in the near future and will require off-base accommodations (Table 1). Over 1,300 units are currently under construction to address this housing need. However, delivery of these units is not imminent. Therefore, it is incumbent on the Navy to identify alternative housing resources immediately, especially two and three bedroom units.

The Navy has developed a Military Housing Allowance by paygrade for the New York Metropolitan Area (Table 2). This schedule includes Basic Allowance of Quarters (BAQ), Variable Housing Allowance (VHA) to compensate for higher cost of shelter in select markets and Out-of-Pocket (OOP) rent the family is expected to pay. The maximum Housing Allowances in this market are $655.80 for an E1 to $1,634.35 for an O7. It is anticipated that most personnel looking for housing off-base will be E4 to E7 grade.

In the conduct of this housing market analysis, the consultant has done the following:

* examined demographic and housing trends in the Stapleton market area.
* evaluated the economic base of the market and projected employment growth.
* interviewed federal, state and local government officials to understand housing and development policies affecting this market area and identify potential public housing sources that may be available to Navy personnel.

TABLE 1
FAMILY HOUSING REQUIREMENTS
NAVAL STATION NEW YORK

Projected off base housing requirement	1,732
Less current inventory	422
Less project delivered in 1991 Dayton Manor	120
Current unmet demand to be addressed with future 801 projects (1)	1,190

BREAKDOWN OF UNMET DEMAND

	1 BED	2 BED	3 BED	4 BED	TOTAL #	TOTAL %
E4	38	259	103	39	439	37.1%
E5	32	136	58	30	256	21.6%
E6	32	129	40	40	241	20.4%
E7	6	38	47	41	132	11.2%
E8	6	18	32	15	71	6.0%
E9	5	12	12	15	44	3.7%
Total	119	592	292	180	1,183	100.0%
%	10.1%	50.0%	24.7%	15.2%	100.0%	

(1) Aspen Knolls 1,000 units
Hamilton Park 183 units

Source: Northern Division, Naval Facilities, Engineering Command.

TABLE 2
MILITARY HOUSING ALLOWANCE BY PAYGRADE
FOR NEW YORK, LONG ISLAND, NEW YORK:
WITH DEPENDENTS

	BAQ	VHA	OUT OF POCKET (OOP)	MAXIMUM ALLOWABLE HOUSING CO
E1	$289.80	$229.50	$136.50	$655.80
E2	$289.80	$230.74	$142.80	$663.34
E3	$304.50	$231.29	$146.70	$682.49
E4	$327.30	$291.35	$162.90	$781.55
E5	$376.20	$305.76	$183.90	$865.86
E6	$418.50	$348.69	$206.40	$973.59
E7	$453.00	$314.19	$223.20	$990.39
E8	$487.50	$382.29	$242.40	$1,112.19
E9	$528.90	$397.24	$263.70	$1,189.84
W1	$402.00	$433.21	$196.50	$1,031.71
W2	$464.70	$416.34	$239.40	$1,120.44
W3	$505.20	$453.69	$246.60	$1,205.49
W4	$551.10	$477.13	$260.40	$1,288.63
O1E	$461.70	$451.09	$228.30	$1,141.09
O2E	$499.80	$448.36	$246.60	$1,194.76
O3E	$553.80	$443.39	$269.40	$1,266.59
O1	$393.30	$394.81	$190.50	$978.61
O2	$440.10	$386.35	$216.30	$1,042.75
O3	$515.70	$460.69	$249.30	$1,225.69
O4	$623.10	$439.86	$310.20	$1,373.16
O5	$706.50	$458.31	$351.90	$1,516.71
O6	$733.20	$433.83	$382.80	$1,549.83
O7	$813.90	$374.65	$445.80	$1,634.35

Effective January 1, 1991

Source: Northern Division, Naval Facilities, Engineering Command.

* conducted extensive rental surveys within the market area to determine rental rates and occupancy levels.

* interviewed numerous real estate professionals including brokers, appraisers and attorneys to identify alternative shelter opportunities beyond traditional rental developments within the market area.

* projected population and household growth in the market area.

* compared the current and projected housing demand with supply and evaluated the potential of Navy personnel to obtain rental housing through the private market.

* suggested alternative remedies to address short term needs of Navy Personnel.

In terms of this report, the housing market affecting Stapleton Naval Base has been defined to include the boroughs of Brooklyn, Queens and Staten Island in New York City and Essex, Hudson, Middlesex and Union Counties and the northern section of Monmouth County in Northern New Jersey. Analyses will be conducted for the overall Stapleton Market Area, for individual counties or boroughs and, when appropriate, for the New York Submarket and the New Jersey Submarket.

B. REGIONAL DESCRIPTION

B.1 Geography

The Stapleton Naval Base is located on the eastern shore of Staten Island in New York City. The Stapleton Market Area is defined as the commuting radius for employees at the base including the boroughs of Staten Island (Richmond County), Brooklyn (Kings County) and Queens (Queens County) in New York City and Essex, Hudson, Union,

Middlesex Counties and the northern portion of Monmouth County[1] in New Jersey (Map 1). Although the base is located directly across New York Harbor from Manhattan and is directly linked via the Staten Island Ferry, that borough has traditionally been deleted from the Stapleton Market Area due to its unusually high housing prices.

According to the Department of Defense (DOD) criteria for commuting distances, the market area is defined as those areas that are within 30 miles or a 60 minute drive at rush hour, whichever comes first, from the Stapleton pier.

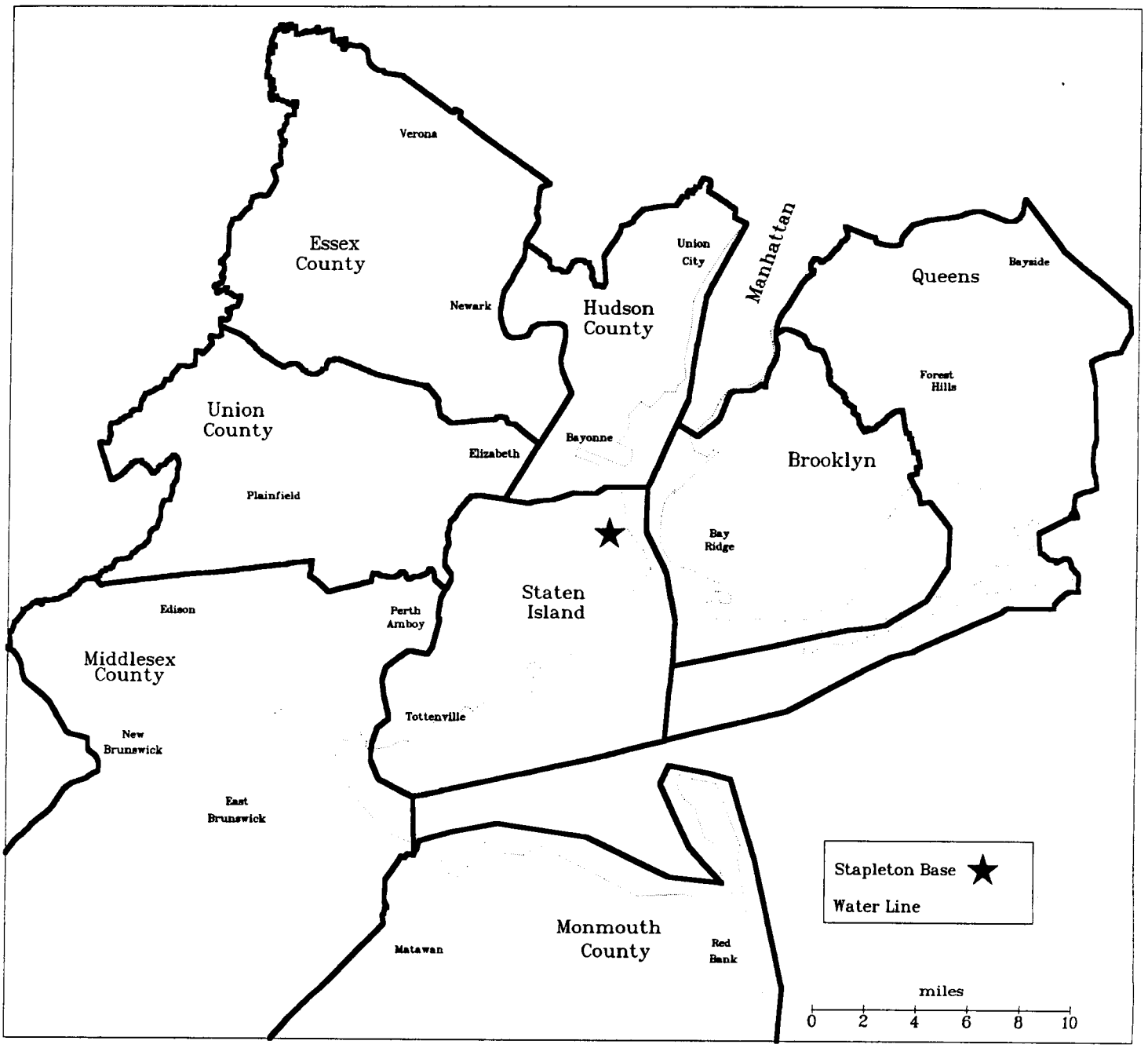
B.2 Demographics

B.2.a. Population and Household Growth Trends

Between 1980 and 1990, population in the Stapleton market area grew by 147,000 persons or 2.1 percent to 7.3 million persons (Table 3). Overall, the New York portion of the market grew by 3.5 percent compared to the negligible change in Northern New Jersey. In absolute and relative terms, Middlesex County experienced the greatest population growth in the market area. However, that growth was offset by declines in Essex, Hudson and Union Counties.

In terms of household growth, the Northern New Jersey submarket grew by 31,000 households over the last decade while the New York submarket grew by 24,000 households (Table 4). Most of the New Jersey household growth was in Middlesex County where

[1] Jurisdictions covered in the northern portion of Monmouth County include Aberdeen Township, Atlantic Highlands Borough, Hazlet Township, Holmdel Township, Keansburg Borough, Keyport Borough, Matawan Borough, Middletown Township, Red Bank Borough, and Union Beach Borough.



MAP 1

Stapleton Market Area

TABLE 3
POPULATION GROWTH
STAPLETON MARKET AREA AND COMPONENTS
1980-1990

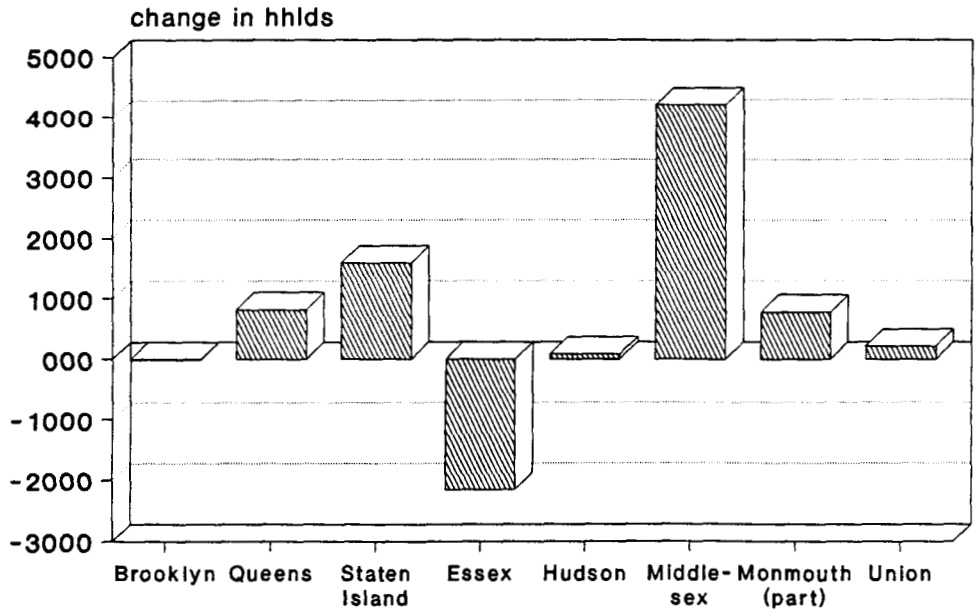
	POPULATION GROWTH			
			CHANGE 80-90	
	1980	1990	#	%
Brooklyn	2,230,936	2,300,664	69,728	3.1%
Queens	1,891,325	1,951,598	60,273	3.2%
Staten Island	352,121	378,977	26,856	7.6%
New York Submarket	4,474,382	4,631,239	156,857	3.5%
Essex	851,116	778,206	(72,910)	-8.6%
Hudson	556,972	553,099	(3,873)	-0.7%
Middlesex	509,094	671,780	162,686	32.0%
Monmouth(part)	161,469	168,075	6,606	4.1%
Union	595,893	493,819	(102,074)	-17.1%
New Jersey Submarket	2,674,544	2,664,979	(9,565)	-0.4%
Stapleton Market Area	7,148,926	7,296,218	147,292	2.1%

Source: U.S. Census of Population and Housing, 1980 and 1990.

TABLE 4
HOUSEHOLD GROWTH
STAPLETON MARKET AREA AND COMPONENTS
1980-1990

	HOUSEHOLD GROWTH			
			CHANGE 80-90	
	1980	1990	#	%
Brooklyn	828,257	828,199	(58)	-0.0%
Queens	711,940	720,149	8,209	1.2%
Staten Island	114,574	130,519	15,945	13.9%
New York Submarket	1,654,771	1,678,867	24,096	1.5%
Essex	300,303	278,752	(21,551)	-7.2%
Hudson	207,857	208,739	882	0.4%
Middlesex	196,708	238,833	42,125	21.4%
Monmouth(part)	50,183	57,978	7,795	15.5%
Union	177,973	180,076	2,103	1.2%
New Jersey Submarket	933,024	964,378	31,354	3.4%
Stapleton Market Area	2,587,795	2,643,245	55,450	2.1%

HOUSEHOLD GROWTH 1980-90
STAPLETON MARKET AREA



SOURCE: U.S. CENSUS, 1980,1990

42,000 new households moved into the County. However, some of that growth was offset by a 21,000 household loss in the Newark section of Essex County. Within New York City, Staten Island grew by 16,000 households, accounting for two-thirds of the net households added to the three borough area and 28 percent of the household growth in the Stapleton Market Area.

The emphasis on development in Staten Island and the southernmost areas of Northern New Jersey is not surprising given the extensively developed nature of the market. Brooklyn and Queens in New York and Essex, Hudson and Union Counties, New Jersey are some of the most densely developed counties in the United States. There is little undeveloped land remaining in these areas. Thus, new growth has been focused in the outer fringes of the market which offer reasonable development opportunities in terms of land cost and access to employment centers.

It is anticipated that growth will continue to focus on the outer fringes of the market area. The consultant projects that the number of households in the Stapleton market will increase by 37,000 between 1990 and 1996 while population will increase by 73,000. (Table 5). As in the past decade much of this growth will be focused in Middlesex County, Monmouth County and Staten Island. Spurred in part by the Naval Base and ancillary services associated with the Base, Staten Island's growth rate of 4.6% helped increase overall household growth in New York by 0.7 percent. In comparison, New Jersey households are projected to increase by 1.4 percent.

TABLE 5
POPULATION AND HOUSEHOLD GROWTH PROJECTIONS
STAPLETON MARKET AREA AND COMPONENTS
1980-1990

	POPULATION			GROWTH			
				CHANGE 80-90		CHANGE 90-96	
	1980	1990	1996	#	%	#	%
Brooklyn	2,230,936	2,300,664	2,336,000	69,728	3.1%	35,336	1.5%
Queens	1,891,325	1,951,598	1,961,000	60,273	3.2%	9,402	0.5%
Staten Island	352,121	378,977	398,000	26,856	7.6%	19,023	5.0%
New York Submarket	4,474,382	4,631,239	4,695,000	156,857	3.5%	63,761	1.4%
Essex	851,116	778,206	747,000	(72,910)	-8.6%	(31,206)	-4.0%
Hudson	556,972	553,099	551,000	(3,873)	-0.7%	(2,099)	-0.4%
Middlesex	509,094	671,780	720,000	162,686	32.0%	48,220	7.2%
Monmouth(part)	161,469	168,075	173,000	6,606	4.1%	4,925	2.9%
Union	595,893	493,819	483,000	(102,074)	-17.1%	(10,819)	-2.2%
New Jersey Submarket	2,674,544	2,664,979	2,674,000	(9,565)	-0.4%	9,021	0.3%
Stapleton Market Area	7,148,926	7,296,218	7,369,000	147,292	2.1%	72,782	1.0%

	HOUSEHOLD			GROWTH			
				CHANGE 80-90		CHANGE 90-96	
	1980	1990	1996	#	%	#	%
Brooklyn	828,257	828,199	832,000	(58)	-0.0%	3,801	0.5%
Queens	711,940	720,149	723,000	8,209	1.2%	2,851	0.4%
Staten Island	114,574	130,519	137,000	15,945	13.9%	6,481	5.0%
New York Submarket	1,654,771	1,678,867	1,692,000	24,096	1.5%	13,133	0.8%
Essex	300,303	278,752	275,000	(21,551)	-7.2%	(3,752)	-1.3%
Hudson	207,857	208,739	208,000	882	0.4%	(739)	-0.4%
Middlesex	196,708	238,833	264,000	42,125	21.4%	25,167	10.5%
Monmouth(part)	50,183	57,978	61,000	7,795	15.5%	3,022	5.2%
Union	177,973	180,076	181,000	2,103	1.2%	924	0.5%
New Jersey Submarket	933,024	964,378	989,000	31,354	3.4%	24,622	2.6%
Stapleton Market Area	2,587,795	2,643,245	2,681,000	55,450	2.1%	37,755	1.4%

Source: U.S. Census of Population and Housing, 1980 and 1990; Projections by Legg Mason Realty Group, Inc.

Our projection assumes an annual growth rate of 0.23 percent, higher than the 0.21 percent average annual growth during the 1980's. However, we do not believe 1990 economic expansion in general will outpace the 1980's rate of growth. Changes in household counts during the 1980's reflect a significant absolute decline of 21,500 households in Essex County due to declines in Newark. It is unreasonable to assume Newark will continue to contract at that rate. Looking at the Stapleton market minus Essex, our projections reflect a household growth rate for the decade of the 1990's of 2.8 percent. Compared to a 1980's growth rate of 3.3 percent.

B.2.b. Income Characteristics

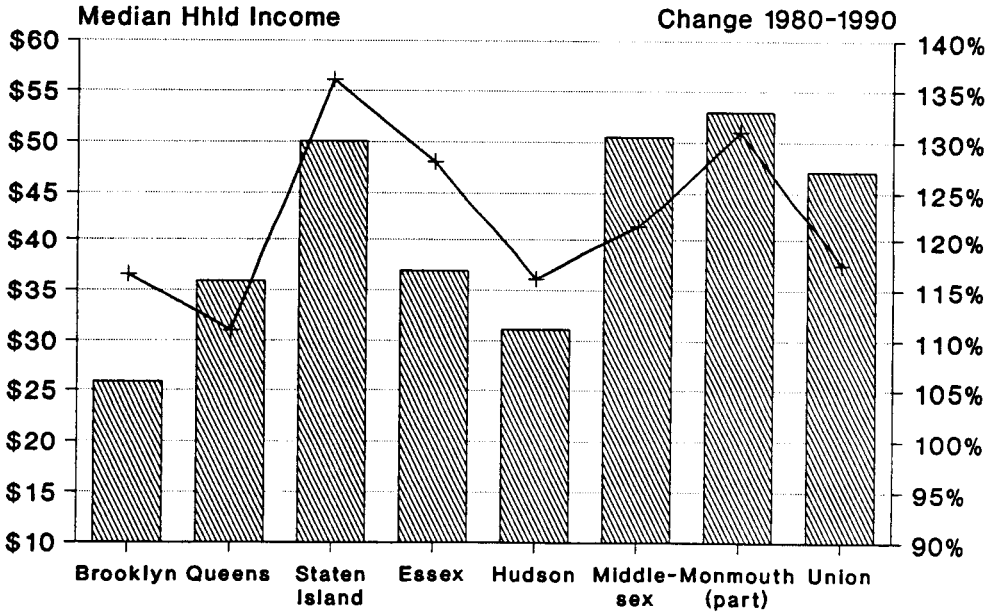
Reflecting propensity to homeownership, Middlesex County, the northern section of Monmouth County and Staten Island have the highest median household incomes and experienced the greatest increases in incomes over the last decade (Table 6). All three areas had median incomes over $50,000. Alternatively, Brooklyn had the lowest 1991 median incomes in the market at $25,838, followed by Hudson County and Queens.

Looking at income distributions, the different economic characteristics of the counties and boroughs is more readily apparent (Table 7). Between 37 and 40 percent of the households in Staten Island and Middlesex County have incomes between $40,000 and $75,000, a category that can be interpreted as middle income. Middle income households make up about a third of households in Queens, Union and the part of Monmouth County in the study area. Within Hudson and Essex Counties, middle income households drop to

TABLE 6
MEDIAN HOUSEHOLD INCOME
STAPLETON MARKET AREA AND COMPONENTS
1980-1990

	MEDIAN HOUSEHOLD INCOME			
			CHANGE 80-90	
	1979	1990	#	%
Brooklyn	$11,929	$25,838	$13,909	116.6%
Queens	$17,038	$35,948	$18,910	111.0%
Staten Island	$21,216	$50,083	$28,867	136.1%
Essex	$16,213	$36,966	$20,753	128.0%
Hudson	$14,387	$31,084	$16,697	116.1%
Middlesex	$22,807	$50,499	$27,692	121.4%
Monmouth (part)	$22,874	$52,998	$30,124	131.0%
Union	$21,630	$47,040	$25,410	117.5%

1990 MEDIAN HOUSEHOLD INCOME
STAPLETON MARKET AREA



SOURCE: NATIONAL PLANNING DATA

TABLE 7
HOUSEHOLD INCOME DISTRIBUTION
STAPLETON MARKET AREA AND COMPONENTS
1991

	Brooklyn	Queens	Staten Island	New York Submarket	Stapleton Market
Less than $10,000	19.8%	11.5%	7.8%	15.4%	13.7%
$10,000 to $19,999	20.4%	15.0%	10.3%	17.3%	15.8%
$20,000 to $29,999	15.8%	15.2%	10.3%	15.1%	14.1%
$30,000 to $39,999	12.2%	13.5%	10.1%	12.6%	12.3%
$40,000 to $49,999	10.0%	12.3%	11.4%	11.1%	11.2%
$50,000 to $74,999	13.6%	19.7%	26.0%	17.1%	18.6%
$75,000 to $99,999	4.9%	7.6%	13.7%	6.7%	8.0%
$100,000 and up	3.3%	5.1%	10.4%	4.6%	6.3%
Total	831,532	724,015	125,962	1,681,509	2,660,926

	Essex	Hudson	Middlesex	Monmouth (part)	Union	New Jersey Submarket
Less than $10,000	14.4%	15.7%	6.1%	6.8%	7.9%	10.9%
$10,000 to $19,999	15.2%	17.7%	9.4%	10.6%	10.9%	13.2%
$20,000 to $29,999	13.4%	15.2%	10.1%	9.3%	11.7%	12.4%
$30,000 to $39,999	11.7%	13.0%	11.2%	10.2%	11.4%	11.7%
$40,000 to $49,999	10.3%	11.1%	12.7%	10.3%	11.5%	11.3%
$50,000 to $74,999	17.5%	17.1%	27.1%	23.5%	23.2%	21.2%
$75,000 to $99,999	8.4%	6.2%	13.2%	14.0%	11.9%	10.1%
$100,000 and up	9.1%	4.0%	10.2%	15.4%	11.5%	9.1%
Total	284,918	210,629	244,531	58,421	180,918	979,417

Source: National Planning Data; compiled by Legg Mason Realty Group, Inc.

28 percent of all households, while in Brooklyn, households earning between $40,000 and $75,000 make up only 23 percent of the household base.

B.3 Economy

Dimensioning and understanding the economy of the New York metropolitan area is difficult under the best of circumstances. It is close to impossible during a national recession that has had a severely negative impact on the region's economy. While Stapleton's operations are only loosely associated with what happens to the economy of the New York metropolitan area as whole, the strength/weakness of that economy are going to influence population and household growth, the demand for housing, and the production of housing. Competition for residential units by households associated with the general economy and market will affect the availability of units for Naval personnel.

This analysis of the economy is structured primarily in terms of employment. Employment is the most readily available key indicator of an area's economic health and the structure of its economy. As used and analyzed herein, such employment is identified as being at the place of work ("at place") of the job holder. It does not get into such matters as labor force, which constitutes the entire pool of people available to work and which is normally analyzed in terms of the place of residence of the worker, nor into unemployment. By looking at the net changes in jobs at place of work, a picture can be developed of the structure of the economy. Projecting employment at place of work describes how the economy is likely to look in the future.

B.3.a Employment Trends

During the period 1980 - 1989, job growth in the Stapleton market area was reasonably strong against the background of very strong growth for the Tri-State Region as a whole. In the market area, 587,000 jobs were added during the period, an increase of 12.4%. (Table 8.) (Monmouth County is excluded from this analysis since sub-county employment data is not available.) Paralleling residential development, Staten Island and Middlesex County were the star performers in terms of percentage gains in employment. Staten Island's job count grew by 26,800 workers or 38.2% during the 1980 -1989 period while Middlesex County added 92,800 jobs, an increase of 29.2%. Queens and Hudson Counties also performed above the average for the market, while other jurisdictions performed below average.

In terms of absolute job count, the four New Jersey counties ended the decade of the Eighties with 1,472,100 workers, while the New York counties had employment of 1,237,600. For the New York jurisdictions, however, much of the 1980's was spend rebuilding employment that was lost in the late 1970's and early 1980's. The 1989 employment figure is only slightly higher than employment for the New York counties in 1970. This is not the case with the New Jersey counties, where employment started the decade slightly higher than 1970 and ended it well above that figure.

B.3.b. Structure of the Economy

The counties comprising the Stapleton market area are located primarily on the southern and western edges of the Tri-State Region. While they have many features

TABLE 8
TOTAL EMPLOYMENT
STAPLETON MARKET AREA AND COMPONENTS
1970-1989

	EMPLOYMENT				CHANGE 80-89	
	1970	1980	1985	1989	AMOUNT	%
Brooklyn	614,100	510,900	516,900	539,000	28,100	5.5%
Queens	545,900	517,700	567,300	601,700	84,000	16.2%
Staten Island	53,800	70,100	85,100	96,900	26,800	38.2%
New York Submarket	1,213,800	1,098,700	1,169,300	1,237,600	138,900	12.6%
Essex	481,100	439,100	449,500	462,600	23,500	5.4%
Hudson	285,600	257,800	265,200	287,000	29,200	11.3%
Middlesex	236,000	317,100	362,200	409,900	92,800	29.2%
Union	289,200	298,500	312,200	312,600	14,100	4.7%
New Jersey Submarket	1,291,900	1,312,500	1,389,100	1,472,100	159,600	12.2%
Stapleton Market Area	2,505,700	2,411,200	2,558,400	2,709,700	298,500	12.4%

Source: Regional Economic Information System of the Bureau of Economic Analysis, U.S. Department of Commerce.

indicating an economy that is reasonably independent of the rest of the region's economy, many of the jobs are in service businesses, government, and trade sectors oriented toward local populations. A smaller percentage of jobs is with "base" employers such as finance and manufacturing. There are some extremely large manufacturing operations in the market area and a growing presence in finance. In addition, the New Jersey counties have strong warehousing distribution and transportation components.

The distribution of employment by major category for 1989, the latest for which the Bureau of Economic Analysis (BEA) data are available, for the seven target counties is shown in Table 9. The data indicate a reasonably good distribution of jobs among various employment categories. There is even a relatively high (at 14.8% of total employment) proportion of manufacturing, which is a declining sector in the Tri-State Region. Not surprisingly, employment in services is by far the largest category capturing 30.9% of all jobs. Wholesale trade is also relatively high, compared to national and Tri-State averages, though retail trade at 14.6% is relatively low. Employment in the market area, particularly in the New Jersey portion, has been driven by suburban growth. In fact, the New Jersey suburbs demonstrated substantial resilience to the downturn in the Tri-State Region's economy that occurred in concert with the problems in the financial industry associated with the Wall Street plunge in October, 1987.

In summary, the market area economy is reasonably well balanced showing no significant dependence on one or another job-generating category. Such an economy should be able to withstand reasonable economic shocks caused by problems in other parts of the

TABLE 9
DISTRIBUTION OF NON-FARM EMPLOYMENT
BY MAJOR CATEGORIES
STAPLETON MARKET AREA AND COMPONENTS
1989

	Brooklyn	Queens	Staten Island	New York Submarket	Stapleton Market
Agri/Mining	582	1,868	1,659	4,109	10,602
Construction	7,524	45,993	28,620	82,137	140,431
Manufacturing	3,299	70,400	77,236	150,935	401,778
T-C-U	5,764	85,990	28,832	120,586	239,668
Wholesales Trade	2,753	39,502	33,380	75,635	199,538
Retail Trade	20,588	92,747	83,997	197,332	395,952
F-I-R-E	7,205	36,239	32,407	75,851	188,910
Services	41,946	189,042	207,537	438,525	836,009
Government	7,220	39,928	45,359	92,507	296,064
Federal/Civil	(1,018)	(13,369)	(11,853)	(26,240)	(54,944)
Military	(915)	(4,591)	(6,600)	(12,106)	(22,692)
State & Local	(5,287)	(21,968)	(26,906)	(54,161)	(218,428)
Total	96,881	601,709	539,027	1,237,617	2,708,952

	Essex	Hudson	Middlesex	Union	New Jersey Submarket
Agri/Mining	1,819	347	2,563	1,764	6,493
Construction	16,322	8,627	17,997	15,348	58,294
Manufacturing	58,528	43,565	81,961	66,789	250,843
T-C-U	36,163	33,509	26,366	23,044	119,082
Wholesales Trade	27,964	29,498	39,939	26,502	123,903
Retail Trade	55,563	41,543	61,870	39,644	198,620
F-I-R-E	42,763	18,874	30,168	21254	113,059
Services	146,351	66,069	97,022	88042	397,484
Government	77,112	44,990	51,388	30067	203,557
Federal/Civil	(10,981)	(11,676)	(3,364)	(2,683)	(28,704)
Military	(3,399)	(2,321)	(2,869)	(1,997)	(10,586)
State & Local	(62,732)	(30,993)	(45,155)	(25,387)	(164,267)
Total	462,585	287,022	409,274	312,454	1,471,335

	Brooklyn	Queens	Staten Island	New York Submarket	Stapleton Market
Agri/Mining	0.6%	0.3%	0.3%	0.3%	0.4%
Construction	7.8%	7.6%	5.3%	6.6%	5.2%
Manufacturing	3.4%	11.7%	14.3%	12.2%	14.8%
T-C-U	5.9%	14.3%	5.3%	9.7%	8.8%
Wholesales Trade	2.8%	6.6%	6.2%	6.1%	7.4%
Retail Trade	21.3%	15.4%	15.6%	15.9%	14.6%
F-I-R-E	7.4%	6.0%	6.0%	6.1%	7.0%
Services	43.3%	31.4%	38.5%	35.4%	30.9%
Government	7.5%	6.6%	8.4%	7.5%	10.9%
Federal/Civil	-1.1%	-2.2%	-2.2%	-2.1%	-2.0%
Military	-0.9%	-0.8%	-1.2%	-1.0%	-0.8%
State & Local	-5.5%	-3.7%	-5.0%	-4.4%	-8.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

	Essex	Hudson	Middlesex	Union	New Jersey Submarket
Agri/Mining	0.4%	0.1%	0.6%	0.6%	0.4%
Construction	3.5%	3.0%	4.4%	4.9%	4.0%
Manufacturing	12.7%	15.2%	20.0%	21.4%	17.0%
T-C-U	7.8%	11.7%	6.4%	7.4%	8.1%
Wholesales Trade	6.0%	10.3%	9.8%	8.5%	8.4%
Retail Trade	12.0%	14.5%	15.1%	12.7%	13.5%
F-I-R-E	9.2%	6.6%	7.4%	6.8%	7.7%
Services	31.6%	23.0%	23.7%	28.2%	27.0%
Government	16.7%	15.7%	12.6%	9.6%	13.8%
Federal/Civil	-2.4%	-4.1%	-0.8%	-0.9%	-2.0%
Military	-0.7%	-0.8%	-0.7%	-0.6%	-0.7%
State & Local	-13.6%	-10.8%	-11.0%	-8.1%	-11.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Regional Economic Information System of the Bureau of Economic Analysis, U.S. Department of Commerce.

Tri-State Region and in the nation as a whole. Within the market, Staten Island (Richmond County) is by far the smallest job generator. It also has the economy showing the highest proportion of local service vice-regional - or national-serving jobs. For instance, in 1989 almost 43% of the jobs on Staten Island were in the service sector and the proportion in retail trade was also much higher than for the market area as a whole at 21%. Staten Island's economy is oriented toward supporting its function as, primarily, a suburban residential jurisdiction.

B.3.c Prospects for the Economy

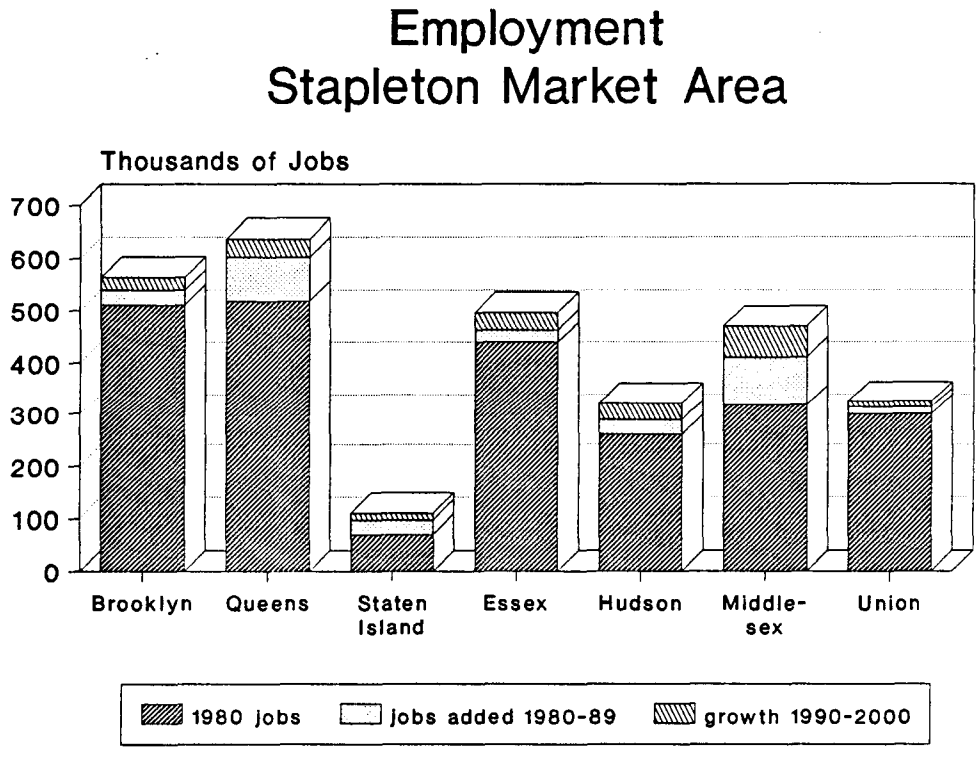
This is a very difficult time to project economic activity. Growth in the Tri-State Region began to abate in 1988. Continuing decline in New York City's manufacturing and wholesale industries as well as its financial services sector, along with the drop off in economic activity nationally, generated this reversed momentum. The drop off was evident in most suburban sections of the metropolitan area whose economy is intertwined with New York City. While it appears that most of the jurisdictions in the Stapleton market area are not actually losing jobs, their growth has certainly stopped and the number of unemployed in the work force has substantially increased. On balance, however, it would appear that the Stapleton market area is getting through the current economic problems in better shape than most of the rest of the Tri-State Region.

During the 1990's, it is expected that the economy of the New Jersey submarket will perform better than for the New York component of the Stapleton market area (Table 10). Throughout the next decade, job growth of 139,000 in New Jersey, an increase of 9.3%

TABLE 10
PROJECTIONS OF TOTAL EMPLOYMENT
STAPLETON MARKET AREA AND COMPONENTS
1990-2000

	EMPLOYMENT				CHANGE 1990-2000	
	1990	1993	1995	2000	AMOUNT	%
Brooklyn	540,900	547,000	553,400	565,800	24,900	4.6%
Queens	603,500	611,500	618,500	638,500	35,000	5.8%
Staten Island	98,000	101,500	104,100	110,000	12,000	12.2%
New York Submarket	1,242,400	1,260,000	1,276,000	1,314,300	71,900	5.8%
Essex	467,700	474,500	482,000	501,400	33,700	7.2%
Hudson	291,700	297,900	304,500	325,900	34,200	11.7%
Middlesex	415,600	431,400	447,100	474,700	59,100	14.2%
Union	314,000	316,200	318,500	326,000	12,000	3.8%
New Jersey Submarket	1,489,000	1,520,000	1,552,100	1,628,000	139,000	9.3%
Stapleton Market Area	2,731,400	2,780,000	2,828,100	2,942,300	210,900	7.7%

Source: Legg Mason Realty Group, Inc. based on projections made by the Regional Plan Association and taking into account employment data reported by the Bureau of Economic Analysis for the 1980's.



Source: Bureau of Economic Analysis

during the decade, will compare with job growth of 71,900 in the New York submarket, an increase of 5.8%. Each of the indicated counties will experience some job growth, but Middlesex and Hudson Counties in New Jersey and Staten Island in New York will be particularly strong.

Despite the faster growth in the New Jersey suburbs, Brooklyn and Queens will remain the market area's principal employment centers with 565,800 and 638,500 workers, respectively. Throughout the market area, however, job growth will occur at a much lower rate than during the 1980's. For instance, overall growth of 210,900 jobs during the period 1990 to 2000 contrasts with 298,500 jobs added in the period 1980 to 1989. The number of jobs added in the New York submarket will be only a little more than half of the jobs added during the 1980's. Of course, these projections could turn out to be low, being unreasonably influenced by the current economic malaise, but we are inclined to believe that the kind of employment expansion experienced in the 1980's simply will not occur in the region in the rest of this century.

The market area will be influenced by the growth occurring in the Tri-State Region with such growth continuing to be in the service industries that are growing fastest nationwide, especially business services and finance, insurance and real estate. Manufacturing is expected to continue its decline, though less so in the New Jersey submarket than for the Tri-State Region as a whole. The New Jersey area is expected to continue to expand its share of total regional employment. Growth in the underlying economy will certainly be great enough that military and civilian personnel added to the

area as a result of the development of the Stapleton home port will have to compete with others for housing and other services.

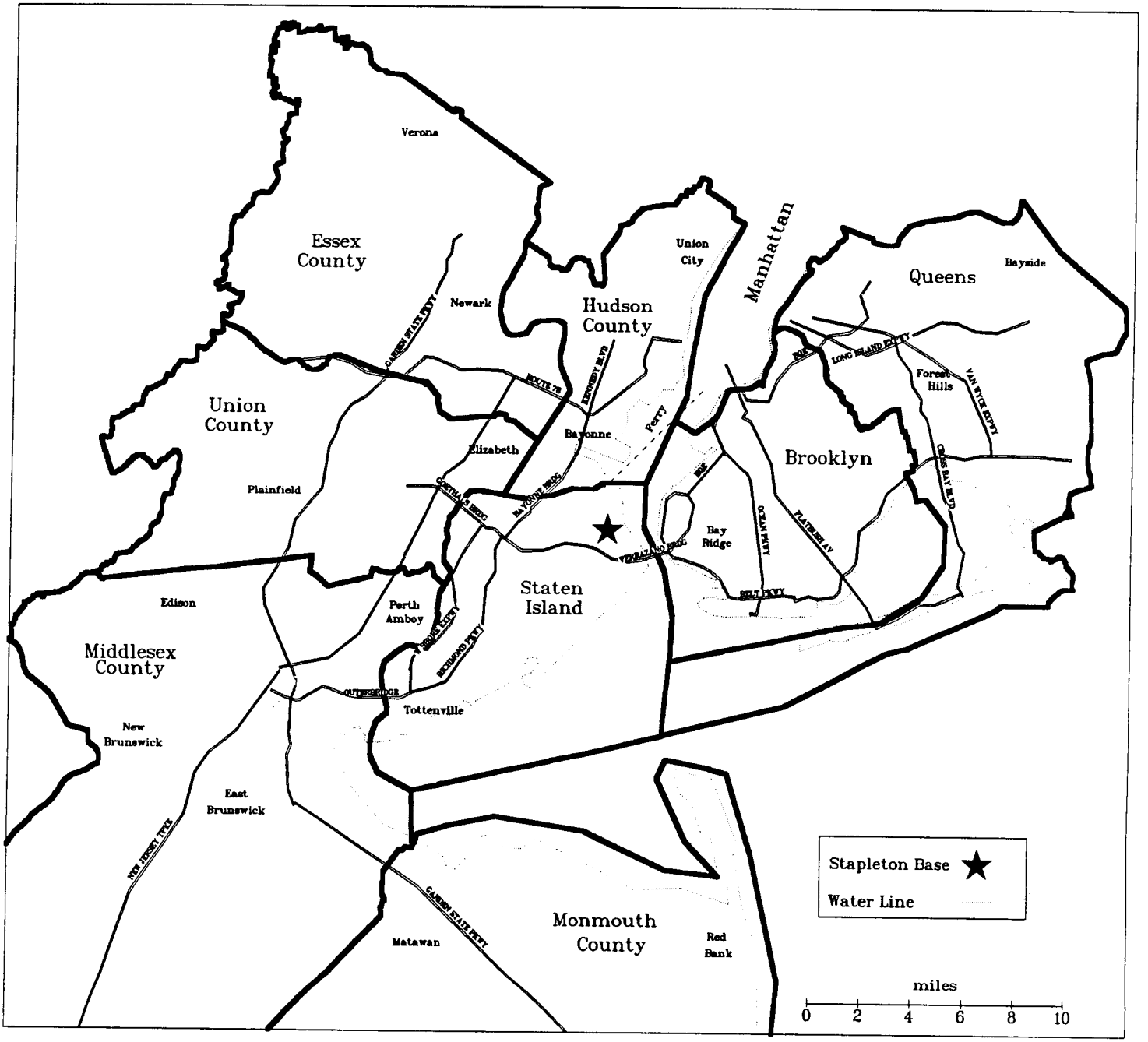
B.4 Transportation

B.4.a. Vehicular Access

Staten Island is linked to the balance of New York City and New Jersey through a series of bridges. Map 2 shows the major arterials and bridges within the market area that would be used for commuting to the Stapleton Naval Base.

Three New York-New Jersey Port Authority bridges connect Staten Island to New Jersey. The Goethals Bridge provides the connection from the Staten Island Expressway (Route 278) to the New Jersey Turnpike at Elizabeth in Union County. The Bayonne Bridge provides access to Hudson County while the Outerbridge Crossing links Staten Island to Middlesex and Monmouth Counties via the Garden State Parkway and the New Jersey Turnpike. All three of these bridges require a round trip toll of $4.00. Commuter books of 20 tickets for $40.00 brings the daily round trip toll down to $2.00 per day. Both the New Jersey Turnpike and the Garden State Expressway are toll roads.

Staten Island is linked to Brooklyn via the Verrazano Narrows Bridge which leads to the Belt Parkway and the Gowanus Expressway in Brooklyn. Both these arterials provide direct access to Queens and Manhattan. The round trip toll over the Verrazano Bridge is $5.00, with commuter discounts available for Staten Island residents only. None of the major arterials in New York City are toll roads.



MAP 2

Major Arterials and Commuting Routes Stapleton Market Area

Staten Island itself is transversed in an east west direction by the Staten Island Expressway (Route 278) linking the Goethals Bridge with the Verrazano Bridge. The Stapleton base is accessible via Richmond Terrace, running east along the North Shore from the Ferry Terminal.

Commuting costs are a function of both mileage from the Stapleton Base and tolls. Once you leave Staten Island, commuting costs increase significantly (Table 11). Monthly commuting costs to Brooklyn range from $150 to $200. Commuting to Forest Hills in Queens will average $290 per month. Commuting to the more distant New Jersey markets requires monthly commuting expenditures from $200 to $500 per month. The only New Jersey areas where commuting costs would be less than $200 is Bayonne ($140 per month) and Newark ($170 per month).

In computing commuting costs, a typical rate of $.25 per mile is used to reflect gas, financing, maintenance and insurance. However, there is a significant variation in car insurance rates between different areas of the market. Insurance costs in Brooklyn and Queens are almost twice as much as in Northern New Jersey (Table 12). The additional monthly cost for living in Brooklyn or Queens compared to Northern New Jersey would be around $40.

B.4.b. Mass Transportation

Mass transit service within Staten Island primarily includes bus routes operated by the New York Mass Transit Authority (MTA). The Staten Island Rapid Transit Operating Authority (SIRTOA, a subsidiary of the MTA) operates a 14.5 mile route transversing the

TABLE 11
ROUND TRIP DAILY COMMUTING COSTS TO
STAPLETON NAVAL BASE

	Miles	Costs/1	Tolls Hwy	Tolls Bridge/2	Daily Total	Monthly Total
New Jersey						
Middlesex County						
New Brunswick	34	$8.50	$0.70	$2.00	$11.20	$224.00
Perth Amboy	42	$10.50	$0.00	$2.00	$12.50	$250.00
Monmouth County						
Redbank	80	$20.00	$0.90	$2.00	$22.90	$458.00
Matawan	60	$15.00	$0.50	$2.00	$17.50	$350.00
Hudson County						
Kearney	44	$11.00	$1.00	$2.00	$14.00	$280.00
Hoboken	36	$9.00	$0.00	$2.00	$11.00	$220.00
Bayonne	20	$5.00	$0.00	$2.00	$7.00	$140.00
Essex County						
Verona	60	$15.00	$1.00	$2.00	$18.00	$360.00
Milburn	50	$12.50	$0.60	$2.00	$15.10	$302.00
Newark	22	$5.50	$1.00	$2.00	$8.50	$170.00
Union City						
Summit	44	$11.00	$0.00	$2.00	$13.00	$260.00
Plainfield	46	$11.50	$0.00	$2.00	$13.50	$270.00
Elizabeth	26	$6.50	$0.00	$2.00	$8.50	$170.00
New York						
Queens County						
Forest Hills via the BQE	40	$10.00	$0.00	$5.00	$15.00	$300.00
Forest Hills via the Belt Pkwy	37	$9.25	$0.00	$5.00	$14.25	$285.00
Kings County (Brooklyn)						
Bay Ridge	10	$2.50	$0.00	$5.00	$7.50	$150.00
Flatbush	14	$3.50	$0.00	$5.00	$8.50	$170.00
Carnarsie	20	$5.00	$0.00	$5.00	$10.00	$200.00
Richmond County (Staten Island)						
St. George	1	$0.25	$0.00	$0.00	$0.25	$5.00
New Dorp	5	$1.25	$0.00	$0.00	$1.25	$25.00
Tottenville	15	$3.75	$0.00	$0.00	$3.75	$75.00

/1 Based on $0.25 per mile

/2 New Jersey bridges assume commuter pass use

Source: New York-New Jersey Port Authority; New York Bridge and Tunnel Authority; New Jersey Turnpike Authority; Garden State Parkway Authority.

TABLE 12
SAMPLE AUTO INSURANCE RATES
FOR MARRIED MALES

	20 Years	25+ Years
New York		
Brooklyn	$2,318	$1,300
Queens	$1,844	$1,033
Staten Island	$1,757	$985
New Jersey		
Monmouth County	$770	$700
Red Bank		
Middlesex		
New Brunswick	$729	$622
Perth Amboy	$852	$744
Hudson County		
Jersey City	$805	$787
Other parts	$692	$676
Union County		
Elizabeth	$704	$639
Essex County		
Newark	$927	$839
Caldwell	$698	$639

Rates are for $100,000/$300,000 liability, plus $50,000 property damage no collision, fire or theft is included. Rates are for six months.

Source: Various offices, Allstate Insurance Company

southeastern portion of the Island between Tottenville at the far southern end of the Island the Ferry Terminal. The route has 22 stations. Fees are $1.15 one way.

The MTA currently operates 26 local and 12 express routes throughout the Island. There is one local bus from Staten Island to the Bay Ridge section of Brooklyn that would link commuters to the New York's extensive bus and subway network. Buses run every 15 minutes during rush hour and every half an hour during non-rush hour. Bus fare is $1.15 one way with no additional costs for bus transfers. All express buses on Staten Island go to Manhattan.

There is no mass transportation service directly connecting New Jersey to Staten Island. New Jersey Transit provides bus and train services to Manhattan from all of the New Jersey counties in the market. However, access to the Naval Base would require additional transfers in Manhattan, use of the Ferry and transfers from the Ferry to the Base. Such a mass transit linkage would be unreasonable.

The Staten Island Ferry offers a 5 mile, 20 minute commute across New York Bay from St. George to Downtown Manhattan. Ferry service is scheduled on the half hour during the day and every 15 minutes during rush hour. The round trip fare for the ferry is $.50. However, Navy personnel are exempt from paying for the ferry. The Stapleton Naval base is a short bus or transit ride from the Ferry Terminal.

C. HOUSING SUPPLY CONDITIONS

C.1. Navy Family Housing

Current inventory of naval housing available for families is somewhat limited but is in the process of expanding. Currently, there are 417 units available in various locations of Staten Island and Brooklyn. An additional 120 units are scheduled to come on line by the end of 1991 at Dayton Manor. Two rental communities made up of another 1,183 units are currently funded under the Section 801 program; 1,000 units at the Aspen Knolls project and 183 units at Hamilton Park.

C.2. Other Military Family Housing Assets

Additional military family housing assets exist in the New York area, but such housing would not accommodate the Homeport housing need for two reasons: either personnel would be ineligible for it or they could be assigned to it only as Priority 3 rather than Priority 2. A Priority 3 status effectively results in Navy personnel having a very slim chance or no chance of obtaining housing at a particular installation. The definitions of Priority 2 and 3 are:

> Priority 2: Eligible military personnel and eligible civilian employees assigned or attached for duty at the installation or installations (including deployable ships), or independent duty USN personnel assigned or attached for duty at activities (including recruiting offices, reserve training centers, ROTC units, etc.) within a one hour commute driving rush hour of the installation or of a housing complex serving the installation.
>
> Priority 3: Eligible military personnel and eligible civilian employees of all military services assigned to duty in the area of the installation.

The family housing assets now or once available to military personnel and within the commuting radius are:

Location	Units	Availability For Navy Personnel	No. on Waiting List
Fort Hamilton Brooklyn	418	Priority 3	7**
Manhattan Beach Coast Guard	72	Ineligible	N/A 1/
Fort Totten Queens	188	Priority 3	8**
Coast Guard Governor's Island	797	Ineligible	N/A 1/
U.S. Coast Guard Station Staten Island (Rosebank)	21	Ineligible	N/A 1/
Military Ocean Terminal Bayonne, New Jersey	126	Ineligible	N/A 1/
Livingston, New Jersey	32	Units Closed 1/91	
Old Bridge, New Jersey	12	Priority 3	4 2/
Holmdel, New Jersey	12	Priority 3	2 2/

1/Navy and other DOD personnel are ineligible because these assets are controlled by the Department of Transportation.

2/Ineligible except for Military Sea-Lift Command.

**Fort Hamilton has a total of 28 vacant units with 20 units down for maintenance and 8 available for occupancy. Assignments have not been made from the waiting list due to incorrect bedroom and paygrade entitlements.

**Fort Totten has a total of 8 vacant units with 5 units down for maintenance and 3 available for occupancy. Assignments have not been made from the waiting list due to incorrect bedroom and paygrade entitlement.

C.3 Public Assisted Housing

There is an extensive public housing inventory within this market area. However, due to cuts in federal housing assistance over the last decade, the inventory has not been expanding to address growing needs in this market.

Within the market area, 27 percent of rental units receive some form of housing assistance (Table 13). Throughout Brooklyn, Queens and Staten Island, one-third of the rental units available receive some form of deep rental assistance. The three New York City boroughs under consideration account for 85 percent of the assisted units available within the Stapleton market. The applicable programs used to provide housing assistance include Public Housing, Section 8 New Construction, Section 8 Existing certificates, Housing Vouchers and New York State's Mitchell-Lama housing program.

Although a smaller proportion of total rental stock, 63,000 units in Northern New Jersey benefit from the same housing assistance programs. Assisted housing accounts for 13 percent of rental units in the New Jersey submarket with the highest number of assisted units in Essex and Hudson Counties.

Given the severe cutbacks in new federal housing funds, there has been little expansion of assisted housing in this market during the last five years. There are extensive waiting lists for all assisted projects in the market. It is unlikely that this inventory would be appropriate or available to address the needs of naval families associated with Stapleton.

C.4 Private Sector Housing

C.4.a. Housing Inventory

There are 2.8 million occupied and vacant dwelling units in the Stapleton market area (Table 14). Over 1.7 million or 60 percent of the housing stock is located in the New York boroughs while just over 1 million are in the four counties of the New Jersey submarket. Within Staten Island itself, there are 136,000 units in the current housing stock.

TABLE 13
ASSISTED RENTAL UNITS
AS A PERCENT OF RENTAL STOCK
STAPLETON MARKET AREA AND COMPONENTS

	RENTAL UNITS		
	ASSISTED UNITS	RENTER STOCK	% ASSISTED
Brooklyn	208,109	637,604	32.6%
Queens	141,561	428,385	33.0%
Staten Island	18,988	50,490	37.6%
New York Submarket	368,658	1,116,479	33.0%
Essex	27,058	163,475	16.6%
Hudson	22,592	151,725	14.9%
Middlesex	7,928	82,844	9.6%
Union	6,060	70,773	8.6%
New Jersey Submarket	63,638	468,817	13.6%
Stapleton Market Area	432,296	1,585,296	27.3%

Source: U.S. Census; Various Housing Authorities within Stapleton Market Area.

TABLE 14
CHANGE IN HOUSING STOCK
STAPLETON MARKET AREA AND COMPONENTS
1980-1990

CHANGE IN HOUSING STOCK

	1980	1990	CHANGE 80-90 #	CHANGE 80-90 %
Brooklyn	856,723	857,485	762	0.1%
Queens	726,151	740,601	14,450	2.0%
Staten Island	116,716	136,232	19,516	16.7%
New York Submarket	1,699,590	1,734,318	34,728	2.0%
Essex	310,742	290,735	(20,007)	-6.4%
Hudson	216,080	219,966	3,886	1.8%
Middlesex	200,559	246,120	45,561	22.7%
Monmouth(part)	51,076	59,327	8,251	16.2%
Union	180,652	184,244	3,592	2.0%
New Jersey Submarket	959,109	1,000,392	41,283	4.3%
Stapleton Market Area	2,658,699	2,734,710	76,011	2.9%

Source: U.S. Census of Population and Housing, 1980 and 1990.

Between 1980 and 1990, 76,000 additional units were added to the market area. Essex County had a net loss of over 20,000 units, offsetting 30 percent of the new growth achieved in the other counties of the New Jersey submarket. The New York submarket's housing stock grew by 2 percent, mostly on expansions in Staten Island and Queens.

Another indicator to monitor housing unit growth is building permits. However, in this market, there is a tenuous relationship between these factors. Between 1980 and 1989, over 117,000 building permits for new dwelling units were issued in the Stapleton market area. The number of permits issued exceeded household growth by 41,000. (Table 15). The variation between building permits and additional households is somewhat consistent in both the New York and New Jersey submarkets. The logical explanation for this 41,000 unit variation is that units built were replacing older, dilapidated units removed from the housing stock rather than addressing demand created by new growth.

In absolute numbers, Staten Island had more permits than either Brooklyn or Queens. Overall, New York accounted for 51 percent of the new units permitted in the market area. Within the overall market area, permit activity averaged 13,500 units per year. However, permit levels varied from the peak of over 20,000 units in 1985 to 1990's total of only 6,087 units permitted, 30 percent lower than permit levels during the worst part of the 1980-82 recession.

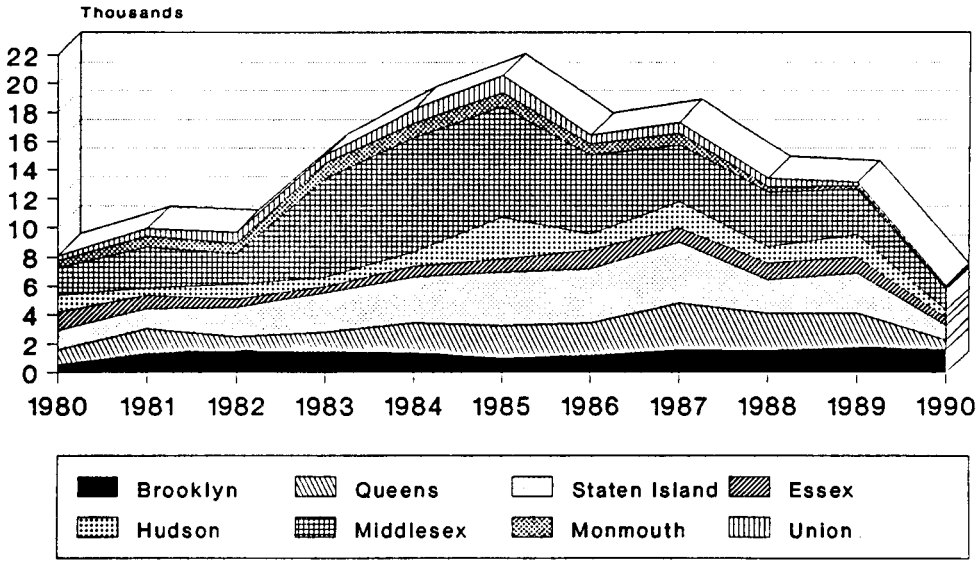
Almost 60 percent of the housing stock in the Stapleton Market area are renter occupied or available for rent (Table 16). With 37 percent of units available for rent, Staten Island has one of the lowest proportions of rental units in the market. Between Brooklyn and Queens, there are over 1 million rental units, accounting for almost 70 percent of the

TABLE 15
TOTAL HOUSING UNITS AUTHORIZED BY BUILDING PERMITS
STAPLETON MARKET AREA AND COMPONENTS
1980-1990

	Brooklyn	Queens	Staten Island	New York Submarket	Stapleton Market
1980	536	1,057	1,353	2,946	8,090
1981	1,367	1,723	1,339	4,429	9,954
1982	1,536	1,004	1,972	4,512	9,725
1983	1,524	1,325	2,690	5,539	15,050
1984	1,450	2,020	3,174	6,644	18,245
1985	1,068	2,211	3,711	6,990	20,601
1986	1,270	2,180	3,782	7,232	13,451
1987	1,650	3,182	4,190	9,022	11,831
1988	1,629	2,506	2,335	6,470	13,444
1989	1,785	2,339	2,803	6,927	13,146
1990	1,634	704	940	3,278	6,087
Total	15,449	20,251	28,289	63,989	123,622

	Essex	Hudson	Middlesex	Monmouth (part)	Union	New Jersey Submarket
1980	1,225	1,188	1,918	494	319	5,144
1981	931	522	2,830	732	510	5,525
1982	604	1,037	2,096	696	780	5,213
1983	446	682	6,701	1,120	562	9,511
1984	777	965	7,915	1,011	933	11,601
1985	889	2,911	7,620	932	1,259	13,611
1986	1,259	1,108	5,458	815	589	9,229
1987	1,010	1,802	3,914	867	751	8,344
1988	1,139	1,134	3,745	376	580	6,974
1989	1,078	1,555	3,116	206	264	6,219
1990	551	513	1,455	136	154	2,809
Total	9,909	13,417	46,768	7,385	6,701	59,633

Total Housing Units Authorized by Building Permits Stapleton Market Area

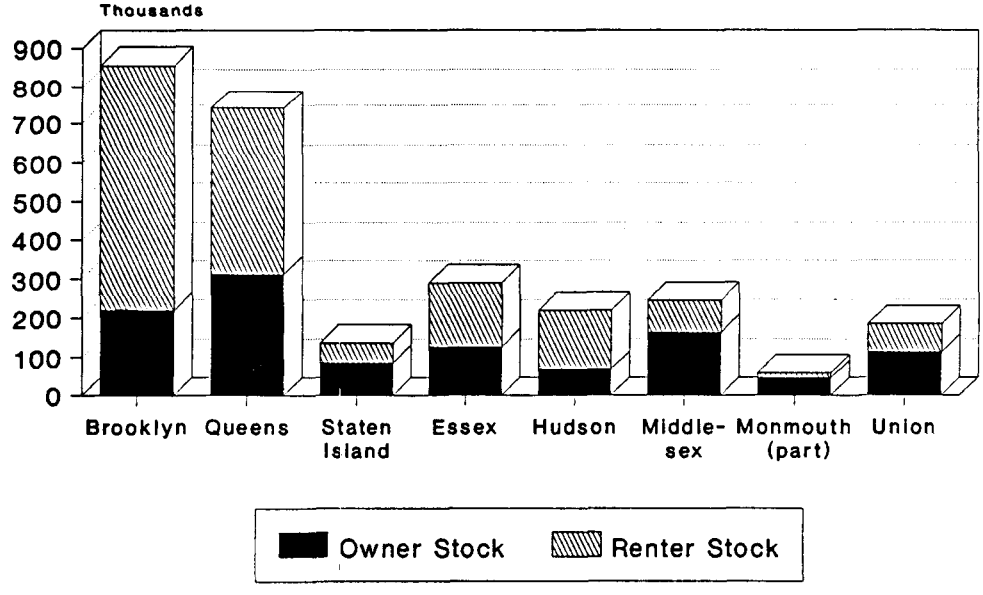


Source: NJ Dept of Labor, US Census C-40 Construction Report.

TABLE 16
TOTAL UNITS BY TENURE
STAPLETON MARKET AREA AND COMPONENTS
1990

	OWNER STOCK	RENTER STOCK	TOTAL STOCK	% OF STOCK	
				OWNER	RENTER
Brooklyn	219,881	637,604	857,485	25.6%	74.4%
Queens	312,216	428,385	740,601	42.2%	57.8%
Staten Island	85,742	50,490	136,232	62.9%	37.1%
New York Submarket	617,839	1,116,479	1,734,318	35.6%	64.4%
Essex	127,260	163,475	290,735	43.8%	56.2%
Hudson	68,241	151,725	219,966	31.0%	69.0%
Middlesex	163,276	82,844	246,120	66.3%	33.7%
Monmouth (part)	45,226	14,305	59,531	76.0%	24.0%
Union	113,471	70,773	184,244	61.6%	38.4%
New Jersey Submarket	517,474	483,122	1,000,596	51.7%	48.3%
Stapleton Market Area	1,135,313	1,599,601	2,734,914	41.5%	58.5%

Owner/Renter Stock
Stapleton Market Area
1990



Source: U.S. Census of Population & Hsg

overall market area's rental stock. However, a full third or 350,000 units in the New York boroughs receive some form of public housing assistance.

As of April, 1990, the Stapleton market area registered a 1.7 percent vacancy rate of potential owner occupied units and a 4.5 percent vacancy rate of rental units (Table 17). The rental vacancy rate was twice as high in Northern New Jersey compared to the three boroughs of New York. However, in absolute numbers, the New York component of the market accounted for 41,000 vacant units, compared to 30,000 units in Northern New Jersey.

C.4.b. Owner Housing Stock

Of the owner occupied dwelling units in the market area, over half are single family detached units. Within the New Jersey submarket, detached units account for 71 percent of owner occupied homes (Table 18). In comparison, detached homes only account for one-third of owner occupied units within the New York submarket, with another third of owner occupied units in structures with 2 to 4 units. These smaller multi-family structures were an easy target for cooperative conversion and accounted for a significant number of conversions during the 1980's.

Reflecting the fact that the New York housing market is one of the most expensive in the nation, house values in the Stapleton market are relatively high. Based on 1990 Census data, the specified value of owner occupied units in the Stapleton market was $183,471 (Table 19). Recognizing that homeowners might overstate the value of their home, the values shown in the census data are consistent with information obtained by selected multiple listing services in the area.

Despite its increased emphasis on detached housing, the median value of owner

TABLE 17
VACANCY RATES BY TENURE
STAPLETON MARKET AREA AND COMPONENTS
1980-1990

OWNER STOCK

	1980	1990	CHANGE 1980-1990 #	CHANGE 1980-1990 %
Brooklyn	2,648	5,093	2,445	92.3%
Queens	2,292	6,643	4,351	189.8%
Staten Island	760	2,604	1,844	242.6%
New York Submarket	5,700	14,340	8,640	151.6%
Essex	1,212	947	(265)	-21.9%
Hudson	1,269	404	(865)	-68.2%
Middlesex	1,070	2,285	1,215	113.6%
Monmouth(part)	484	624	140	28.9%
Union	616	963	347	56.3%
New Jersey Submarket	4,651	5,223	572	12.3%
Stapleton Market Area	10,351	19,563	9,212	89.0%

RENTER STOCK

	1980	1990	CHANGE 1980-1990 #	CHANGE 1980-1990 %
Brooklyn	25,818	24,193	(1,625)	-6.3%
Queens	11,919	13,809	1,890	15.9%
Staten Island	1,382	3,109	1,727	125.0%
New York Submarket	39,119	41,111	1,992	5.1%
Essex	9,227	11,036	1,809	19.6%
Hudson	6,954	10,823	3,869	55.6%
Middlesex	2,781	5,002	2,221	79.9%
Monmouth(part)	563	725	162	28.8%
Union	2,063	3,205	1,142	55.4%
New Jersey Submarket	21,588	30,791	9,203	42.6%
Stapleton Market Area	60,707	71,902	11,195	18.4%

Source: U.S. Census of Population and Housing, 1990.

TABLE 18
1990 OWNER OCCUPIED UNITS BY STRUCTURE TYPE
STAPLETON MARKET AREA AND COMPONENTS
1990

	1990 OWNER OCCUPIED DWELLING UNITS						
	1 UNIT DETACHED	1 UNIT, ATTACHED	2 to 4 UNITS	5 to 9 UNITS	10 OR MORE UNITS	MOBILE HOME	TOTAL
Brooklyn	30,663	48,586	97,942	7,104	26,680	3,813	214,788
Queens	123,488	50,067	75,784	3,841	47,529	4,864	305,573
Staten Island	42,134	21,680	15,233	519	2,045	1,527	83,138
New York Submarket	196,285	120,333	188,959	11,464	76,254	10,204	603,499
Essex	90,555	4,163	25,689	1,233	3,429	1,244	126,313
Hudson	17,218	7,027	32,290	2,424	7,325	1,553	67,837
Middlesex	125,397	17,629	8,035	1,905	4,464	3,561	160,991
Monmouth(part)	39,421	2,003	1,043	325	772	1,038	44,602
Union	93,355	3,603	12,864	487	1,336	863	112,508
New Jersey Submarket	365,946	34,425	79,921	6,374	17,326	8,259	512,251
Stapleton Market Area	562,231	154,758	268,880	17,838	93,580	18,463	1,115,750

	1990 OWNER OCCUPIED DWELLING UNITS						
	1 UNIT DETACHED	1 UNIT, ATTACHED	2 to 4 UNITS	5 to 9 UNITS	10 OR MORE UNITS	MOBILE HOME	TOTAL
Brooklyn	14.3%	22.6%	45.6%	3.3%	12.4%	1.8%	100.0%
Queens	40.4%	16.4%	24.8%	1.3%	15.6%	1.6%	100.0%
Staten Island	50.7%	26.1%	18.3%	0.6%	2.5%	1.8%	100.0%
New York Submarket	32.5%	19.9%	31.3%	1.9%	12.6%	1.7%	100.0%
Essex	71.7%	3.3%	20.3%	1.0%	2.7%	1.0%	100.0%
Hudson	25.4%	10.4%	47.6%	3.6%	10.8%	2.3%	100.0%
Middlesex	77.9%	11.0%	5.0%	1.2%	2.8%	2.2%	100.0%
Monmouth(part)	88.4%	4.5%	2.3%	0.7%	1.7%	2.3%	100.0%
Union	83.0%	3.2%	11.4%	0.4%	1.2%	0.8%	100.0%
New Jersey Submarket	71.4%	6.7%	15.6%	1.2%	3.4%	1.6%	100.0%
Stapleton Market Area	50.4%	13.9%	24.1%	1.6%	8.4%	1.7%	100.0%

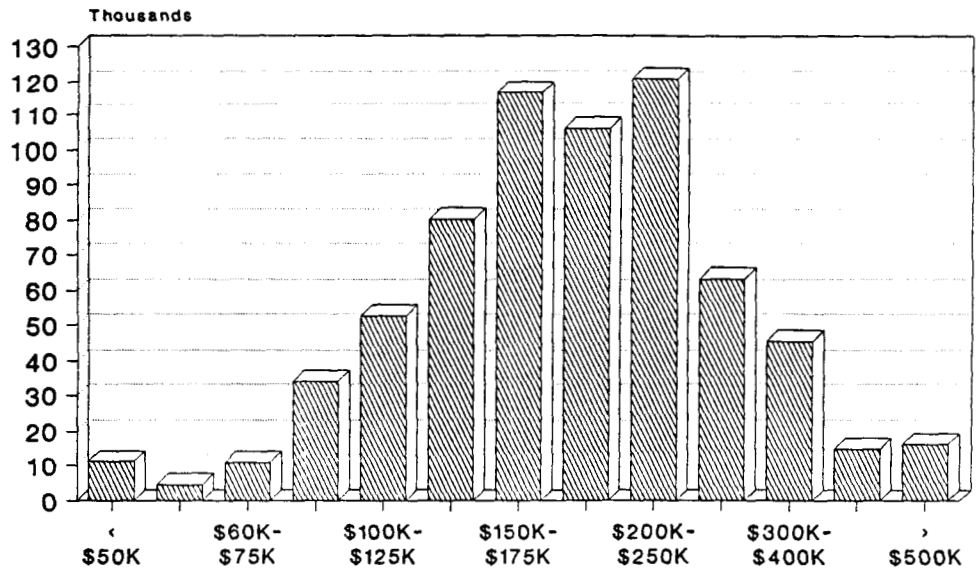
Source: U.S. Census of Population and Housing, 1990.

TABLE 19
SPECIFIED VALUE OWNER OCCUPIED UNITS
STAPLETON MARKET AREA AND COMPONENTS
1990

	Brooklyn	Queens	Staten Island	New York Submarket	Stapleton Market
Less than $50,000	2.7%	2.1%	1.2%	2.1%	1.6%
$50,000 to $99,000	7.9%	7.0%	4.6%	6.7%	7.2%
$100,000 to $149,000	13.8%	16.2%	15.6%	15.5%	19.5%
$150,000 to $199,000	28.0%	30.2%	40.4%	31.7%	32.6%
$200,000 to $299,000	32.2%	32.7%	29.2%	31.9%	27.9%
$300,000 or more	15.4%	11.8%	9.0%	12.1%	11.1%
Median	$196,100	$191,000	$186,300	$191,309	$183,471
Owner Occ. Units	74,134	163,031	60,873	298,038	681,555

	Essex	Hudson	Middlesex	Monmouth (part)	Union	New Jersey Submarket
Less than $50,000	2.0%	2.7%	0.8%	1.0%	1.0%	1.3%
$50,000 to $99,000	8.3%	15.6%	7.0%	7.4%	6.2%	7.7%
$100,000 to $149,000	15.1%	26.6%	28.5%	22.5%	20.7%	22.7%
$150,000 to $199,000	26.9%	32.0%	38.8%	27.3%	34.5%	33.3%
$200,000 to $299,000	29.1%	18.9%	20.5%	30.2%	25.5%	24.7%
$300,000 or more	18.6%	4.2%	4.5%	11.6%	12.0%	10.4%
Median	$196,100	$157,000	$164,700	$182,451	$180,500	$177,381
Owner Occ. Units	89,200	22,577	135,677	44,286	91,777	383,517

Specified Value Owner Occupied Units
Stapleton Market Area
1990



Source: US Census of Population & Hsg

occupied units in Staten Island was $186,300, $5,000 less than Queens and $10,000 less than Brooklyn. Overall, house prices in the New Jersey submarket are somewhat lower than in the New York submarket. In terms of homeownership for lower grade Navy personnel, only 8.8% of the housing stock had a value under $100,000.

C.4.c Rental Housing Stock

Much of the change in the rental housing market over the past decade, especially in New York City, was due to conversion of rental developments to cooperatives and condominiums. Despite the construction of 7,000 assisted rental units alone in the three borough market area during the 1980's, the number of rental units in the New York submarket declined by 2.9 percent or 47,000 units (Table 20). A combination of the burden imposed by the City's rent control-rent stabilization programs and the New York City real estate boom fostered a significant number of conversions from rental units to cooperatives.

Under the current New York City rent control regulations, a maximum base rent is established for tenants living continuously in units since 1971 in buildings constructed before 1947. Rent Stabilization regulates rents for buildings of six or more units built between 1947 and 1974. Besides restrictions in rents, Rent Stabilization limits landlord rights in terms of required services, lease renewals and eviction procedures. Because of these perceived regulatory burdens, there was a significant economic incentive for landlords to convert rental units to cooperatives and benefit from increasing property values during the 1980's.

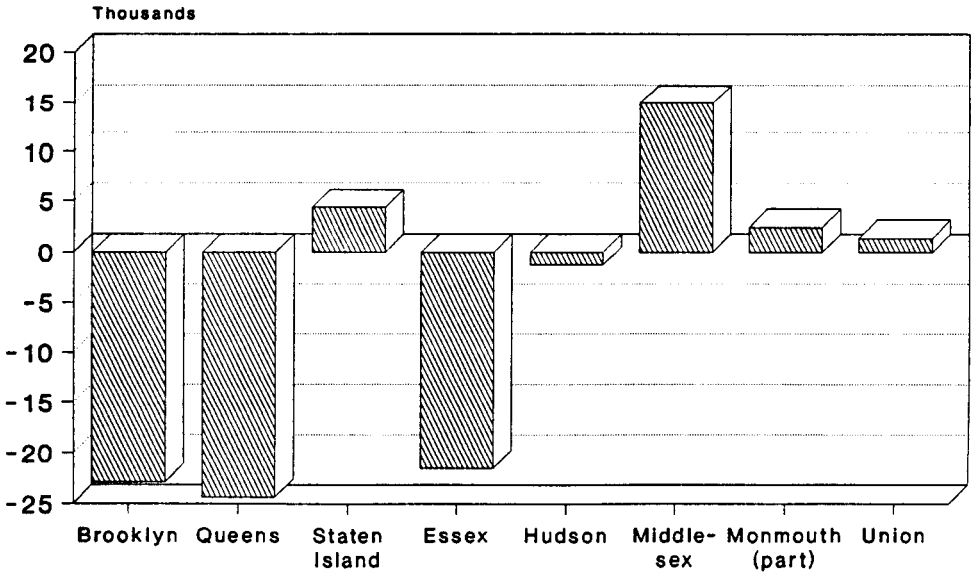
Statistically, much of the net loss in rental units was in 2 to 9 unit buildings (Table 21). However, most larger conventional rental developments in stable sections of Brooklyn

TABLE 20
CHANGE IN RENTAL STOCK
STAPLETON MARKET AREA AND COMPONENTS
1980-1990

CHANGE IN RENTAL STOCK

	1980	1990	CHANGE 80-90 #	CHANGE 80-90 %
Brooklyn	660,515	637,604	(22,911)	-3.5%
Queens	452,787	428,385	(24,402)	-5.4%
Staten Island	46,151	50,490	4,339	9.4%
New York Submarket	1,159,453	1,116,479	(42,974)	-3.7%
Essex	185,011	163,475	(21,536)	-11.6%
Hudson	153,059	151,725	(1,334)	-0.9%
Middlesex	67,867	82,844	14,977	22.1%
Monmouth(part)	11,662	14,101	2,439	20.9%
Union	69,388	70,773	1,385	2.0%
New Jersey Submarket	486,987	482,918	(4,069)	-0.8%
Stapleton Market Area	1,646,440	1,599,397	(47,043)	-2.9%

Change in Rental Stock
Stapleton Market Area
1980-1990



Source: US Census of Population & Hsg

TABLE 21
CHANGE IN RENTAL STOCK BY STRUCTURE TYPE
STAPLETON MARKET AREA AND COMPONENTS
1980-1990

	1980			1990			Change 80-90		
	1 UNIT	2 TO 9 UNITS	10 + UNITS	1 UNIT	2 TO 9 UNITS	10 + UNITS	1 UNIT	2 TO 9 UNITS	10 + UNITS
Brooklyn	41,208	296,211	296,358	20,128	269,410	315,004	(21,080)	(26,801)	18,646
Queens	56,551	177,614	206,068	31,048	166,163	209,272	(25,503)	(11,451)	3,204
Staten Island	7,752	25,330	11,645	7,957	23,990	13,921	205	(1,340)	2,276
New York Submarket	105,511	499,155	514,071	59,133	459,563	538,197	(46,378)	(39,592)	24,126
Essex	16,258	91,519	67,795	10,402	74,954	63,941	(5,856)	(16,565)	(3,854)
Hudson	10,010	83,602	52,284	5,613	79,409	53,563	(4,397)	(4,193)	1,279
Middlesex	24,357	23,541	16,926	11,315	31,171	33,715	(13,042)	7,630	16,789
Monmouth(part)	N.A.	N.A.	N.A.	3,634	4,194	5,092			
Union	12,851	35,605	18,773	7,171	35,405	23,287	(5,680)	(200)	4,514
New Jersey Submarket	63,476	234,267	155,778	38,135	225,133	179,598	(25,341)	(9,134)	23,820
Stapleton Market Area	168,987	733,422	669,849	97,268	684,696	717,795	(71,719)	(48,726)	47,946

Source: U.S. Census of Population and Housing, 1980 and 1990.

and Queens have been converted over the last five years as well. The potential reduction in multi-family rental stock is masked by the fact that most of these developments were caught in the middle of their marketing campaign by the collapse of the real estate market. On average, realtors have estimated that only between 30 and 40 percent of units in these cooperatives have been sold to individual owners. The balance of the units are currently being rented out by landlords, leaving open the option to sell at a later date. Because these cooperatives account for such a large share of the rental stock, renters in Brooklyn and Queens generally work through a broker to locate a cooperative unit for rent rather than looking for a rental office at a rental development.

A more detailed examination of the rental stock by structure type points to one of the more unique aspects of Staten Island's rental market (Table 22). Within Staten Island, less than 30 percent of rental units are in structures of 10 units or more, the lowest proportion in the Stapleton market area. In comparison, 47 percent of the overall market and 50 percent of the New York submarket's rental stock is in structures of 10 units or more. Conversely, Staten Island has a higher proportion of rental units in single family detached, single family attached and structures with 2 to 9 units.

In part reflecting the structure types in which rental units are located, Staten Island reported a relatively high median rent compared to the market area as a whole at $509 per month (Table 23, Figure 1). On average, the New Jersey market supported rents that were $42 higher than in New York. At $428, Brooklyn had the lowest rents in the market area due to a higher proportion of assisted housing in that borough. Middlesex County supported the highest average rents at $608.

TABLE 22
1990 RENTER OCCUPIED UNITS BY STRUCTURE TYPE
STAPLETON MARKET AREA AND COMPONENTS
1990

	1990 RENTER OCCUPIED DWELLING UNITS						
	1 UNIT DETACHED	1 UNIT, ATTACHED	2 to 4 UNITS	5 to 9 UNITS	10 OR MORE UNITS	MOBILE HOME	TOTAL
Brooklyn	6,260	13,868	188,619	80,791	315,004	8,869	613,411
Queens	17,023	14,025	129,827	36,336	209,272	8,093	414,576
Staten Island	4,282	3,675	21,626	2,364	13,921	1,513	47,381
New York Submarket	27,565	31,568	340,072	119,491	538,197	18,475	1,075,368
Essex	6,589	3,813	58,816	16,138	63,941	3,142	152,439
Hudson	2,949	2,664	56,714	22,695	53,563	2,317	140,902
Middlesex	7,042	4,273	21,431	9,740	33,715	1,641	77,842
Monmouth (part)	2,868	766	2,964	1,227	5,094	455	13,374
Union	5,157	2,014	28,844	6,561	23,287	1,705	67,568
New Jersey Submarket	24,605	13,530	168,769	56,361	179,600	9,260	452,125
Stapleton Market Area	52,170	45,098	508,841	175,852	717,797	27,735	1,527,493

	1990 RENTER OCCUPIED DWELLING UNITS						
	1 UNIT DETACHED	1 UNIT, ATTACHED	2 to 4 UNITS	5 to 9 UNITS	10 OR MORE UNITS	MOBILE HOME	TOTAL
Brooklyn	1.0%	2.3%	30.7%	13.2%	51.4%	1.4%	100.0%
Queens	4.1%	3.4%	31.3%	8.8%	50.5%	2.0%	100.0%
Staten Island	9.0%	7.8%	45.6%	5.0%	29.4%	3.2%	100.0%
New York Submarket	2.6%	2.9%	31.6%	11.1%	50.0%	1.7%	100.0%
Essex	4.3%	2.5%	38.6%	10.6%	41.9%	2.1%	100.0%
Hudson	2.1%	1.9%	40.3%	16.1%	38.0%	1.6%	100.0%
Middlesex	9.0%	5.5%	27.5%	12.5%	43.3%	2.1%	100.0%
Monmouth (part)	21.4%	5.7%	22.2%	9.2%	38.1%	3.4%	100.0%
Union	7.6%	3.0%	42.7%	9.7%	34.5%	2.5%	100.0%
New Jersey Submarket	5.4%	3.0%	37.3%	12.5%	39.7%	2.0%	100.0%
Stapleton Market Area	3.4%	3.0%	33.3%	11.5%	47.0%	1.8%	100.0%

Source: U.S. Census of Population and Housing, 1990.

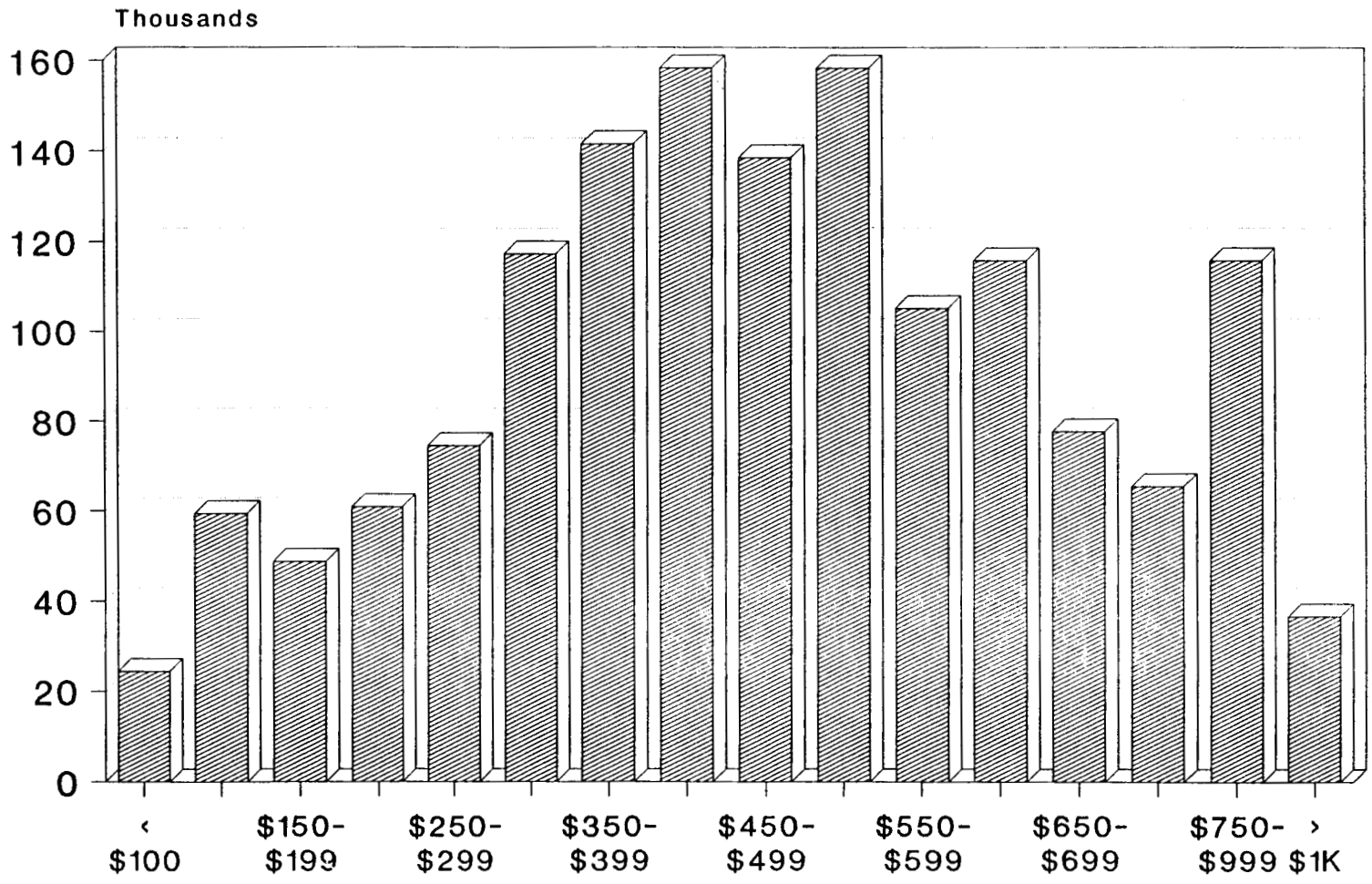
TABLE 23
CONTRACT RENT OF RENTER-OCCUPIED HOUSING UNITS
STAPELTON MARKET AREA AND COMPONENTS
1990

	Brooklyn	Queens	Staten Island	New York Submarket	Stapleton Market
Less than $100	1.4%	0.7%	1.0%	1.1%	1.6%
$100 to $149	5.1%	2.4%	4.4%	4.0%	3.9%
$150 to $199	4.3%	2.0%	3.5%	3.4%	3.2%
$200 to $249	5.2%	2.6%	3.6%	4.2%	4.0%
$250 to $299	6.3%	3.6%	3.5%	5.1%	4.9%
$300 to $349	9.4%	6.7%	5.3%	8.2%	7.7%
$350 to $399	11.1%	9.3%	5.9%	10.2%	9.3%
$400 to $449	11.6%	10.2%	9.3%	10.9%	10.4%
$450 to $499	9.7%	8.8%	9.4%	9.4%	9.1%
$500 to $549	9.9%	10.4%	13.7%	10.3%	10.4%
$550 to $599	5.9%	6.8%	8.9%	6.4%	6.9%
$600 to $649	6.1%	8.3%	9.1%	7.1%	7.6%
$650 to $699	3.6%	6.0%	5.5%	4.6%	5.1%
$700 to $749	3.0%	5.6%	3.9%	4.1%	4.3%
$750 to $999	4.5%	11.2%	7.9%	7.2%	7.6%
$1,000 or more	1.4%	3.4%	1.8%	2.2%	2.4%
No cash rent	1.4%	1.9%	3.4%	1.7%	1.7%
Median	$428	$513	$509	$465	$477
Renter Occ. Units	612,331	412,957	47,082	1,072,370	1,522,396

	Essex	Hudson	Middlesex	Monmouth (part)	Union	New Jersey Submarket
Less than $100	4.2%	2.3%	1.4%	1.7%	2.3%	2.8%
$100 to $149	4.8%	3.9%	1.8%	3.1%	2.2%	3.6%
$150 to $199	3.1%	3.1%	1.3%	2.8%	2.0%	2.6%
$200 to $249	3.7%	5.0%	1.5%	3.5%	2.7%	3.6%
$250 to $299	4.5%	6.3%	1.7%	4.1%	3.8%	4.5%
$300 to $349	7.2%	8.7%	2.7%	3.8%	5.0%	6.5%
$350 to $399	8.6%	8.3%	3.7%	3.5%	6.3%	7.2%
$400 to $449	10.8%	9.4%	5.5%	5.0%	8.5%	8.9%
$450 to $499	9.9%	8.1%	6.0%	6.0%	9.0%	8.4%
$500 to $549	11.2%	9.9%	9.9%	8.5%	11.9%	10.6%
$550 to $599	7.4%	7.0%	11.1%	9.5%	9.4%	8.2%
$600 to $649	7.1%	7.2%	15.0%	10.6%	9.5%	9.0%
$650 to $699	4.5%	5.2%	9.9%	7.5%	7.1%	6.1%
$700 to $749	3.5%	4.1%	7.9%	7.7%	5.0%	4.8%
$750 to $999	5.9%	7.0%	14.3%	13.0%	9.5%	8.4%
$1,000 or more	2.1%	2.9%	4.3%	6.0%	3.6%	3.1%
No cash rent	1.5%	1.5%	2.1%	3.5%	2.3%	1.8%
Median	$461	$464	$608	$598	$530	$496
Renter Occ. Units	151,785	140,543	77,291	13,179	67,228	450,026

Source: U.S. Census of Population and Housing, 1990.

Contract Rent of Renter-Occupied Hhlds
Stapleton Market Area



Source: US Census of Population & Hsg

C.4.d. Current Rental Market

In the conduct of this analysis, the consultant surveyed multi-family developments throughout the seven county market area. In addition to the rental survey, we interviewed real estate brokers and developers to quantify the cost and availability of rental units in converted cooperatives and condominiums and identify failed for-sale projects that might provide an opportunity for provision of blocks of rental units.

To understand the distribution of higher quality rental inventory, thematic maps depicting the distribution of upper quartile rents for each county or borough have been generated. The rents displayed are the average rent of the most expensive 25 percent of rental units in each census tract based on the 1990 Census. Those tracts that currently support rents comparable to rental levels allowed by the Navy are shaded black and dark grey.

- **Staten Island**

Within Staten Island, we have identified thirteen rental communities accounting for over 3,300 units. Currently, 87 units or a 2 percent vacancy rate is reported in these developments (Table 24). Two-thirds of the rental developments surveyed are high rise apartments which traditionally support smaller efficiencies and one bedroom units. Most units stated to be available are efficiencies and one bedrooms with average rents of $556 and $695, respectively.

In addition to units in multi-family developments, rental units are available in the smaller 1 and 2 unit structures that dominate the island. Based on recent editions of the

TABLE 24
SELECT MARKET RATE RENTAL COMMUNITIES
STATEN ISLAND

City	Project	Type	Total Units	Vacant Units	Monthly Rents Eff.	1 Bdrm	2 Bdrm	3 Bdrm	Location	Phone	Remarks
Staten Island	Silverlake Apts.	High Rise	220	10	$550	$650			937 Victory Boulevard	(718)727-1661	Eff & 1 Bed Avail, 3-5 yr waiting list for larger units
Staten Island	Tysons Park	High Rise	1,150			$480	$580		Tysons Lane & Ebbotts		low vacancy
Staten Island	Parkview House	High Rise	430	15		$750	$892		700 Victory Boulevard		
Staten Island	The Darmouth	High Rise	136	0	$500	$669	$863		800 Hylan Boulevard	(718)531-2200	4 to 8 month waiting list
Staten Island	Grymes Hill Apts.	Garden	520	8	$500	$608	$750	$760	35 Arlo Road	(718)442-5663	
Staten Island	Harbor View Apts.		122	18	$600	$725	$850		388 Richmond Terrace	(718)720-9434	$25/month discount for Navy personnel
Staten Island	Apts. at Silverlake		436	15		$750	$892		610,630,650,700 Victory Blvd.		
Staten Island	Gateway Arm		92	10	$675				280 St. Marks Place	(718)273-3800	No fee, Gateway Realty, Heat/Hot Water Incl
Staten Island	Harbor Gardens		113	6	$550	$750			100 Steuvisant Place	(718)273-3800	No fee, Gateway Realty, Heat/Hot Water Incl
Staten Island	Sherman		25	3	$850	$750			St. George Area	(718)273-3800	No fee, Gateway Realty, Heat/Hot Water Incl
Staten Island	Knob Hill		36	2	$550	$750			St. George Area	(718)273-3800	No fee, Gateway Realty, Heat/Hot Water Incl
Staten Island	Nocholls		20	1	$550	$750			St. George Area	(718)273-3800	No fee, Gateway Realty, Heat/Hot Water Incl
Staten Island	Casidy Associates		7	1	$450	$750			St. George Area	(718)273-3800	No fee, Gateway Realty, Heat/Hot Water Incl
Staten Island	Le Parc				$545	$650			St. George Area	(718)273-3800	No fee, Gateway Realty, Heat/Hot Water Incl
		Average			$558	$695	$805	$760			
		Total	3,307	87							

Source: Field and Phone Surveys, Legg Mason Realty Group, Inc., August 1991.

Staten Island Advance, just under 500 units have been advertised for rent on a weekly basis (Table 25). Over half of the units advertized are studios or one bedroom units. Units with three bedrooms or more make up 20 percent of the classifieds on average. Asking rent for the typical one bedroom unit is $556, while the average two bedroom asking rent is over $700. Three bedroom units rent at about $920.

Due to the emphasis on single family detached and attached rental units compared to rental developments, there is a broad distribution of rents throughout Staten Island. There are pockets of higher priced rentals including St. Georges facing Manhattan (Map 3). However, within the rest of the Island, upper quartile rents range from $600 to $800.

As in the rest of the Stapleton market area, there are a number of failed condominiums evident on Staten Island that may provide the Navy with short term opportunities to lease units.

* **Bay Street Landing** is located on Bay Street facing Manhattan. Bay Street Landing is a 150 unit rehabilitation of a warehouse originally built in 1910. Some units in the development are currently being offered for rent from $750 for a one bedroom unit to $1,500 for a two bedroom unit.

* **Bayview Tower** is a renovation that has been converted to a condominium. Of the 131 units in the development, 30 have been sold at auction. Unit breakdown is 50 percent 1 bedroom, 20 percent two bedroom and the balance efficiencies and three bedrooms. The newly formed condominium association will soon vote whether or not to allow rental of remaining units.

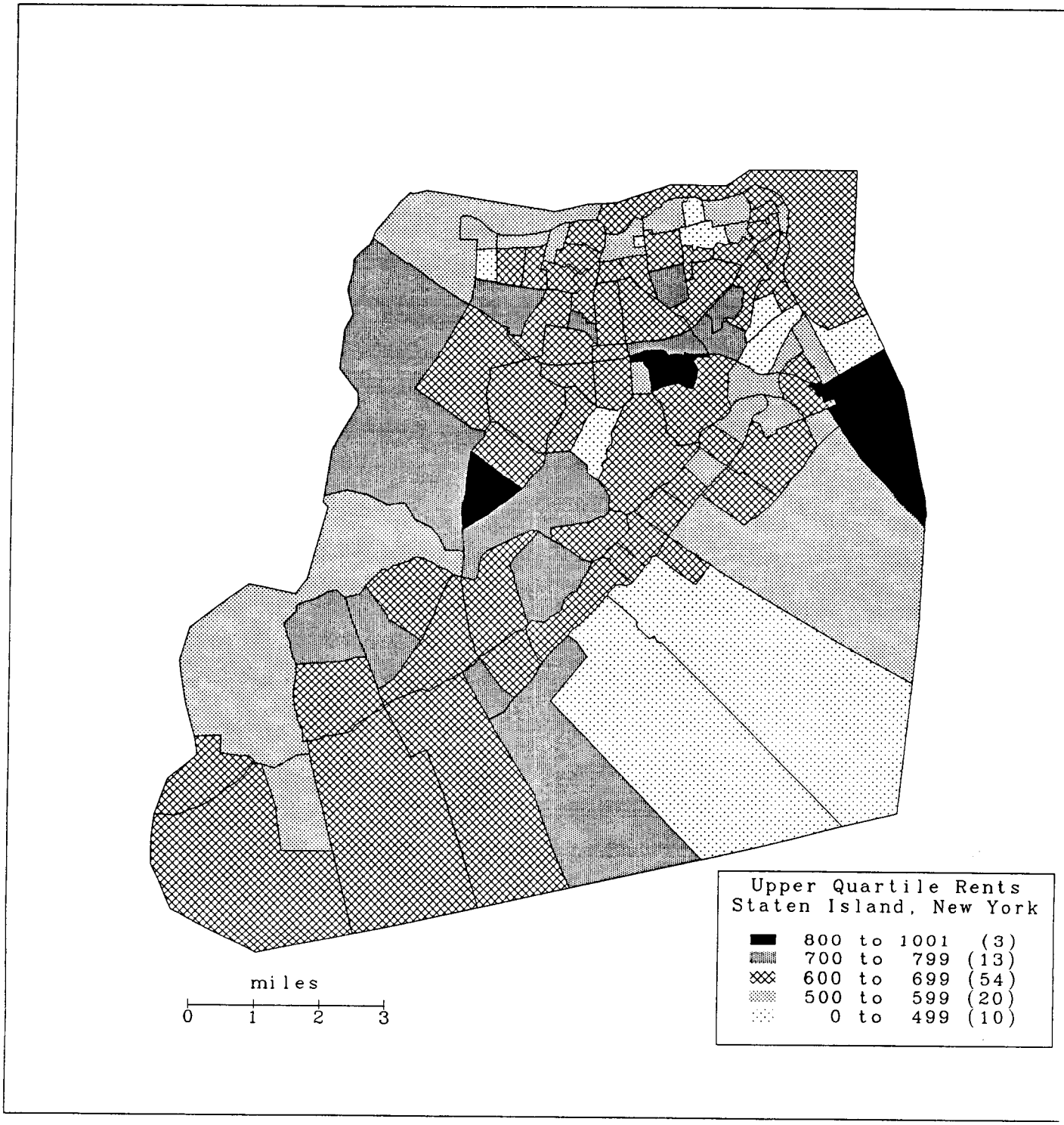
* **Le Parc** at Richmond Road and Venice Street is a failed nursing home that is in the process of being converted into a rental development. Due in part to the use for which it was designed, this 97 unit development is made up of 74 small one bedroom units and 23 efficiencies. Rents are currently anticipated to be between $545 for efficiencies and $650 for 1 bedroom units.

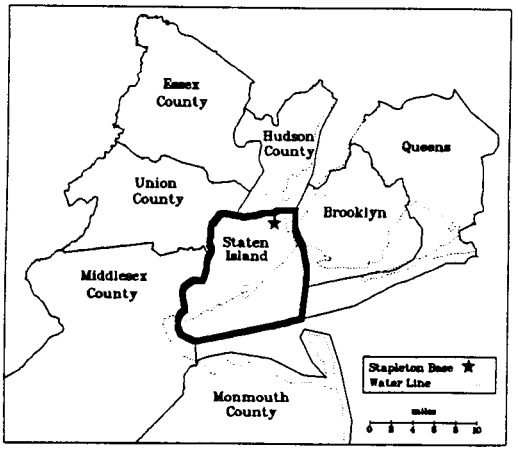
* **Castleton Condominiums** on Castleton Road is a 155 unit conversion that currently has 55 tenants and 10 unfinished units available. Ninety units still need to be

TABLE 25
ADVERTISED HOUSING UNITS FOR RENT
STATEN ISLAND
BY WEEK OF ADVERTISEMENT

UNIT SIZE	AUGUST 25, 1991		SEPTEMBER 29, 1991		OCTOBER 6, 1991	
	#	AVG RENT	#	AVG RENT	#	AVG RENT
STUDIO	74	$484.91	77	$495.06	68	$492.90
1 BED	191	$556.05	199	$566.87	191	$567.37
2 BED	114	$738.18	120	$726.29	116	$688.39
3 BED	76	$921.51	78	$926.79	83	$900.72
4 BED	19	$889.21	13	$963.08	27	$918.70
5 BED	5	$1,027.00	3	$1,150.00	5	$1,060.00
TOTAL	479	$665	490	$658	490	$659
Percent						
Studio & 1 bed	55.3%		56.3%		52.9%	
2 bed	23.8%		24.5%		23.7%	
3+ bed	20.9%		19.2%		23.5%	

Source: Staten Island Advance Newspaper





MAP 3

1990 Upper Quartile Rents By Census Tract Staten Island, New York

renovated. The owner said he would rent the unfinished units if appliances are supplied.

* **Arcadia Gardens** on Forest Avenue is another project that has faced financial difficulty. Of the 132 planned units, 60 are occupied, 6 are available for sale or rent, 25 are in various stages of construction and 38 have foundations laid. Rents are set at $650 for 1 bedroom units and $725 for 2 bedroom units. This project is in the process of being taken over by Community National Bank.

■ **Brooklyn**

Because of the rash of condo conversions in the 1980's, it is unusual to find a typical rental development in Brooklyn. Outside of two major landlords, most of the rental stock identified in this market are cooperatives or failed conversions that are available through real estate brokers.

* **Trump** Trump Corporation has 10,000 rental units located throughout New York City. Of those units, 6,500 are located in Brooklyn, 2,000 are in Queens and 1,500 are on Staten Island. Average 1 bedroom units rent between $650 and $700, while the average 2 bedroom rent is between $800 and $900. The majority of units are one bedroom. Of their 10,000 units, Trump states they carry a vacancy rate of between 1% to 1.5% or 100 to 150 units. Within their two Staten Island projects (Grimes Hill and Tysons Park), they may have 20 units available.

* **Sterrett at Spring Creek** Located conveniently off the Belt Parkway, Sterrett at Spring Creek is a massive development of 5,881 units, all of which benefit from some form of housing assistance. Six hundred of these units are funded through the HUD Section 236 program. Under this program, tenants pay the greater of 30 percent of income or the base rent set for the unit. Income and rent criteria by bedroom size are as follows:

Unit Size	Rent	Income
1 bedroom	$583 to $615	$31,920
2 bedroom	$710 to $739	$37,872
3 bedroom	$851 to $879	$44,592

Navy personnel's rent allocation would be computed in calculation of income. The waiting list for Section 236 housing is currently open. Within the overall development, there are generally 100 units available. They are allocated through all the assisted programs in the development.

As the borough directly east of Staten Island via the Verrazano Bridge, Brooklyn offers the closest extensive rental stock to Stapleton Naval Base. The most expensive rental communities in Brooklyn are in Brooklyn Heights facing Manhattan. Much of the borough's higher quality rental stock, primarily 1 and 2 bedroom cooperative apartments offered for rent, are located in the southwest section of the Borough, south of Eastern Avenue and west of Flatbush Avenue (Map 4). Access to these neighborhoods is off the Belt parkway onto the major north-south arterial of Ocean Parkway, Coney Island Avenue, Ocean Avenue and Flatbush Avenue. Some sample rental opportunities include the following:

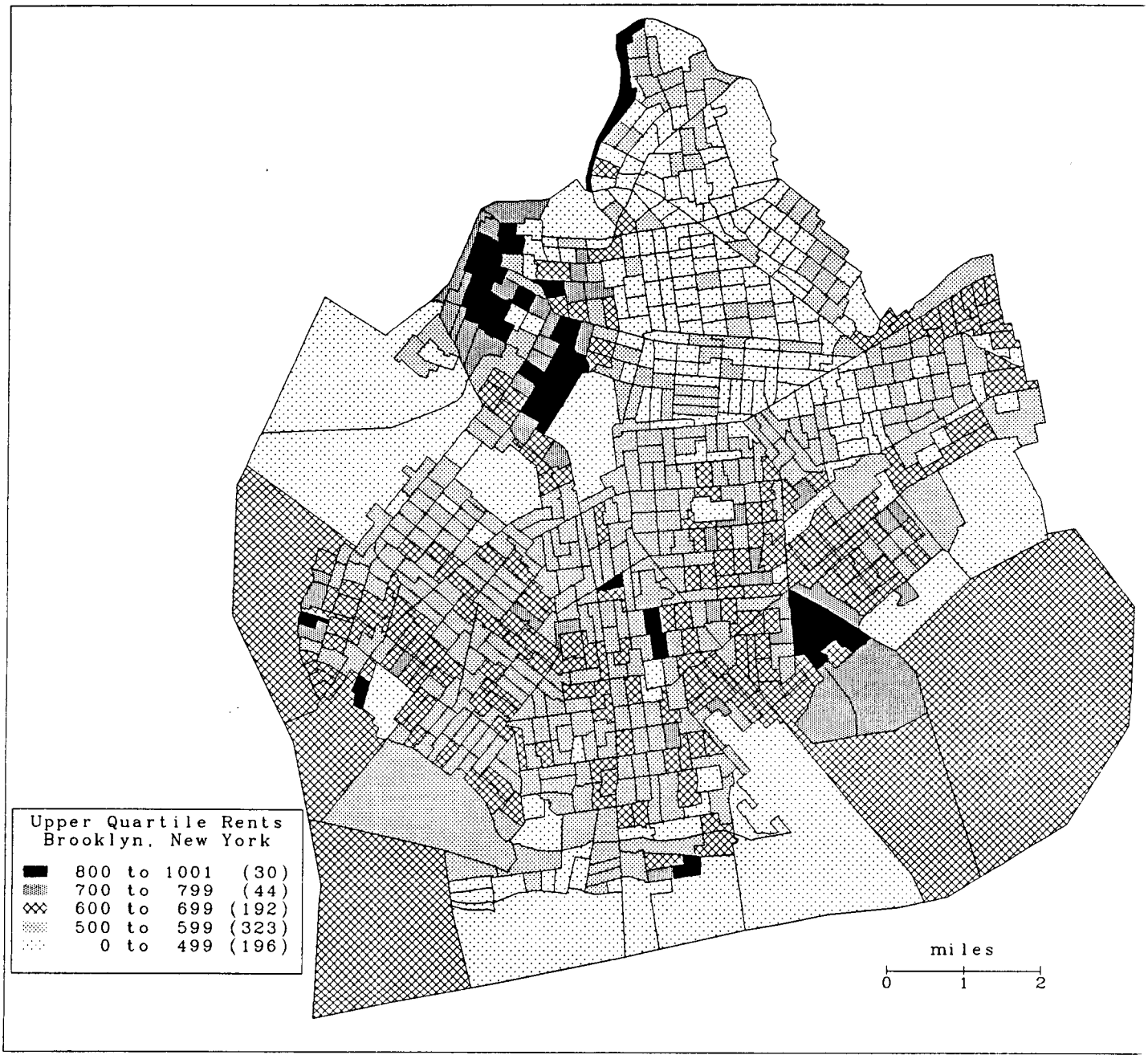
* **Bay Ridge** Located at the base of the Verrazano Bridge in Brooklyn, Bay Ridge is a solid neighborhood of attached, mid-rise and high-rise buildings. The Navy is currently rehabbing a mid-rise previously owned by the Department of the Army near Fort Hamilton. As in the balance of Brooklyn, many of the multi-family buildings in Bay Ridge have been converted to cooperatives. However, brokers have units available within the community:

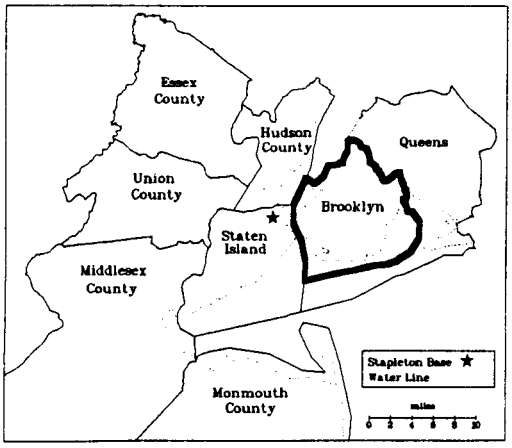
    * **Velsor Realty** has 13 apartments currently available in Bay Ridge. Efficiencies are priced at $550, 1 bedroom units average $750 and 2 bedroom units are $900.

    * **John B. Swift Realty** has between 50 and 60 rental units available at any given time. On average, one bedrooms rent between $600 and $650, accounting for 60 percent of units offered. Two bedroom units rent for $700 to $850 accounting for 20 percent of units. Three bedrooms and larger start at $900 and are estimated to account for 20 percent of rentals.

* **Other Sections of Brooklyn** To a greater extent, the available rental market in the balance of Brooklyn is dependent on units available in cooperatives. Kings Highway Realty assisted in the conversion of over 200 buildings during the late 1980's. At any given time, they have between 300 and 400 units available. On average, asking rents for one bedroom units run from $600 to $700, two bedroom units from $750 to $800, and the few three bedroom units $850 and above. Kings Highway generally charges 12% of annual rent as a fee which is traditionally paid by the tenant. Since these are not posted rents as evident in a rental community, there may be some flexibility in rents.

  Over and above these scattered units, Kings Highway has a number of blocks of units available. A sample includes:





MAP 4

1990 Upper Quartile Rents By Census Tract Brooklyn, New York

Area	Units	1 Bed	2 Bed	3 Bed
Flatlands & 50th	12		$900	$1,100
Ocean Pkwy & 18th	24		$1,200	
Flatland & 100's		$900	$1,200	
Sheepshead Bay	56	$900	$1,200	$1,300
Ocean Pkwy & Ave H	2-5	$625	$800	
Ave O & 60th Ave	2-5	$600	$750	
Bay Pkwy & 88th	2-5	$600	$750	
Bay Ridge Pkwy	2-5	$650		$850
Brighton & Coney Isl	2-5	$650	$750	$850
Manhattan Beach	2-5	$700	$800	$900
Brighton Beach	100	$625	$800	

There may be some flexibility of who pays brokerage commission (tenant or owner) if Navy rents units in block.

- **Queens**

As in Brooklyn, the Queens rental market shrunk during the 1980's as rental units were converted to cooperatives. As in the rest of New York, rents for older rental developments are restricted by New York's Rent Control/ Rent Stabilization laws.

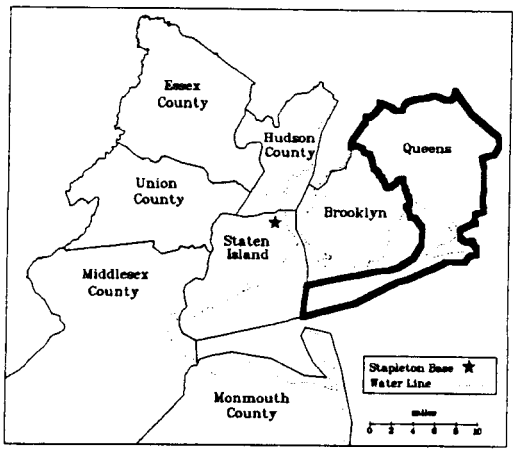
The strongest rental neighborhoods within Queens are in the Northern and Western parts of the borough from Kew Gardens in the northwest to Bellrose and Bayside adjacent to Nausau County on the northeast (Map 5).

The lower range of asking rents is the stabilized Lefrak City with 1 bedroom units renting for $600 and 2 bedroom units renting for $775. Within Kew Gardens, 1 bedroom rents were priced at $700 with 2 bedroom units rented for $750 to $800. In the western part of the borough, rents are $25 to $50 more. Vacancies are reported between 1 and 2 percent.

Within this market, unsold units in cooperatives make up a significant component of the rental market. However, with more than half the units owner occupied, rental units

Upper Quartile Rents
Queens, New York

- $800 to $1,001 (134)
- $700 to $799 (161)
- $600 to $699 (245)
- $500 to $599 (90)
- $0 to $499 (40)



MAP 5

1990 Upper Quartile Rents By Census Tract Queens, New York

seem to make up a slightly lower proportion of cooperative units than in Brooklyn.

The difficulty with these locations is the commuting trip to Staten Island. Either the northern route via the Gowanus and the Brooklyn-Queens Expressway or the southern route via the Belt Parkway and the Van Wyck require at least 45 minutes travel time during rush hour. There are too many intervening opportunities of similar housing stock in acceptable neighborhoods in Brooklyn to justify such a long commute to Queens.

- **Northern New Jersey**

Within the five Northern New Jersey Counties, we have identified and surveyed 175 developments made up of 45,278 units. Of those units, 886 were reported vacant, representing a 2 percent vacancy rate. The rental projects presented are all market rate rentals. They do not include subsidized or low income housing. We also excluded housing for senior citizens.

Studio apartments rent for an average of $531 per month for 701 square feet. One bedroom units average 814 square feet with an average rent of $645 per month. With an average rent of $787 per month, two bedroom apartments offer an average of 1,040 square feet. Many of the three bedroom units we surveyed were townhouse style units accounting for their large size, an average of 1,731. The average rent for a 3 bedroom unit is $957 per month.

Based on the sample of developments for which we obtained unit distributions, over 72 percent of the rental units in this market are efficiencies and one bedrooms (Table 26). Middlesex and Monmouth County had the highest proportion of 2 bedroom units with 32

and 30 percent, respectively. However, the larger units with 2 bedrooms or more become available less frequently than the efficiencies or one bedrooms.

Far and away, Middlesex County has the most extensive inventory with almost 100 communities and 28,600 units (Table 27). The highest concentration of Class A rental communities were in the northern section of the County around Edison, New Brunswick and Woodbridge (Map 6). Overall, Middlesex and Monmouth (Table 28) have the highest proportion of rental units, with rents above $700, compared to the other markets in the Stapleton area. The western part of Union County around Plainfield and Scotch Plains also supports relatively high rents (Map 7 and Table 29).

The Newark area of Essex County and Hudson County both have a high concentration of subsidized and senior citizen communities. Proportionally, both these markets have fewer rental units with rents over $700 (Table 30, Map 8 and Table 31, Map 9). Within Essex County, the western part of the county (West Orange, Caldwell) and the northern townships (Mountclair and Verona) support the more expensive units. Hudson County's limited high priced rentals are facing Manhattan.

In general, heat, hot water, and cooking gas are included in the rent, with tenants paying only for their electric. Obviously, electric usage varies, especially in the summer depending on air conditioning usage. However, $25 to $40 per month seems to be the average winter utility bill, creeping up to about $100/month in the summer. For those tenants paying all utilities, utility costs average between $70 and $90 per month. Averaging

TABLE 26
BREAKDOWN OF UNITS BY BEDROOM SIZE
NORTHERN NEW JERSEY MARKET

	Units Surveyed		Eff	1 Bed	2 Bed	3 Bed
Middlesex	28,632	100.0%	1.2%	64.0%	32.9%	0.0%
Monmouth	2,125	100.0%	2.2%	67.6%	30.1%	0.0%
Union	4,869	100.0%	0.0%	81.4%	18.6%	0.0%
Essex	8,840	100.0%	0.0%	89.5%	13.7%	1.1%
Hudson	812	100.0%	0.9%	71.2%	27.3%	0.2%
N. New Jersey	45,278	100.0%	0.9%	71.2%	27.3%	0.2%

Source: Sample survey, Legg Mason Realty Group, Inc. August, 1991.

TABLE 27
SELECT MARKET RATE RENTAL COMMUNITIES
MIDDLESEX COUNTY

City	Project	Type	Total Units	Vacant Units	Monthly Rents Eff.	1 Bdrm	2 Bdrm	3 Bdrm	Location	Phone	Remarks
Colonia	North Hill Apts.	Garden	41	4	$620	$648	$770		St. Georges Street	(908)636-6847	
Colonia	Colonia Gardens	Garden	24	2		$590			Route 35	(908)745-9149	
Dayton	East Garden @ Dayton Ctr	Garden	300	6		$665	$775		Georges Road	(908)329-6060	
Edison	Menlo Park Apts.	Garden	202		$565	$610	$760		350 A Lafayette Road	(908)549-3519	
Edison	Oxford Arms	Garden	350	0		$773	$890		326 Hana Road	(908)985-8366	some 1 & 2 bdrms have loft
Edison	Clara Barton Apts.	Gar & Town	192	1		$571	$689		99 Wildwood Avenue	(908)241-7964	
Edison	Fertel Apts.		4	0			$725		33 Albany Street	(908)738-0634	
Edison	Antonakakis Apts.	Home	3	0					345 Plainfield Avenue	(908)572-5122	
Edison	Bel-Aire Apts.	Garden	55	0		$600	$740		2333-2343 Woodbridge Avenue	(908)572-6488	
Edison	Margate	Garden	630	0		$645	$775		197 Evergreen Road	(908)745-9149	
Edison	Loring Ave Apts.	Garden	7	1		$610			259 Loring Avenue	(908)985-6478	also have some 2 bedroom units
Edison	Walden Village Apts.	Garden	85		$500	$590	$700		555 Old Post Road	(908)287-5111	
Edison	Central Ave Apts.	Garden	10	1		$610			298 Central Avenue	(908)985-6478	also have some 2 bedroom units
Edison	Edison Woods	Garden	490	0		$755	$933		Forest Haven Boulevard	(908)549-7374	waiting list
Edison	Edison Village	Garden	365			$645			2674 Wildberry Court	(908)985-6556	
Edison	Penn Apts.	Garden	8	1		$565	$525		250 Penn Avenue	(908)297-1700	
Edison	Edison Apts.	Garden	52	0		$525	$600		238 Old Post Road	(212)874-7945	
Edison	John R Guaquinto Apts.	Garden	59	1		$575			1967 State Highway 27	(908)819-0800	scattered units, all in Edison
Edison	Durham Woods		1,000	0		$645	$715		32 N Reading & New Durham Roads	(908)549-7999	
Edison	Blueberry Village	Garden	428			$630			Brunswick Ave off Plainfield Ave	(908)985-6556	
Edison	Station Place	Garden	16	0	$350				316-342 Thornall Street	(908)548-5393	
Edison	Parsonage Hill Village	Garden	300			$730	$835		307 Parsonage Road	(908)548-4545	
Edison	Rivendell @ Edison	Gar & Town	455	4		$715	$910	$1,095	Rivendell Way	(908)985-9504	
Edison	Chesterfield Townhouses	Townhouse	95	0			$930	$1,005	3008 Hana Road	(908)287-5103	
Edison	Riverview at Edison	Garden	250	10		$598	$698		Route 1	(908)745-9149	some units have been renovated
Edison	Evergreen Meadows Apts.	Gar & Town	300	0		$678	$808		208 White Birch Road	(908)906-7667	only 10-20 towns, towns have dens
Edison	Wilson Apts.	House	3						244 Loring Avenue	(908)985-5825	
Edison	Millbrook Village		700	25		$615	$750		86 Horizon Drive	(908)287-4545	
E. Brunswick	Royal Garden Apts.	Garden	96	5		$689	$849		85 Tices Lane	(908)257-5304	
E. Brunswick	Sherwood Court		41	4		$620			Route 18	(908)846-8100	
E. Brunswick	Courts of E. Brunswick	Gar & Town	296	12		$675	$835		3 Lake Avenue	(908)745-9149	renovated
Fieldville	Birchview Gardens	Garden	287	2		$690	$755		Birchview Drive off River Road	(908)469-7067	
Fords	Sleepy Hollow Garden	Garden	48	2		$715	$830		300 Ford Avenue	(908)632-9250	
Fords	Kensington Gardens	Garden	800		$565	$610	$760		10 Wisteria Drive	(908)225-2323	
Highland Park	Benner House Apts.	Garden	16	0		$675			117 Benner	(908)846-3574	
Highland Park	Magnolia Gardens	Garden	50			$620	$720		60 Woodbridge Avenue	(908)572-3636	
Highland Park	Forest Glen		157	0		$725	$845		Cedar Lane off River Road	(908)846-8600	
Highland Park	Donaldson Park Apts.	Garden	150	0			$745	$820	319-C Crowells Road	(908)572-1326	
Highland Park	Parktown House Apts.	High-Rise	84	4		$740	$940		11 Raritan Avenue	(908)846-4260	also have efficiencies
Highland Park	Tree Tops		216	5		$755	$915		Cedar Lane off River Drive	(908)846-0400	
Highland Park	Cedar Arms		400	3		$650	$750		Cedar Lane off River Road	(908)846-0806	
Highland Park	Orchard Associates	Garden	208	0		$575	$675		277 S. 11th Avenue	(908)247-5357	
Hopelawn	Florida Grove Manor	Garden	245	3		$615	$775		Sayreville Ave & Florida Grv Rd	(908)826-4006	mostly one bedrooms
Iselin	Bristol Arms Apts.	Garden	132	0		$668	$785		Gill Lane	(908)225-2525	
Iselin	Green Plaza Apts.	Garden	492	5			$840		North & Green Streets	(908)750-0573	

Continued...

TABLE 27 CONT.
SELECT MARKET RATE RENTAL COMMUNITIES
MIDDLESEX COUNTY

City	Project	Type	Total Units	Vacant Units	Monthly Rents Eff.	1 Bdrm	2 Bdrm	3 Bdrm	Location	Phone	Remarks
Laurence Harbor	Parkview @ Madison Apts.	Garden	240	0		$600	$740		Matawan Road	(908)566-4100	
Madison Park	Madison Gardens		612	0		$575	$710		Routes 34 & 9	(908)	
Menlo Park	Greenfield Gardens	Garden	321	3		$648	$753		Evergreen Road	(908)549-0200	
Middlesex	Middlesex Village	Garden	318	3		$675	$775		Marlborough Avenue	(908)356-5550	
Monmouth Junc.	Royal Oaks Apts.	Gar & Town	730			$762	$854		701 Royal Oaks Court	(908)821-5700	would work with Navy on lease terms
New Brunswick	Tov Manor		288	0		$625	$745		Phelps Avenue off Route 18	(908)878-7200	may have some openings Oct 15th
New Brunswick	Livingston Terrace	Garden	123	3		$525	$625		44 D Livingston Avenue	(908)846-5315	
New Brunswick	Raritan Gardens	Garden	525			$550	$650		1 Chester Circle	(908)846-5315	a few vacancies
New Brunswick	Quentin Gardens	Garden	60	2			$625		116 Quentin Avenue	(908)545-9738	
New Brunswick	Brunswick Arms Apts.	Mid-Rise	75	0	$450	$550	$695		119 Livingston Avenue	(908)249-4748	few 2 bdrms, usually 1-2 vacant/mo.
New Brunswick	Regency Manor Apts.	Garden	300	15		$595	$750		Regency Manor Drive	(908)745-9149	
New Brunswick	Birchwood Terrace Apts.					$700	$740		Hamilton & Lewis Streets	(908)828-5607	
New Brunswick	Rentorations Ltd		40	5		$550	$725	$900	123 Livingston Avenue	(908)247-4966	scattered bldgs,4 bdrm $1200/mo.
New Brunswick	New Brunswick Apts.	Gar & Town	206	0		$557	$661	$787	Commercial Ave & Memorial Pkwy	(908)745-9200	4 bdrm town $918, waiting list
New Brunswick	Joyce Kilmar Apts.	Garden	92	7	$525	$625	$760		10 Reed	(908)247-0627	
N. Brunswick	Colony House	High Rise	262	6	$699	$899	$1,283		Landing Lane and Georges	(908)846-4811	
N. Brunswick	North Brunswick Manor	Gar & Town	644	1		$615	$838		US Highway #1	(908)246-2960	
N. Brunswick	Hidden Lake Apts.	Gar & Town	525			$795	$1,067		1 Lincoln Place	(908)821-8088	
N. Brunswick	North Brunswick Garden	Garden	644						13 A Pardun Road		
N. Brunswick	Oak Leaf Village	Garden	184	4		$639	$769		1435 Oak Tree Drive	(908)249-1141	
N. Brunswick	North Village Apts.	Garden	390			$703	$860		Georges & Cranbury Cross Roads	(908)246-1854	prefers no Navy if lease may be broken
N. Brunswick	Georgetown Associates	Garden	238	4		$575	$675		1470-1 Oaktree Drive	(908)846-5315	
N. Brunswick	Colony Oaks	Garden	360	12		$715	$910		Petunia Drive/Finnegans Lane	(908)297-5222	
N. Piscataway	Ridgedale Gardens	Garden	252	10		$660	$750		300 Randolphville Road	(908)752-4830	
Old Bridge	Madison Arms Apts.	Garden	180	0		$640	$750		315 Rellim Drive	(908)679-5237	adult tenancy
Old Bridge	Glenwood Apts.	Garden	1,160	10	$535	$640	$755		35 D Spruce Lane	(908)727-0300	
Old Bridge	Claridge Court Garden	Gar & Town	324	5		$575	$713		State Hwy 18	(908)360-9494	u/r, 64 of the 2 bdrms are duplexes
Old Bridge	Nieuw Amsterdam Village	Garden	480			$603	$705		US Highway #9	(908)721-9336	
Perth Amboy	Carteret Gardens	Garden	140	6		$600	$745		63 A Wedgewood Drive	(908)541-7899	
Piscataway	Rivercrest Apts.	Garden	223			$653	$778		280 River Road	(908)469-4880	
Piscataway	Royal Gardens	Garden	550			$630	$770		13 Royal Drive	(908)752-3682	some vacancies
Piscataway	Princeton Gardens	Garden	258	0	$530	$570	$690		25 Princeton Road	(908)752-1050	
Piscataway	Pleasant View Gardens	Gar & Town	1,142			$615	$825		258 Carlton Avenue	(908)968-6348	special for 1st 6 mos. $399-$499
Piscataway	Carlton Club	Garden	436			$675	$795		23 Carlton Club Drive	(908)752-1777	can't give out vacancies
Plainsboro	Fox Run Apts.	Garden	770	1		$645	$805		60 Fox Run Drive	(908)390-1144	1 mo. free+ $20 to $40 off each mo
Plainsboro	Ravens Crest Apts.	Garden	704	5		$660	$825		3201 Ravens Crest Drive	(908)275-0490	
Plainsboro	Deer Creek Apts.	Garden	280	5		$605	$748		Deer Creek Drive	(609)275-9433	
Plainsboro	Quail Ridge	Garden	1,032		$545	$615	$748		2005 Quail Ridge Road	(609)275-3956	
Plainsboro	Hunters Glen Apts.	Garden	900			$605	$745		1109 Hunters Glen Drive	(609)799-1611	
South River	Leonardine Garden Apts.	Garden	140	15		$655	$740		Leonardine Ave & Old Bridge Tpk	(908)257-7448	
South River	Emmess Apts LTD	Garden	96	1		$619	$759		Riverview Drive	(908)238-4695	
S. Brunswick	Colonial Village	Garden	400			$649	$810		2 Taylor	(908)846-2233	short term leases available
Woodbridge	Queen Garden Apts.	Garden	200	0		$563	$655		4 Ronald Drive	(908)382-5024	waiting list
Woodbridge	Kings Gardens Apts.	Garden	140	0		$563	$655		Walter Drive	(908)382-5024	waiting list
Woodbridge	Cloverleaf Gardens	Garden	380	3		$555	$700		St. Georges Avenue	(908)634-5760	
Woodbridge	Hillside Gardens	Gar & Town	350	4		$650	$928	$1,350	Crow's Mill Road off Route 287	(908)738-1112	mostly 1 br, 50 units to be built
Edison	Valley Manor	Garden	200	5		$610	$750		141 C Marina Drive	(908)985-0659	
Edison	Parkwood Gardens	Garden	578	4		$613	$735		11 Koster Boulevard	(908)548-3661	
		Average			$490	$623	$755	$851			
		Total	28,632	240							

Source: Field and Phone Surveys, Legg Mason Realty Group, Inc., August 1991.

Upper Quartile Rents
Middlesex Co, New Jersey

800 to 1001 (50)
700 to 799 (38)
600 to 699 (49)
500 to 599 (17)
0 to 499 (21)

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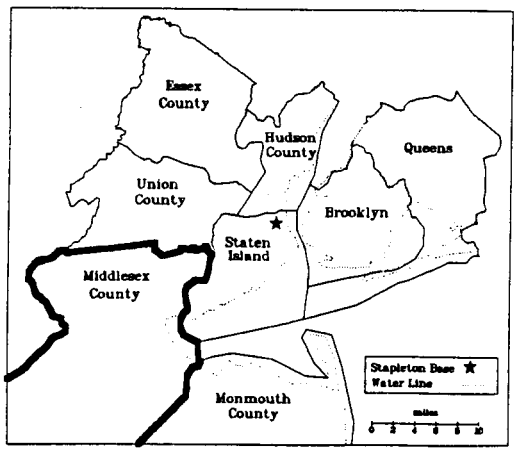


MAP 6

1990 Upper Quartile Rents By Census Tract Middlesex County, New Jersey

TABLE 28
SELECT MARKET RATE RENTAL COMMUNITIES
MONMOUTH COUNTY

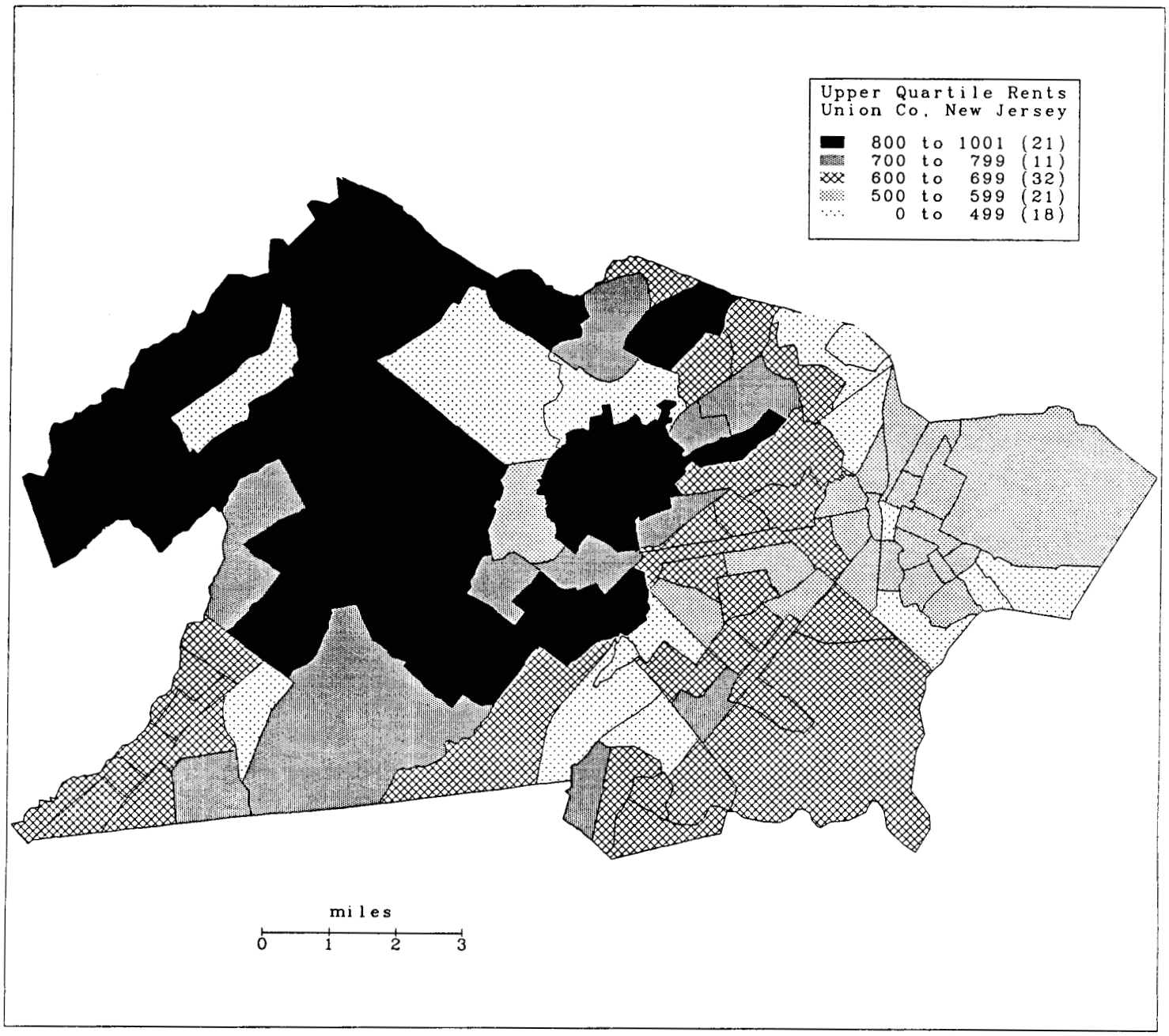
City	Project	Type	Total Units	Vacant Units	Monthly Rents Eff.	1 Bdrm	2 Bdrm	3 Bdrm	Location	Phone	Remarks
Atlantic High.	Capri Apts.	Garden	104	12		$560	$735		East Avenue	(908)291-0006	
Atlantic High.	Harborview	High Rise	81	27		$950	$1,200	$1,400	10 Ocean Boulevard	(908)291-0237	formerly Highlandia Apts.
Keansburg	Beachview Gardens	Garden	44	2		$560			544 Beachway	(908)787-4875	have some 2 bdrms, but none available
Keyport	Green Grove Gardens	Garden	164	3	$535	$625	$785		99 Green Grove Avenue	(908)264-1846	
Matawan	Longbrook Apts.	Garden	240	6		$550	$660		Sutton Drive	(908)745-9149	
Matawan	Matawan Terrace Apts.	Garden	160	0		$550	$642		47 Matawan Terrace	(908)583-8838	
Matawan	Rockford Arms Apts.	Garden	72	12		$610	$715		Morristown and Cross Roads	(908)566-4010	
Matawan	Tree Haven	Garden	268	2		$648	$750		Aberdeen Road	(908)583-1357	
Matawan	Balmoral Arms	Garden	52	1		$615	$715		Aberdeen Road	(908)566-2141	adult tenancy
Matawan	Prospect Point Gardens	Garden	40	0		$670	$750		16 Prospect Place	(908)566-1061	
Middletown	Thousand Oaks Village	Garden	304	25		$550	$725	$790	State Highway #36	(908)291-4050	
Middletown	Knollwood Gardens	Garden	272	4		$710	$818		1 Kings Highway	(908)671-0021	1 year lease only-60 day notice after 1st yr
Red Bank	Les Gertrude Apts.	High Rise	40	0		$675	$750	$900	345 Broad	(908)741-2264	
Red Bank	Twin Gables Apts.	Low Rise	33	1		$645	$795		36 Riverside Avenue	(908)741-7703	
Red Bank	Grandville Towers	High Rise	90	3		$634	$768		19 Morford Place	(908)842-7133	
Red Bank	Prospect Hill Apts.	Garden	65	5		$675	$750		76 A Throckmorton Avenue	(908)741-2264	
Red Bank	Green Tree Apts.	Garden	96	0	$415	$550	$690		239 Spring Road	(908)741-3953	
		Average			$475	$634	$766	$1,030			
		Total	2,125	103							

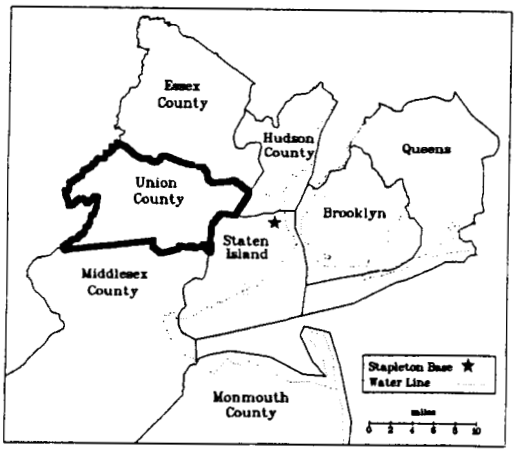
Source: Field and Phone Surveys, Legg Mason Realty Group, Inc., August 1991.

TABLE 29
SELECT MARKET RATE RENTAL COMMUNITIES
UNION COUNTY

City	Project	Type	Total Units	Vacant Units	Monthly Rents Eff.	1 Bdrm	2 Bdrm	3 Bdrm	Location	Phone	Remarks
Cranford	Parkway Village Apts.	Garden	115	2		$700	$800		Parkway Village	(908)276-2711	part of building is condo-only a few rentals
Elizabeth	Hancock House	High Rise	130	1			$650		1380 North Avenue	(908)686-1800	
Elizabeth	Elizabethtown Gardens		140	1	$485	$515	$595		1047 Monroe & North Avenues	(908)289-8940	
Elizabeth	Chilton Towers	High Rise	198	7					W. Jersey & Chilton Streets	(908)354-6678	
Elizabeth	Andover House	Garden	50	1		$550			W. Jersey Street	(908)289-9177	
Elizabeth	Carlton House	High Rise	80	1		$555	$655		707 N. Broad	(908)354-1952	can break 1 year lease with 60 days notice
Elizabeth	Queen Elizabeth Apts.	High Rise	103	56	$558	$702	$950		801 N. Broad Street	(908)351-9555	converting to condo, but developer went bust
Elizabeth	Country Club Ests.		160	0		$550			539 Bond Street	(908)289-2209	
Elizabeth	Cherry Hill Towers	High Rise	69	0		$550	$850		518 Cherry Street	(908)686-1800	
Elizabeth		Walk-Up	31	1		$515			105 Grove Street	(908)241-7964	
Linden	Sunnyfield Gardens	Garden	120	0		$550	$675		343 Academy Terrace	(908)486-4800	
Linden	Lindcrest	Garden	284			$530	$635		1116 Stiles	(908)486-3775	have 3 bdrm units-never available
Linden	Linden Port Apts.	Garden	77	2		$610	$710		E. Elizabeth Avenue	(201)736-0405	
Linden	Wood Arms		42			$525			30 E. Elm	(908)925-9545	
Linden	Brookside Garden	Townhouse	66	5		$635	$750		1350 S. Wood Avenue	(908)241-7964	
Plainfield	Quakerhouse Apts.	Garden	15	3			$749		E. Front Street	(908)232-2220	
Plainfield	Brooklyn Gardens	Garden	45	0		$575	$675		E. Front Street	(908)965-0659	
Plainfield	Norwood Gardens	Gar & Town	70	4			$788		563 E. Front Street	(908)757-0056	garden apts $725/mo., duplexes $850/mo.
Plainfield	Leland Gardens		256	3-4		$530	$590		1227 E Front & Leland Avenue	(908)756-2339	
Rahway	Hamilton Apts.	Garden	58	2		$615			788 Hamilton St & St Georges Ave	(908)382-8931	
Rahway	Rahway Plaza Apts.	High Rise	288	3		$555	$670	$745	1181 Main & Adam Streets	(908)388-3000	incomes range from $27,000-$45,000
Rahway	Cambridge Court	Garden		0		$533	$730		W. Main & Coach Streets	(908)388-5020	
Roselle	Oak Tree Village		94	0					Third Avenue	(908)241-6150	
Roselle	Rainbow Garden Assoc.	Garden	98	3		$600			220 W Second Avenue	(908)241-7964	
Roselle	Ardleigh Properties	Garden	310	4		$550	$650		N. Wood and Melrose Terrace	(908)245-9100	rent control
Roselle	Rainbow Garden	Garden	96	2	$500	$600			224 W. Second Avenue	(908)241-8504	
Roselle Park	Colfax Manor	Garden	192	1		$685	$810		2 Colfax Manor	(908)245-7963	
Roselle Park	The Grande Apts.	Garden	119	5	$530	$650	$773		240 W. Summer Avenue	(908)241-7591	
Roselle Park	Sunrise Village Apts.	Garden	275			$600			145 A Jerome	(908)241-4344	also have 2 bedroom units
Scotch Plains	Riverview Terrace	Garden	120	1		$650	$765		Rivervale Court	(908)233-8385	
Scotch Plains	Forest Park Village	Garden	35	2		$800	$1,015		519 Park Avenue	(908)233-6393	
Scotch Plains	Scotch Plains Gardens	Garden	96	1		$590			Valley Scent Ave. & E. Front St.	(908)233-6393	
Scotch Plains	Bayberry	Garden	148	1		$650	$765		across from Riverview Terrace	(908)241-7964	
Scotch Plains	Ashbrook Manor North		47	1		$818			Martine and Lake Avenue	(908)233-6393	
Scotch Plains	Riverside Village	Gar & Town	150	4		$703	$880		Martine and Lake Avenue	(908)233-6393	
Scotch Plains	Country Club Village	Gar & Town	318	5		$710	$880		Martine and Lake Avenue	(908)233-6393	
Springfield	Mountain View Garden	Garden	200	5		$775	$900	$963	99 Hillside Avenue	(908)564-8663	
Westfield	Duncan Hill Apts.	Garden	134	1		$800	$945		Central Avenue & Grove Street	(908)232-0659	
Westfield	Carlton Towers	High Rise	40	0	$650	$750	$850		503 Carlton Road	(908)241-7964	
		Average			$545	$624	$759	$854			
		Total	4,869	125							

Source: Field and Phone Surveys, Legg Mason Realty Group, Inc., August 1991.





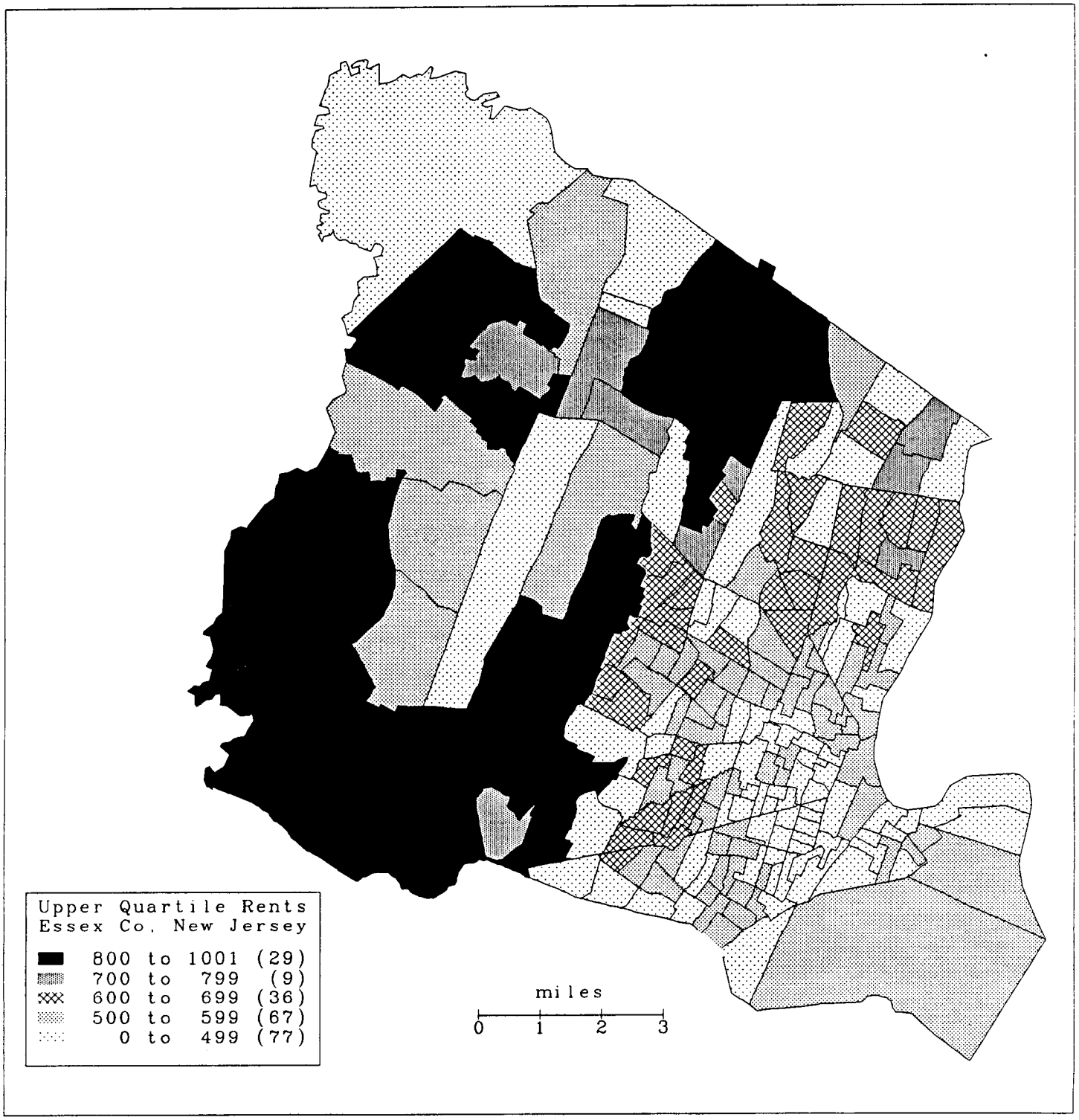
MAP 7

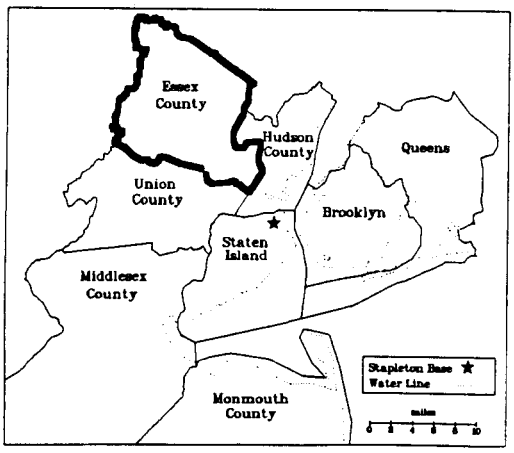
1990 Upper Quartile Rents By Census Tract Union County, New Jersey

TABLE 30
SELECT MARKET RATE RENTAL COMMUNITIES
ESSEX COUNTY

City	Project	Type	Total Units	Vacant Units	Monthly Rents Eff.	1 Bdrm	2 Bdrm	3 Bdrm	Location	Phone	Remarks
Belleville	Branch Brook Gardens	Garden	400			$555	$795		216 A Branch Brook Drive	(201)751-1943	
Bloomfield	Troy Towers	High Rise	356	0	$525	$692	$850		Conger	(201)748-1200	
Bloomfield	935 Broad Street	Garden	200	60		$685	$700	$800	935 Broad Street	(718)376-9300	Co-op conversion, Kings Highway Realty
Bloomfield	Belleville Gardens	Garden	150	40		$625	$685		249 Belliville	(718)376-9300	Co-op conversion, Kings Highway Realty
Caldwell	Caldwell Terrace Apts.	High Rise	110	6	$650	$938	$1,200		501 Bloomfield Avenue	(201)228-9532	
Caldwell	Westover Arms	High Rise	200	8	$600	$600	$1,050		519 Bloomfield Avenue	(201)228-4673	renovated
Cedar Grove	Bradford Arms	Garden	202	3		$825	$950		Tierny Drive	(201)239-8196	
Cedar Grove	Cedar Grove Gardens	Garden	192	2		$750	$850		16 A Highland Road	(201)239-7516	
Irvington	Parkway Apts.	High Rise	1,800	200	$388	$513	$663		20 North Maple Avenue	(201)374-4000	
Montclair	Hawthorne Towers	High Rise	133	2	$635	$787	$1,202		36 Hawthorne Place	(201)744-6869	
Newark	402	High Rise	220	3	$550	$725	$950		402 Mt. Prospect Avenue	(201)481-6544	
Newark	515	High Rise	400	12		$713	$900		515 Mt. Prospect Avenue	(201)482-5556	
Newark	Hallmark House	High Rise	429	10	$544	$707	$890		10 Hill Street	(201)622-2441	
Newark	Colonnade Apts.	High Rise	560	25	$502	$628	$767	$843	25 Clifton Avenue	(201)482-0536	
Newark	368	Mid Rise	294	20	$371	$550	$699		368 Mt. Prospect Avenue	(201)482-5556	
Newark	Ivy Hill Park Apts.	High Rise	2,000			$395	$495		5 Manor Drive	(201)371-7500	
Nutley	Arla Apts.	Gar & Town	130	1		$675	$780	$975	111 Passaic Avenue	(201)235-1683	
Passaic	Foxhall Apts.	Gar & Town	186	0		$660	$770	$975	77 Brooke Avenue	(201)235-1683	
Verona	Runnymede Gardens	Garden				$775	$875		34 Linn Drive	(908)686-0488	
Verona	Green Acres @ Verona	Garden	153	2		$750	$850		9 Green Acre Drive	(201)239-0393	
West Caldwell	Atrium Apts.	Garden	90	0		$735	$848		585 Bloomfield Avenue	(201)228-1933	
West Orange	West Mill	Garden	635	20		$775	$908		Rt 10 near St. Barnabus Hospital	(908)731-7172	
		Average			$529	$694	$849	$898			
		Total	8,840	414							

Source: Field and Phone Surveys, Legg Mason Realty Group, Inc., August 1991.





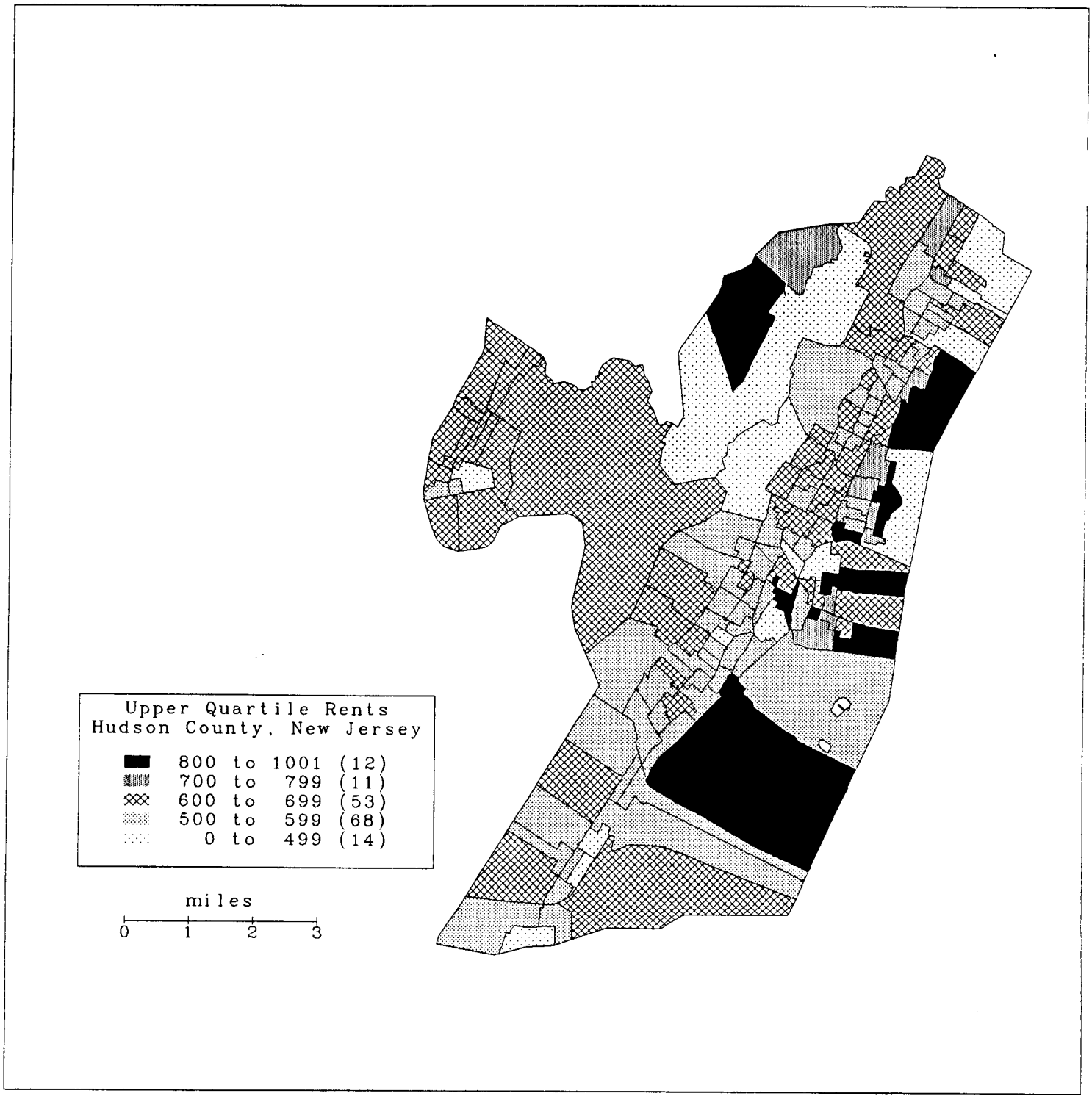
MAP 8

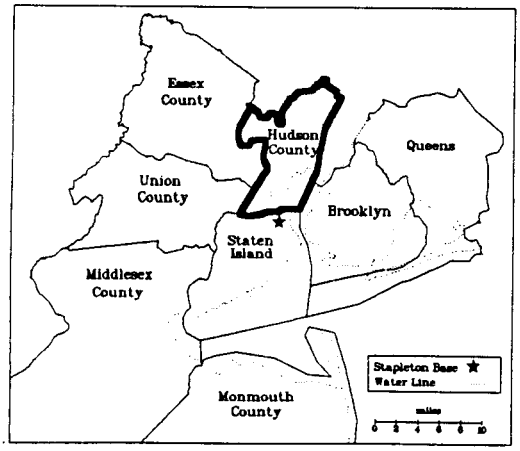
1990 Upper Quartile Rents By Census Tract Essex County, New Jersey

TABLE 31
SELECT MARKET RATE RENTAL COMMUNITIES
HUDSON COUNTY

City	Project	Type	Total Units	Vacant Units	Monthly Rents Eff.	1 Bdrm	2 Bdrm	3 Bdrm	Location	Phone	Remarks
Bayonne	Boulevard Gardens		216	0		$450			4 Pamrapo Court & Kennedy Blvd.	(201)436-8740	4 year waiting list
North Bergen	Stonehenge Apts.		396	0		$800	$1,000		8200 Boulevard East	(201)868-0100	waiting list
Union City	Troy Towers	High Rise		2		$1,000	$1,350		380 Mountain Road	(201)935-0011	
West New York	Harbor West Towers		200	2	$550	$800			6515 Boulevard East	(201)868-5757	
		Average			$550	$763	$1,175				
		Total	812	4							

Source: Field and Phone Surveys, Legg Mason Realty Group, Inc., August 1991.





MAP 9

1990 Upper Quartile Rents By Census Tract Hudson County, New Jersey

all units surveyed, utility costs averaged $47 for one bedroom units, $53 for two bedroom units and $60 for 3 bedroom units.

C.5. DEMAND CONDITIONS

C.5.a. Quantitative Demand

The economy of the Stapleton market area is currently strong, though it is weaker than it was just a few years ago. This highly diversified economy should be able to withstand the recessionary shocks that are currently being experienced throughout the nation. The rate of job growth will drop significantly, but it will likely pick up again before the middle of the decade. We have projected that employment within the Stapleton market will increase by over 200,000 jobs over the next decade, two thirds of the rate of growth achieved during the 1980's.

Job growth will be substantial enough to generate work for additional households, which will demand new housing. We have projected 37,000 new households added to the market over the next 6 years. The bulk of the expansion will take place in the suburban counties of New Jersey, while certain heavily urbanized jurisdictions will experience a reduced share of household growth. Much of the stimulus for growth in Staten Island will be the Naval Base and ancillary services associated with the base.

Even when the economy recovers, it is unlikely that construction activity will continue at the pace witnessed in the 1980's. Overall, permit activity should average 9,500 units per year. However, at least 30 percent of those authorized units will replace deteriorated and dilapidated units in the Region. Thus, actual net increases in units over the time period

should reach 39,000. Paralleling household growth, dwelling unit expansion in terms of building permit activity over the next five years will focus on Middlesex County, Staten Island and Monmouth County.

In summary, current demand for all housing, but especially rental housing, is high in the Stapleton market area. Vacancies are extremely low from zero to two percent in the markets surveyed. The cost of for sale housing is extremely high compared to income characteristics of the market. Any developer will have difficulty financing large projects in this or any other market. While a number of projects were under public review over the last few years, these deals must be restructured to reflect current economic realities. Most of them will not survive restructuring. Therefore, based on the factors described above, we cannot envision sufficient construction levels in the 1990's to alleviate the tremendous pressures on the rental market.

C.5.b. Qualitative Demand

The Maximum Allowable Housing Cost for New York and Long Island is competitive with asking rents throughout the Stapleton market area. The problem is to find units available in this market. The supply of rental housing in this market will not expand sufficiently in the near future to loosen up the rental market.

Based on maximum allowable housing cost by grade, we assume that an E4 with a monthly allowance of $781 can afford to rent over 70 percent of the rental units surveyed in conventional rental developments in Northern New Jersey and Staten Island (Table 32). E5's can afford 90 percent of the units surveyed while E6 or higher can afford almost all

TABLE 32
AFFORDABILITY OF SURVEYED RENTAL UNITS
BY PAYGRADE
STATEN ISLAND AND NORTHERN NEW JERSEY SUBMARKETS

		# of Affordable Units			
Paygrade	Allowance	1 Bdrm	2 Bdrm	3 Bdrm	Total
E4	$781.55	28,306	3,866	85	32,257
E5	$865.86	32,326	8,921	91	41,338
E6	$973.59	33,091	11,392	95	44,578
E7	$990.39	33,091	11,507	95	44,693
E8	$1,112.19	33,091	12,216	95	45,402
E9	$1,189.84	33,091	12,388	95	45,574

Paygrade	Allowance	1 Bdrm	2 Bdrm	3 Bdrm	Total
E4	$781.55	85.5%	31.2%	89.5%	70.8%
E5	$865.86	97.7%	72.0%	95.8%	90.7%
E6	$973.59	100.0%	92.0%	100.0%	97.8%
E7	$990.39	100.0%	92.9%	100.0%	98.1%
E8	$1,112.19	100.0%	98.6%	100.0%	99.6%
E9	$1,189.84	100.0%	100.0%	100.0%	100.0%

units. The housing allowances are also within the range of rents quoted by brokers in Brooklyn and Queens for cooperatives and detached units.

Vacant units show a similar pattern of affordability. Based on our estimated distribution of vacant units, most available one bedroom units are affordable to all paygrades (Table 33). For two bedroom units, the problem of limited supply is compounded by higher costs. Only 36 percent of vacant two bedroom units are affordable to personnel at an E4 paygrade. However, E4 to E7 could not afford 3 bedroom units even if those units were available.

Due to the requirement of bridge tolls to get into Brooklyn or New Jersey, there is a significant commuting cost of living anywhere but Staten Island. Monthly commuting costs to New Jersey and sections of Queens will average $280 between tolls and milage costs. In comparison, commuting costs to Brooklyn will range in the $125 to $150 range. Therefore, unless a family has an economic incentive to move to the outer reaches of the market (family, job for spouse), Staten Island and Brooklyn make the most sense in terms of total cost of living.

C.6. Analyses and Conclusions

C.6.a. Projected Units

Given the structural difficulty facing the financial sector of the economy, it will be difficult to finance large rental or multi-use projects in the near future. Traditional real estate lenders such as savings and loans, banks and insurance companies are facing tremendous pressure to steer away from the real estate market, if they are operating at all.

TABLE 33
AFFORDABILITY OF SURVEYED VACANT RENTAL UNITS
BY PAYGRADE
STATEN ISLAND AND NORTHERN NEW JERSEY SUBMARKETS

		# of Vacant Units			
Paygrade	Allowance	1 Bdrm	2 Bdrm	3 Bdrm	Total
E4	$781.55	667	75	0	742
E5	$865.86	722	154	0	876
E6	$973.59	738	186	0	924
E7	$990.39	764	188	0	952
E8	$1,112.19	764	206	4	973
E9	$1,189.84	764	206	4	973

Paygrade	Allowance	1 Bdrm	2 Bdrm	3 Bdrm	Total
E4	$781.55	87.3%	36.4%	0.0%	76.3%
E5	$865.86	94.5%	74.8%	0.0%	90.0%
E6	$973.59	96.6%	90.3%	0.0%	95.0%
E7	$990.39	100.0%	91.3%	0.0%	97.8%
E8	$1,112.19	100.0%	100.0%	100.0%	100.0%
E9	$1,189.84	100.0%	100.0%	100.0%	100.0%

The real estate investment that will continue to be perceived as the safest and increase in popularity is for sale residential development. Financing subdivisions of detached or townhouse developments offer relatively little risk and the term of the investment is measured in months of development rather than years of ongoing operations. Additionally, individual mortgages are the only financial tool that remains in plentiful supply. Therefore, we project that over 80 percent of new construction in the near term will be for sale residential development.

As the economy recovers and the real estate market becomes more active, one of the first trends anticipated is resumption of sales of cooperative units that are currently being offered for rent. Projects caught mid-stream in their marketing effort will begin selling units again, offering the most affordable housing products on the market. As those units sell, the rental stock will be reduced and the rental market will get tighter. Therefore, while we believe that house values for owner occupied units will remain relatively stable, rental prices will escalate over the next 6 years as supply continues to shrink.

C.6.b. Capture Rate

All of the assisted housing programs within the region have long waiting lists. They will not be a source for available rental housing for service personnel. Given the tight rental market, it is questionable whether private rental communities will make a special effort to service military personnel, especially with a potential clause excluding personnel from terms of the lease due to transfer. Therefore, the Navy's capture rate will be modest.

In our rental survey, we identified 973 units available in multi-family developments in Northern New Jersey and Staten Island. In addition, an average of 500 units are

available in the Staten Island private detached and attached markets. Combined, there are approximately 1,473 units available. Of those units, we assume approximately 350 units can reasonably be captured by Navy personnel.

Our capture rate is based on the quality of stock and distance from the base. We are somewhat optimistic that the Navy can capture 40 percent of units available on Staten Island, assuming in part that the Navy continues an aggressive marketing campaign to "sell" the concept of renting to one the island's major employers. Going into Northern New Jersey, we believe the capture rate will be a lower 15 percent. This lower capture rate is based on anticipated lower housing quality and additional commuting expenses associated with units in these areas. These factors are not accounted for in the Navy's housing allowance and will make these areas relatively less attractive. Therefore, Navy personnel will be less persistent in renting units at these locations.

Within Brooklyn, there are very limited vacancies in the few active conventional rental developments. However, based on discussion with real estate brokers, it is reasonable to assume that 500 cooperatives can be captured by Navy personnel in Brooklyn. Based on 1990 vacancy rates outlined in Table 17, this would translate to 2% of all vacant rental units in Brooklyn. Since these rental units are offered through a broker, a commission of up to 12% is generally required. However, if the Navy can provide a steady stream of qualified renters, owners may be willing to pay some or all of the broker's commission.

Based on the average rental costs of the vacant units and the average utility costs of those units, one bedroom units on average are affordable to E2 and E3s (Table 34). Two

TABLE 34
ESTIMATED VACANT RENTAL UNITS
COMBINED STAPLETON MARKET

	Current Vacant Units	Navy Capture Rate	Navy Vacant Units
Eff	192	28.9%	56
1 Bed	1,649	20.9%	345
2 Bed	484	23.9%	116
3 Bed	150	32.6%	49
Total	2,476	22.8%	566

	Rental Cost	Average Utility Cost	Projected Total Cost	Pay Grade Affordability
Eff	$589	$50	$639	
1 Bed	$668	$50	$718	E2 to E4
2 Bed	$808	$56	$864	E5 to E7
3 Bed	$947	$62	$1,009	E8 to E9
Total	$706	$52	$758	

bedroom units are affordable to E4 and E5s. The limited three bedroom units are within the price range of E6 and E7s.

Looking at the need of Navy personnel by bedroom breakdown, it is obvious that supply of affordable one bedroom units is sufficient to meet demand (Table 35). Overall, there is four times the number of one bedroom units as there is demand. With an average housing cost of $718, rents are within the Navy allowances. While rent allowances are within the price range of the average two bedroom unit, we project the two bedroom supply at only 20 percent of the Navy's demand. For units larger than two bedrooms, the supply accounts for only 10 percent of Navy demand and the average rent for these larger units is way above the Navy's housing allowance.

C.6.c. Assessment

The traditional rental market throughout this region is extremely tight, offering a potentially frustrating challenge for Navy personnel to find a home to rent. At best, we believe that the current rental market will address half of the Navy's immediate demand. However, there will be a severe shortage of three bedroom units and units in Brooklyn will, in all likelihood, require a brokers commission.

Beyond the traditional rental developments offering a limited number of units and scattered units referred by the brokerage community for a commission (traditionally 12%), an effective way to capture vacant units may be for the Navy to contract directly with owners of blocks of vacant units in Staten Island and Brooklyn. Rental rates and commissions can be negotiated. The building owners provide a short term solution until the Section 801

TABLE 35
PROJECTED DEFICITS BY BEDROOM BREAKDOWN
STAPLETON MARKET AREA

1 BEDROOM	# of Units	Rent Allow.	Avg Rent	
E4	38	$781	$718	$63
E5	32	$865	$718	$147
E6	32	$973	$718	$255
E7	6	$990	$718	$272
E8	6	$1,112	$718	$394
E9	5	$1,189	$718	$471

Total Vacant Units	119
Units Meeting Criteria	401
Excess/Deficit Units	282

2 BEDROOM	# of Units	Rent Allow.	Avg Rent	
E4	259	$781	$808	($27)
E5	136	$865	$808	$57
E6	129	$973	$808	$165
E7	38	$990	$808	$182
E8	18	$1,112	$808	$304
E9	12	$1,189	$808	$381

Total Vacant Units	592
Units Meeting Criteria	116
Excess/Deficit Units	(476)

3 & 4 BEDROOM	# of Units	Rent Allow.	Avg Rent	
E4	142	$781	$1,009	($228)
E5	88	$865	$1,009	($144)
E6	80	$973	$1,009	($36)
E7	88	$990	$1,009	($19)
E8	47	$1,112	$1,009	$103
E9	27	$1,189	$1,009	$180

Total Vacant Units	472
Units Meeting Criteria	49
Excess/Deficit Units	(423)

housing in built and the Navy will provide a short term solution for building owners that are looking to convert to homeownership in the long term. Obviously, such an arrangement can provide additional leverage on landlords that might otherwise not be receptive to renting individual units to military personnel.

Given the strong bargaining position the Navy would be in vis a vis the landlords, it is the consultant's belief that up to 700 rental units could be negotiated in block leases ina relatively short time period. Most of these units could be found in Brooklyn and Staten Island. Additional inventory may be available in Queens. However, the commuting costs associated with Queens in terms of time and money puts these neighborhoods in a competitive disadvantage to Brooklyn. Even if rental stock is available in Queens, it is not a viable alternative for Naval personnel on Staten Island.

The cooperatives can only be viewed as a short term solution to the Navy's housing issues. As the economy recesses, it is likely that many of these cooperatives will resume their for-sale efforts. As units are sold, the available rental stock in this region will continue to contract.

Finally, the Stapleton market area is one of the most complex, densely development markets in the United States. Every few blocks offer a complete change in socio-economic and cultural character and flavor. This market may require additional guidance about neighborhood strengths and weaknesses beyond what is normally provided to families as they are searching out shelter.

List of Real Estate Sources

Mr. Lawrence Di Giovanna
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357 Bay Ridge Pkwy
Brooklyn, New York 11209
(718) 238-6900

John B. Swift, Inc.
9015 5th Avenue
Brooklyn, New York 11209
(718) 836-8400

Charles Beck
Beck Real Estate
1817 Flatbush Avenue
Brooklyn, New York 11234
(718) 338-7826

Ms. Segal
Sterrett @ Spring Creek
1255 Pennsylvania Ave.
Brooklyn, New York 11239
(718) 642-3700

Mr. Irving Eskenza
Trump Organization
600 Avenue Z
Brooklyn, New York 11223
(718) 743-4400

Mr. Wade Velsor
Velsor Real Estate
8027 3rd Avenue
Brooklyn, New York 11209
(718) 238-5550

Ms. Anita Brecher
Kings Highway Realty
1302 Kings Highway
Brooklyn, New York 11229
(718) 376-9300

Mr. Edward Keshchinger
Argo Corporation
6535 Yellowstone Boulevard
Forest Hills, New York
(718) 997-8716

Mr. David Kaplan
Kingswood Management Corp.
441 5th Avenue
New York City, New York
(212) 481-5455

Lefrak City
Horace Harding Expressway between
Junction Blvd & 99th Street
Forest Hills, New York 11368
(718) 271-7600
Eileen Penna
U.S. Auctions
(718) 816-6304

Barbara Fitzsimmons
Gateway Realty
285 St. Marks Place
Staten Island, New York
(718) 273-3800

Mr. Gene Carfora
Arcadia Gardens
999 Forest Avenue
Staten Island, New York 10310
(718) 816-0619

List of Public Sources

Newark Office
U.S. Department of Housing
and Urban Development
60 Park Place
Newark Delaware 07102

New Jersey Association of Realtors
P.O Box 2098
295 Pierson Avenue
Edison, New Jersey 08818
(201) 494-5616

New York City Planning Department
22 Reade Street
New York City, New York
(212) 720-3276

Economic Development Office
Office of the Borough President
Staten Island

New York City Housing Authority
250 Broadway
New York, New York 10007

Department of Housing and
Community Development
State of New York
38-40 State Street
Albany, New York 12207

C-40 Current Construction Report
U.S. Department of Commerce
Bureau of the Census

Regional Economic Information System
Bureau of Economic Analysis
U.S. Department of Commerce

State of New Jersey
Department of Labor
Labor Market & Demographic Research
CN 388
Trenton, New Jersey 08625

Metropolitan Transportation Authority
New York City Transit Authority
370 Jay Street
Brooklyn, New York 11201
(718) 330-1234

Economic Trends Group
Office of Business Development
Port Authority of New York and New Jersey
One World Trade Center 71 West
New York New York 10048
(212) 435-5060

Regional Plan Association
1040 Avenue of the Americas
New York, New York 10018
(212) 398-1140

National Planning Data Corporation
P.O. Box 610
Ithaca, New York 14851
(607) 273-8208

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BRAC 1995 – Defense Base Closure and Realignment Commission
COFF: Dec 31, 1995 Disposition: Permanent

BEFORE THE DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION

MEMORANDUM REGARDING

MILITARY OCEAN TERMINAL BAYONNE, NEW JERSEY (MOTBY)

SUBMITTED BY

ROBERT MENENDEZ

INTRODUCTION

The Military Ocean Terminal, Bayonne (MOTBY), is located on a 678.8 acre, man-made peninsula, in Hudson County, Bayonne, New Jersey. Located at MOTBY are the Headquarters of the Military Traffic Command, Eastern Area; the 1301st Major Port Command (MPC); the US Army Garrison, Bayonne; the US Navy Military Sealift Command and nearly a dozen other federal tenants. The current mission of the 1301st MPC, Bayonne, is to maintain the only Army-owned, secure water terminal facility in support of the European, African, Mediterranean and South American Theaters of Operation. It provides support for the Atlantic and Southern Theater Commanders as well. It also provides secure government owned and operated water terminal facilities for the rapid projection of power into theaters of operation during conflict or fast breaking contingencies.[1]

Previous BRAC reviews by the Army, in both 1991 and 1993, determined MOTBY to possess unique capabilities and deferred further consideration in the closure process. The original recommendation for 1995 from the Army's Military Traffic Management Command was similar. In a MTMC briefing to The Army Base Study, (TABS), it is stated:

> Bottom Line Issues:
>
> Is the Army ready to give up access to their only port property in each coast?
> Army should support retention of the MOTS
> Once the port property is given up, it can never be recovered.
> TABS ASSUMPTION - Commercial Ports Can Handle MRC Workload - - RISK!! [2]

As late as February 24, 1995, there was uncertainty regarding the operational impact of closing both the Oakland and Bayonne port facilities and the Army materials show problems with the use of civilian ports.[3] The proposal before the Commission is the recommendation to close MOTBY. The sole reason presented to the Commission was "because MOTBY's primary capabilities can be duplicated by commercial activities."[4] There are virtually no materials, studies or analyses which justify or demonstrate this assumption.

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1 Volume I, Department of the Army Installation Narratives, March 1995, p.183

2 Military Traffic Management Command BRAC 95 Briefed to Brig. Gen. Shane, TABS 11-17-94, final two unnumbered pages

3 Memorandum thru Chief, Force Stationing Division for Director, the Army Basing Study, Subject: Impact of Closing MOTBY and MOTBA--Information Memorandum, signed William G. Foster, Col., GS, Chief, War Plans Division. dated 24 Feb 95

4 Volume III, Department of the Army Analyses and Recommendations, March 1995, p.71

The problems before the Commission are:

1) The Army failed to consider DoD-wide, joint or inter-service programs in its assessment of military value of MOTBY.

2) Evaluation procedures used by the Army further disadvantaged DoD wide, joint service and inter-service programs.

3) The evaluation criteria of port facilities lacks essential information upon which a rational decision can be made.

4) The Army port facility analyses deviate substantially from selection criteria and do not support the closure recommendation.

PART 1

ERROR OF SUBSTANTIVE LAW

On November 2, 1994, the Department of Defense, Office of the Secretary published Selection Criteria required by Section 2903(b) of Public Law 101-510 as the basis of the base closure and realignment process. These criteria were identical to those used in BRAC 91 and BRAC 93.

Department of Defense
Final Selection Criteria

In selecting military installations for closure or realignment, the Department of Defense, giving priority consideration to military value (the first four criteria below), will consider:

Military Value

1. The current and future mission requirements and the impact on operational readiness of the Department of Defense's total force.

2. The availability and condition of land, facilities and associated airspace at both the existing and potential receiving locations.

3. The ability to accommodate contingency mobilization, and future total force requirements at both the existing and potential receiving locations.

4. The cost and manpower implications. [5]

The February 28, 1995 letter from Secretary of Defense William Perry to BRAC Chairman Alan Dixon states:

[5] Department of Defense Base Closure and Realignment Report, March, 1995, p. C-28

> Based upon the 1993 BRAC Commission's recommendation and my own view that the support structure of the Department needed to be reduced just as the combat force had been, I designated common support functions as areas of special attention in BRAC 95. Joint Cross Service Groups analyzed the Department's depot, medical, pilot training laboratory and test and evaluation facilities. These groups assessed both the functional value and capacity of these facilities. They compared this to projected needs and suggested to the Services both reduction goals and possible alternatives to meet them. The Services then considered these alternatives in their own review process. In some cases they declined to do so because the bases had unique military value to the Services, or for some other reasons. Overall, the Cross Service functions made functional and economic sense. Further, this DoD-wide review of support functions provides a road map for cross-servicing in the future.[6]

The question is, what is the significance of this change? A review of the background of the selection criteria illuminates the goal of these efforts. After an extended comment period, the final selection criteria were published in the Federal Register on February 15, 1991.[7] In B. Analysis of Public Comments (2) Military Value Comments (c), it states:

> (c) Some commentators recommended DoD apply the military value criteria without regard to the DoD component currently operating or receiving the services of the base. The commentators noted that this would maximize utilization of Defense assets and therefore improve national security. We agree with this comment. . . . Consequently, we have left military value criteria general in nature and therefore applicable DoD wide, where appropriate. We have also issued guidance to DoD components that encourages inter-service and multi-service asset sharing and exchange.[8]

The intention of the criteria is clear. Priority consideration is given to military value of the Department of Defense's **Total Force**. Moreover, inter-service and multi service assets should be weighed in the analyses and recommendations to DoD and to the BRAC Commission. The special effort by the Secretary of Defense in cross servicing did not examine port activities as a "designated common support function."

> It is DoD policy to make maximum use of common support assets. DoD Components should, throughout the BRAC 95 analysis process, look for cross service or intraservice opportunities to share assets and look for opportunities to rely on a single Military Department for support.[9]

There is one inescapable fact. The recommendation by the Army shows no reference to any DoD total force concerns. Army officials admit to evaluating

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6 Department of Defense Base Closure and Realignment Report, March, 1995, p. Intro-2

7 56 FR 6374

8 56 FR 6375

9 1995 Base Realignment and Closures (BRAC 95) Policy, Procedures, Authorities and Responsibilities

only Army financial interests, and Navy officials confirm that they were never consulted on the MOTBY closure. This failure has resulted in the Army abandoning a port facility, leaving unsupported Navy tenants, the Military Sealift Command, Atlantic and Navy Resale and Fashion Distribution Center and several other federal agencies, including the Federal Bureau of Investigation, the Coast Guard, the Federal Records Center and the Postal Service. This is a complete failure of cross service assessments.

Conclusion

The selection criteria are clear.

1) There has been no consideration of DoD total force requirements.

2) Failure to make such a consideration deviates substantially from selection criteria and guidance.

3) The Commission should remove MOTBY from the list of recommended closures.

PART 2

ERROR OF PROCEDURAL LAW

The justification for the closure recommendation of MOTBY is predicated on the single assumption that:

> **There are sufficient commercial port facilities on the East and Gulf Coasts to support power projection requirements with a minimum loss to operational capability that cannot be accomplished at commercial ports.**[10]

The reference to commercial ports is unprecedented in the consideration of military port facilities. It is also totally unsubstantiated. The Army has failed to provide either the Secretary of Defense or the Commission with materials, studies or analyses which demonstrate the use of commercial ports in fulfilling all the requirements of military power projection.

It is instructive to examine the five attributes which measure port mission requirements and operational readiness:

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[10] Department of Defense Base Closure and Realignment Report, March, 1995, p.5-11

Attribute	Points
Special Cargo Capacity	100
Support Facilities	75
Normal Throughput	100
Piers and Wharves	100
Staging Areas	75
Total	450 [11]

In every attribute MOTBY had the highest ranking. There has been very little change in the quantifiable factors for port facilities in either the 1991, 1993 or the 1995 recommendations to the BRAC. Only the conclusion has changed, with the highest rated facility recommended for closure. Procedurally, something, which has not been substantiated or even documented, has changed.

On March 7, 1995, in only the third meeting conducted by the 95 BRAC, Commissioner Cornella cited this inconsistency in questioning Army witnesses.[12] In response, Army witnesses made several erroneous statements (which will be delineated below) and reaffirmed that the issue was decided by the commercial availability of East and Gulf Coast port facilities. The Army witnesses presented no further evidence of this availability, nor was it examined in the context of DoD total force requirements.

The most important procedural difference is found in the evaluation of port facilities in a memorandum concerning the methodology used to constrain throughput off the West coast.[13] There is no comparable material or study which evaluates either East coast or Gulf coast ports. This memorandum points out significant deficiencies in the commercial port assumption and the war fighting consequences:

> c. Following the model run, we first looked at units which were "Impossible to Close," i.e., those which would not meet the supported CINC's required delivery date in theater. The number of units which missed RDDs were not significant. However, when we compared the dates a particular ULN would arrive at the SPOD, **a significant number of units arrived later under the "constrained" model (from one day to three weeks later) than they did under the "unconstrained" model.** This brings up an interesting point. The TABS group may say "So what?" The units still arrive by the time the supported CINC would say. I don't think this is necessarily what the supported CINC

[11] Volume II, Department of the Army Installation Assessment (IA) Process and Supporting Data, March 1995, p.135

[12] Viewgraph, BRAC hearing March 4, 1995 referred to by Commissioner Cornella.

[13] Memorandum for Commander, MTMC, Subject: BRAC 95 Background, from Thomas E. Parker, Lt Col., USAF, dated 1 January 1995

> would say. I can't remember the name of the Civil War general who insisted on "being the firstust with the mostest," but I can assure you based on almost six years in theater that there's not one CINC I've worked with who would willingly agree to avoidable delays in forces closing on his theater of operations. The problem is that at the TPFDD refinement conferences, we always inject "reality into the CINC's desired closure dates. The net effect is not so much a case of when the CINC wants forces to arrive, but rather the relative order or sequence of their arrival given lift, onload, discharge, and other throughput constraints. Let's not forget that the current OPLAN is event-driven and not time-driven as used to be the case. **A day's delay in the arrival of reinforcements will compel the CINC to remain on the defensive at least one more day; additional delays further delay taking the offensive, could force the CINC to trade land for time (in an area where there isn't much land to trade off to begin with), and allied casualties would likely mount while we fight the enemy's war and not our own.**

This is an eloquent discourse on the consequences of delay in war fighting. Unfortunately this wise analysis was not uniformly applied to the Atlantic based scenarios.

Conclusion

1) The recommendation is made on the basis of an unsupported belief that that there are readily available commercial port facilities for all foreseeable military force projection contingencies.

2) The ready availability of commercial port facilities on the East and Gulf coasts is based on assumptions not supported by any documentary evidence.

3) Failure to analyze the adequacies of commercial alternatives will compromise military readiness and substantially deviates from selection criteria.

PART 3

ERRORS OF FACT

Availability of Commercial Ports

The records relating to the consideration of the closure of MOTBY are rife with factual and logical errors. The single greatest error is the fundamental assumption upon which the closure is predicated, which:

Assumes commercial port capacity will be available to support power projection requirements.[14]

This assumption does not arise in isolation. It is a chain of assumptions or house of cards, without independent evidence, that there will be little or no impact on operational readiness.

Port capacity is not the same as port availability. This is an important distinction. Overall capacity, the number of berths, upland open areas and stevedoring labor are not the only criteria for determining whether the national military strategy could be carried out. The specialized facilities and personnel at MOTBY cannot be duplicated at commercial terminals without significantly compromising power projection capabilities.

The current procedures to be used by defense agencies to obtain port facilities in connection with the deployment of armed forces are issued under the authority of the Defense Production Act of 1950.[15] The Maritime Administration (MARAD) has the regulatory authority delegated to the Secretary of Transportation[16] to issue Port Planning Orders (PPO), National Shipping Authority Service Priority Orders (NSPO) and National Shipping Authority Allocation Orders (NAO).[17]

PPOs are non binding letters of intent or planning documents. NSPOs are used to obtain priority of service. A NSPO is a stand aside order, normally issued for a thirty day period, under which the facility becomes joint use. Since all deployments are transitory in nature, only NSPOs are expected to be issued. NAOs are used to obtain exclusive use of the port for a specified period of time. Since it is generally accepted that NAOs would be needed only for sustainment and since under the present planning, sustainment is expected to use commercial liner services, no NAOs are expected to be issued. Both NSPOs and NAOs require occupancy no later than 48 hours after delivery of the order to the port controller.[18]

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[14] The Army Basing Study, Impact Summary, Bayonne MOT, NJ, p.52

[15] 50 U.S.C. App. 2601 et seq.

[16] 46 CFR, Part 340

[17] U.S Department of Transportation, Maritime Administration, Port Planning Digest, August 1994, p. 1

[18] Military Traffic Management Command, Emergency Acquisition of Port Facilities, attachments to Memorandum for HQDA (DACS-TABS), Wash DC 20310-0200, Subject: U.S. Army Ocean Terminals Briefing Backup Data, dated 30 Mar 1995

Legal Access to Port Facilities

It would appear to be the simplest matter to simply order cargo aside and take over the port for a military operation. A closer examination of the regulation reveals:

> (d) the Administrator shall determine, before issuing an NSPO or NAO, that the action is necessary to meet the requirements of the national defense (as determined by the defense agency) and conforms to the Secretarial guidance for coordinating the Department's crisis response. . . .The Administrator shall ensure that arrangements to provide defense support under NSPOs and NAOs satisfy the defense agency's requirements **with minimum disruption to commercial activities.**[19]

This requirement to minimize the disruption to commercial activities is not merely hortatory. It is grounded in the Constitution:

> Article [III]
>
> No Soldier shall, in time of peace be quartered in any house, without the consent of the Owner, nor in time of war, but in a manner prescribed by law.[20]

This limitation on martial law requires that:

> (h) Defense Agencies shall pay for services covered by NSPOs and NAOs on the basis of commercial tariffs or on the basis of contracts concluded between the operator interests and the defense agencies concerned, or on the basis of existing contracts where both parties so agree.
>
> (i) Defense agencies shall be responsible for payment of costs arising from:
>
> (1) Shifting ships to unoccupied berths for defense use;
>
> (2) Discharging commercial cargo to free ships for defense use; and
>
> (3) Such other costs as may be agreed between the defense agency and the provider of service.[21]

This is where the house of cards based on assumptions can fall to pieces. The law requires the existence of either a war or national emergency. There is no legal authority to disrupt port operation absent a crisis. Assessments that "PAOs can substitute for a full time presence" [22] are in error. PAOs have no legally binding authority.

19 46 CFR 340.3 (d)

20 U.S. Constitution, Amendment III

21 46 CFR 340.3 (h) & (i)

22 Memorandum thru Chief, Force Stationing Division for Director, the Army Basing Study, Subject: Impact of Closing MOTBY and MOTBA--Information Memorandum, signed William G. Foster, Col., GS, Chief, War Plans Division. dated 24 Feb 95

Furthermore the entire assumption of commercial port availability is predicated on the continued existence of the current regulatory regime which now exists at MARAD. With the recent change in the leadership of the Congress, it is submitted that this may no longer be the case. There are active proposals for the elimination of MARAD and the Federal Maritime Commission. This could mean that maritime commerce could be moving into a totally unregulated environment.[23] Without the existence of the MOTs, there is no absolute legal assurance on the timely access to ports for fast power projection.

Current Commercial Use of Ports by the Military

Previous BRACs have emphasized the importance of maximizing the use of available commercial alternatives as opposed to maintaining additional infrastructure. This is appropriate. The movement of cargo is one of the most commercialized aspects of DoD logistics. For example the Port of New York and New Jersey handled over 80,000 tons of cargo in support of the recent military effort in Haiti. Similarly, the "lessons learned" analysis in the wake of Operation Desert Storm identified the synergy that existed between MOTBY and numerous commercial facilities as an important attribute which contributed to the success of that deployment. This success does not translate into the assumption that MOTBY can be replaced by commercial ports in the larger more technical and complex role of forward force projection without significant sacrifice of time, efficiency and flexibility. As the military scenario becomes more serious, this loss of timeliness and efficiency becomes more pronounced.

Problems Using Commercial Ports by the Military

Army documentation shows that there is increasing opposition to providing 48 hours access to facilities in anything but an actual declared war. In fact, requests for 48 hour notice for space are often met with requests for at least 7 day response times.[24] In Gulfport, Mississippi, a military vessel taking supplies to the Naval Base at Guantanamo Bay, Cuba, was delayed three days while a Russian commercial vessel was loaded with frozen chicken.

Use of commercial ports can cause other unanticipated problems. In Wilmington, North Carolina, when ammunition is shipped, the Port requested Army to notify all private terminal operators and tenants and suggested that

[23] Illustrative Republican Spending Cuts, U.S. House of Representatives, Committee on Budget, March 16,1995, p.8

[24] Memorandum thru Chief, Force Stationing Division for Director, the Army Basing Study, Subject: Impact of Closing MOTBY and MOTBA--Information Memorandum, signed William G. Foster, Col., GS, Chief, War Plans Division. dated 24 Feb 95

civilian personnel be sent home during that period. Material that has been submitted to BRAC which states that MOTBY cannot handle munitions is untrue. MOTBY handled munitions for the Somalia resupply.

In Savannah, Georgia, the port facility lacks the load bearing capacity to properly stage the 70 ton M1 tank. This military cargo damaged the pavement after each use and required repaving of the marshaling yard. The Ports of Houston, Texas and Portland, Oregon have declined military inquiries about availability of port facilities.

The role that facility security plays in meeting the national military strategy cannot be overstated. When the M1 or other equipment with classified technologies are handled at commercial ports, soldiers are brought in for added security. Under the posse commitatus laws, these troops are not allowed to be armed. At MOTBY, the security force are DoD police with the required security clearances thus avoiding security problems and providing time efficient operation.

Roll-on-Roll-off vessels will become increasingly important for force projection. The Navy is purchasing 19 Panamax ships which will draw up to 35 feet. It has been wrongly asserted that "MOTBY is contributing little to nothing to port thruput at this time as it requires significant dredging to reopen."[25] In reality, MOTBY has one of the few dredging permits that has been issued in the New York Harbor. The disposal of dredged material has become a problem for most ports along the Gulf and Atlantic coasts. Many commercial ports along the range are facing a dredging crisis, including Hampton Roads where containment islands are swiftly filling up. There will be a short term problem finding commercial ports with a sufficiently deep draft to accommodate these large vessels without serious disruption to commercial activities.

Unique Features of MOTBY

1. Intermodal Access

Rail

Power projection capacity requires an appropriate rail configuration and switching system to accommodate dedicated rail shipments from inland warehouse depots and manufacturing sites. The rail installation at MOTBY is

[25] Memorandum thru Chief, Force Stationing Division for Director, the Army Basing Study, Subject: Impact of Closing MOTBY and MOTBA--Information Memorandum, signed William G. Foster, Col., GS, Chief, War Plans Division. dated 24 Feb 95

first rate. The terminal has 22 miles of railway, a 280 rail car classification yard and rail car terminal capacity of 400 cars. A $15 million state of the art upgrade has totally refurbished MOTBY as a result of lessons learned during the Gulf War. The MOTBY rail upgrade is virtually complete and provides rail connection unmatched in any commercial facility because it was specifically designed to meet the power projection needs of the national security strategy. This results in an efficient, time saving transportation link to the berthing facility. Most rail shipments received at MOTBY are direct runs, without time consuming rail interchange that would be required in shipments to Norfolk or most other ports.

Road

MOTBY is located adjacent to the major north-south motor carrier roadway in the United States (I-95), and near the nation's major east-west roadway (I-80), providing unparalleled road access. This is important because a significant percentage of military cargo is delivered to the terminal by the roadway network.

Berths

MOTBY berths can accommodate one Fast Sealift Ship at Berth N5 with its roll on/roll off ramp. Another smaller cargo vessel can be accommodated at Berth N4. Thus two vessels can be loaded. When the dredging project is completed new Berths N1 and N2 could load two Fast Sealift Ships along with one additional vessel of a smaller class simultaneously. This is a stark contrast to the limitations of commercial ports, which are configured to handle container operations and berths which are generally limited to handling only four of eleven RO/RO type ships.

2. Staging Areas

Staging area is more than open space where vehicles and supplies can be marshaled while awaiting movement to a vessel. Efficient staging areas will integrate the intermodal transportation links with the marine transport component. This integration of staging area with inbound and out bound transit modes must be designed to accommodate the irregular shapes, sizes, extremely heavy weights and other requirements of specialized military cargo. From seventy ton tanks, helicopters, tracked combat and artillery vehicles to fragile and perishable medical supplies, all have unique handling, processing and movement requirements.

MOTBY has every factor to meet the requirements which translates into the fastest meeting of the military objective. No commercial port has the unique 5.9 million square feet of staging area which integrates road, rail and water transit and even allows helicopters to land next to ships for quick wrapping and loading.

As a full service facility with 1.5 million square of covered storage area and 4.4 million square feet of uncovered storage, MOTBY has the ability to handle virtually every type of military cargo during a mobilization and support effort in addition to temperature controlled warehouses and HAZMAT experience. As a part of the recent Restore Hope aid effort to Somalia, significant amounts of Class A ammunition were received and shipped through MOTBY. In fact, since the Gulf War, MOTBY has received, stored and loaded all types of armaments and munitions. This fact was erroneously reported to BRAC.

3. Trained Labor Force

The military requirement of roll on/roll off vessels is based on the need to move large numbers of outsized vehicles. These vehicles cannot be lifted by the standard container crane and must be driven onto the ships. The ILA drivers at MOTBY have military drivers licenses, permitting them to operate all military equipment including M1s. No commercial port has the trained labor force experienced in handling these type of vehicles according to the Cargo Master's loading requirements.

Furthermore, the continuing presence of a regular, skilled stevedoring work force at MOTBY does not require exercises that would be required of commercial port that only handle special cargo sporadically. Without MOTBY, there must be continuous training and exercises at commercial ports at additional expense to the military.

4. Security

The national security strategy requires that the perimeter of any facility have security capability such that the activities performed there can continue uninterrupted and out of the public eye. The MOTBY facility is located on a peninsula with direct linear access to the open ocean. MOTBY has two levels of security including a perimeter security line and another, more fortified, security arrangement around the actual cargo handling facilities. This level of security, which includes closed circuit television surveillance and extensive lighting for around the clock operation throughout the compound, cannot be quickly

duplicated in any commercial port.

Costs

There are two areas related to cost which deviate from selection criteria in the MOTBY closure proposal. The first involves errors in the computation of facility closure costs. The second, and most important, is the cost to do the mission.

The total cost to implement this recommendation is $44 million. The net of all costs and savings during the implementation period is a cost of $8 million. Annual recurring savings after implementation are $10 million with a return on investment expected in 5 years. The net present value of the costs and savings over 20 years is a savings of over $90 million.[26] These figures fail to account for costs which more than offset any savings. As such, this deviates from selection criteria.

Unaccounted for Costs

It will cost the Services an additional $1.7 million a year for commercial, non-temporary storage for household goods of service personnel currently stored at the terminal. The building occupied by the organizations to be enclaved (MSC, Navy Resale and the Federal Records Center) are all heated by the central heating plant. There was no apportioning of these costs. DoD policy guidance finds:

> a limited number of circumstances when DoD components should include the cost of BRAC 95 actions to other Federal Agencies in their cost calculations. Costs to other Federal Agencies should be included only when they are measurable, identifiable costs that DoD would incur as a direct result of BRAC-related actions. The key distinguishing features of costs to other federal agencies that should be included is (1) DoD is unambiguously responsible for paying such costs and (2) such costs would be incurred as a direct, rather than indirect result of BRAC actions.[27]

This "oversight" is noted in a Memorandum Regarding the Relocation/ Inactivation of Tenant Activities dated April 3, 1995.[28] Had this information been sought in a timely fashion, in accordance with the selection criteria, these cost figures would change radically.

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26 Department of the Army, COBRA Reports, March, 1995, p.1

27 Department of Defense, Base Closure and Realignment Report, March 1995, policy Memorandum Three, signed Joshua Gothbaum, p.C-68

28 Memorandum 1995 Base Realignment and closure (BRAC 95) Relocation/inactivation of Tenant Activities, signed Joshua E. Jenkins,III, Deputy Chief of Staff for Resource Management, Military Traffic Management Command, dated 3 Apr 1995.

For example, under the policy guidance above, DoD would be responsible for paying the costs of moving storehouses of the Federal Records Center for classified and top secret information. A preliminary estimate by the General Services Administration shows that the cost to replace the MOTBY storehouses with permanent, temperature controlled storage for classified material would be roughly **$5 million**. This does not include subsequent rents.

Since the Navy was never consulted on the MOTBY closure proposal, there now exists a revised Navy BSAT data call "refinement" of March 10, 1995. This new cost information finds a miscellaneous recurring cost of **$5.2 million** which was certified not to exist on January 19, 1995. This so called "refinement" is in itself a violation of the selection criteria and further demonstrates the unreliability of the cost figures submitted to the BRAC.

There are also hundred of gigantic sea sheds which belong to MSC. No cost is given for the removal or scrapping of this massive equipment which covers more than an acre. It is estimated to cost between **$13 million** to $37 million to move or scrap in place these large metal racks.

The **$24 million** one time cost avoidance for dredging is incorrect. Since that cost is related to environmental restoration and possibly facility reuse, it will still have to be dredged and paid for by DoD. As a related matter, dredging is not a genuine issue at MOTBY. Although, there is a problem for every port in the country with dredging, MOTBY is one of only two locations in the New York Harbor which has permits to dredge. (It took 22 years to get the federal and state permits to dredge the navigation channels for the Port of Oakland.) The proposal to close MOTBY, however, has postponed the dredging.

These items are only a few of the examples of unaccounted facility closure costs. **Just these items alone add up to $47.2 million.** That means the estimated **cost of closure is off by more than 100%**. The cost of closure is more than the twenty year savings of $90 million.

Other miscellaneous costs which have not been appropriately addressed by the Army include:

No assessment of the costs for the removal of asbestos in numerous buildings or alternative demolition. MOTBY officials have stated that no environmental assessment of the facility has been done.

There is reason to believe that the proposed move of MTMC, Eastern Area to Fort Monmouth is impossible without new construction. The condition of the

receiving facility has not been taken into account. This is a violation of selection criteria. Additional material on unaccounted for costs can be found in the Appendix by the accounting firm of Coopers and Lybrand.

Costs for the Mission

Just as there is the erroneous assumption that port capacity is equal to port availability. There is sleight of hand involved in assuming that costs at MOTBY will be comparable with commercial ports. It is based on a tortured interpretation of the Defense Base Operating Funds. The MOTBY facility is paid for by DBOF charges which run with the cargo. Theoretically, the cost of moving the cargo remains whether MOTBY exists or not. However the DBOF structure assumes the existence of the MOTS as the baseline for the utilization of commercial ports. The question is, whether costs will escalate if DoD relies solely on the vagaries of commercial ports?

There is no answer to this question. Military port usage, as noted above, is already the most commercialized activity in DoD. It is even coordinated by a civilian federal agency, MARAD, which has a successful history of expertise in port matters.

Yet MARAD was never consulted by MTMC or the TABS on the MOTBY closure. More than six weeks after the Secretary's MOTBY closure recommendation, MTMC issued a memorandum asking assistance of MARAD and Louisiana State University's National Ports and Waterway Institute "to develop a tactical and operational response model to analyze the disruption and displacement of commercial port traffic caused by unforeseen military cargo sent through a port." This memo planned to create a model to determine the following:

1) The accuracy of port planning order facilities.
2) The amount of commercial cargo disrupted by a military deployment.
3) The cost to the military for the disruption.
4) The port facilities within that port that can pick up the disrupted cargo.[29]

The law requires a war or a national emergency to requisition port services and facilities. There is no legal authority to disrupt commercial port operation in

[29] Memorandum for Commander, MTMC Eastern Area, Bayonne, NJ; Commander MTMC Western Area, Oakland Army Base, Oakland, CA; Director, MTMC Transportation Engineering Agency, Newport News, VA; Subject: Participation in Research Model Working Group, signed William Lucas Deputy to the Commander, Headquarters, MTMC, Falls Church, VA, dated 14APR 1995, S:24 April 1995

the absence of a declared emergency. By the time a national emergency is declared, it may be long after the need to mobilize and use the ports. The Kuwaiti crisis was in August, 1990. The authorization to use force passed Congress in January, 1991. Port Planning Orders and Port Allocation Orders, as described above, are no guarantee of timely port access. One of the large terminal operators in the New York Harbor stated that it would take 30 days to clear his facility working around the clock. We cannot buy back time. We cannot buy back soldiers lost when there is delay in the arrival of their equipment.

Conclusion

The Army proposal to close MOTBY substantially deviates from all of the first four selection criteria.

Criteria 1: The current and future mission requirements and the impact on the operational readiness of the Department of Defense's total force.

The justification use to recommend the closure of MOTBY is based on a single assumption. That assumption is that there are sufficient commercial port facilities on the East and Gulf Coasts to support power projection requirements with a minimum loss of operation capacity.

1) There is no study or test which examines, evaluates or supports this assumption.

2) On April 14, 1995, MTMC issued a memo to formulate a working group to begin to look at the problem "caused by unforeseen military cargo being sent through a port."

3) On April 19, 1995, MTMC, estimated that it will take between 2 - 4 years to transition MOTBY's mission because of, "several contractual restrictions, which will affect any transfer."

Criteria 2: The availability and condition of land, facilities and associated airspace at both the existing and potential receiving locations.

1) Material sent to the Commission only shows capacity of West coast ports. There is nothing in the record about the East coast or the ability of the receiving commercial ports to handle the traffic.

2) The existence of commercial port capacity is not the same as availability.

3) This proposed closure does not reduce capacity, it eliminates capability.

Criteria 3: The availability to accommodate contingency mobilization and future total force requirements at both existing and potential receiving locations.

A MTMC briefing to the Army Base Study stated:
Is the Army ready to give up access to their only port property in each coast?

Army should support retention of the MOTS
Once the port property is given up, it can never be recovered.
TABS ASSUMPTION - Commercial Ports Can Handle MRC Workload - - RISK!!

Criteria 4: Cost and Manpower implications.

1) No cost studies have been performed relating to the mission - the movement of military cargo.

2) Without cost studies, there is no ability to know or control the costs for the movement of military cargo.

It is respectfully submitted that the recommendation to close the Military Ocean Terminal, Bayonne, New Jersey substantially deviates from the preceding selection criteria requiring its removal from Commission consideration.

APPENDIX

Coopers &Lybrand

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May 4, 1995

The Honorable Bill Bradley
United States Senate
731 Hart Senate Office Building
Washington, D.C. 20510

Dear Senator Bradley:

In accordance with the request of representatives in Bayonne, New Jersey, Coopers & Lybrand L.L.P. is pleased to submit this report summarizing our findings regarding issues affecting cost and savings calculations presented as justification by the United States Department of the Army ("Army") for the recommendation to close Military Ocean Terminal, Bayonne ("MOTBY"). An identical report is being sent to Senator Lautenberg.

As you know, the recommendation, submitted to the Secretary of Defense as part of the 1995 round of military base closures and realignments, includes relocation of the Military Transportation Management Command ("MTMC") Eastern Area Command Headquarters and the traffic management portion of the 1301st Major Port Command to Fort Monmouth, New Jersey. A number of current tenants at Bayonne MOT would be relocated to other bases, however, an enclave would be retained for the Navy Military Sealift Command, Atlantic, the Navy Resale and Fashion Distribution Center and the National Archives.

Our analysis focused on testing and, where necessary, revising inputs to the Cost of Base Realignment Actions ("COBRA") model submitted to the Defense Base Realignment and Closure Commission ("BRAC"). Our revised COBRA analysis indicates that **the Army substantially underestimated both the one-time and recurring costs associated with closing MOTBY, leasing commercial storage facilities, and creating a stand-alone enclave for Navy tenants and the National Archives.** As a result, the COBRA analysis submitted to BRAC grossly overstates the 20-Year net present value savings associated with this action and presents an

unrealistically short return-on-investment time frame. The following table compares the results of the revised COBRA analysis based on our findings with output from the COBRA analysis submitted to BRAC.

COBRA Output	Revised COBRA	Original Submission
20-Year Net Present Value ($,000)	28,806	-90,058
One-Time Cost ($,000)	89,090	44,103
Net Recurring Annual Savings ($,000)	-4,832	-10,064
Return-on-Investment Year	2028 (30 Years)	2003 (5 Years)

NOTE: Positive dollar figures reflect costs. Negative dollar figures reflect savings.

The revised COBRA analysis indicates that rather than producing a net present value savings of $90.0 million over 20 years, the proposed closure of MOTBY will actually result in a net present value cost of $28.8 million over the same period. One-time costs of closure will be more than double the $44.1 million estimated by the Army in its original BRAC submission. Annual recurring savings after the base closes are estimated to be less than half the $10.1 million included in the Army COBRA submission. Our findings indicate that it will take over 30 years for the Army to recoup the costs necessary to close MOTBY and create a stand-alone enclave for selected tenants.

The revised COBRA Realignment Summary Report and Input Data Report are provided as attachments to this report. The following paragraphs detail our findings and describe the revisions made to COBRA inputs.

ISSUES RELATED TO THE ORIGINAL MOTBY COBRA ANALYSIS

Additional Capital Costs

There will be substantial capital costs associated with creating a stand-alone enclave for Navy tenants and the National Archives. These include extending lines to, and connecting with local water, sewer, and power systems, demolishing several existing buildings to create open storage for the Navy's Military Sealift Command ("MSC") flat rack equipment, and modifying and repairing buildings that will remain in the enclave. MOTBY engineering personnel estimate that these costs will total $29.0 million. These capital costs were not included in the original COBRA analysis submitted to BRAC. We have added the $29.0 million as a military construction ("MILCON") requirement for Bayonne in the revised COBRA analysis.

Permanent Change of Station ("PCS") Costs

The regulations governing PCS changed in September 1994. Personnel with an involuntary PCS that increases their commute more than 10 miles are eligible for PCS, housing assistance, and related services. The COBRA does not account for this; the software was designed based on previous regulations pursuant to which PCS was triggered by a change of station of 50 miles or more. Fort Monmouth is 42 miles from MOTBY.

To force the COBRA software to account for costs related to the new regulations, the input for the number of miles between MOTBY and Fort Monmouth was changed from 42 to 50. While this action will slightly overstate moving costs of household goods for realigned personnel, this effect is minimal compared with the correct calculation of PCS costs as specified by the new regulations. The impact of the new regulations on the MOTBY closure scenario is an increase in one-time costs of an estimated $14.5 million.

Non-Temporary Storage of Household Goods

A secondary mission at MOTBY is non-temporary storage of household goods as part of the Department of Defense worldwide personal property program. MOTBY stores an average of 20 million pounds of household goods at any given time. Data submitted in response to Total Army Basing Study ("TABS") data calls for MOTBY indicate that, based on Army commercial storage costs for the Northeast region, the cost of storing these household goods in commercial facilities will total an estimated $5,232,000 annually.

If shipments of additional household goods to MOTBY cease beginning in 1996, base staff estimate that approximately four million pounds of goods will remain when the facility is closed in 1998. In response to the TABS data call, MOTBY staff estimated the cost to relocate these goods to a commercial storage facility to be $1,521,240. This one-time cost and the $5.2 million annual storage costs discussed above have been included in the revised COBRA analysis.

ADDITIONAL FINDINGS

The following additional issues related to creation of an enclave at Bayonne arose during our research:

- Engineering staff at MOTBY indicated that the master planner for the Garrison Bayonne, the activity charged with maintaining the physical facilities at the base, has been working on utility privatization without success. Local utility companies reportedly do not wish to take over systems at the base leaving open as issues the costs and logistics of providing ongoing management and maintenance of existing systems to serve the enclave.

- Sensitivity analyses run using the COBRA model indicate that BOS (base operations) and RPMA (real property maintenance) costs associated with operating the enclave could total more than $11 million. These costs would be shifted from the Army to the entity charged with operating the enclave, most likely the Navy.

SUMMARY

The movement of an extensive industrial facility such as MOTBY will invariably have unforeseen costs associated with the action. The MOTBY closure scenario is complicated by the introduction of major variables including the elimination of government port functions and the proposed reliance on private sector capacity, as well as the proposed creation of an enclave for tenants too costly to move. Our analysis indicates that the costs of the proposed action have been understated by almost $45 million. Similarly, uncaptured recurring costs will reduce annual savings to less than $5 million.

CONDITIONS OF OUR WORK

Our analyses are based on estimates, assumptions and other information developed from our knowledge of the industry and other factors. Some assumptions inevitably will not materialize and unanticipated events and circumstances may occur; therefore, actual results will vary from those presented in our analyses. Except with regard to BRAC policies and procedures, we did not ascertain the legal and regulatory requirements applicable to the project, including zoning, other state and local government regulations, permits and licenses nor any environmental or ecological matters. We have not evaluated management's effectiveness, nor are we responsible for future lobbying efforts and other management actions upon which actual results will depend.

Coopers & Lybrand L.L.P.

Data As Of 10:37 05/04/1995, Report Created 15:38 05/03/1995

Department : ARMY
Option Package : PO1-5
Scenario File : C:\COBRA\MOTBYREV.CBR
Std Fctrs File : C:\COBRA\SF7DEC.SFF

Starting Year : 1996
Final Year : 1998
ROI Year : 2028 (30 Years)

NPV in 2015 ($K): 28,806
1-Time Cost ($K): 89,090

Net Costs ($K) Constant Dollars

	1996	1997	1998	1999	2000	2001	Total	Beyond
MilCon	22,687	36,253	0	0	0	0	58,940	0
Person	0	-3,969	-6,832	-8,425	-8,425	-8,425	-36,075	-8,425
Overhd	918	556	5,824	-5,197	-5,197	-5,197	-8,294	-5,197
Moving	0	1,613	15,169	0	0	0	16,782	0
Missio	0	8,790	8,790	8,790	8,790	8,790	43,950	8,790
Other	0	374	3,061	0	0	0	3,435	0
TOTAL	23,605	43,617	26,012	-4,832	-4,832	-4,832	78,737	-4,832

	1996	1997	1998	1999	2000	2001	Total
POSITIONS ELIMINATED							
Off	0	5	0	0	0	0	5
Enl	0	3	0	0	0	0	3
Civ	0	185	0	0	0	0	185
TOT	0	193	0	0	0	0	193
POSITIONS REALIGNED							
Off	0	0	26	0	0	0	26
Enl	0	0	66	0	0	0	66
Stu	0	0	0	0	0	0	0
Civ	0	0	761	0	0	0	761
TOT	0	0	853	0	0	0	853

Summary:

CLOSE BAYONNE MILITARY OCEAN TERMINAL, TRANSFER MILITARY TRAFFIC MANAGEMENT EASTERN AREA COMMAND TO FORT MONMOUTH AND THE TRAFFIC MANAGEMENT PORTION OF THE 1301ST MPC TO FORT MONMOUTH. ENCLAVE NAVY TENANTS AND NATIONAL ARCHIVES.

Data As Of 10:37 05/04/1995, Report Created 15:38 05/03/1995

Department : ARMY
Option Package : PO1-5
Scenario File : C:\COBRA\MOTBYREV.CBR
Std Fctrs File : C:\COBRA\SF7DEC.SFF

Costs ($K) Constant Dollars

	1996	1997	1998	1999	2000	2001	Total	Beyond
MilCon	22,587	36,253	0	0	0	0	58,940	0
Person	0	502	2,110	517	517	517	4,163	517
Overhd	918	1,716	8,263	3,206	3,206	3,206	20,515	3,206
Moving	0	1,613	15,317	0	0	0	16,930	0
Missio	0	8,790	8,790	8,790	8,790	8,790	43,950	8,790
Other	0	374	3,061	0	0	0	3,435	0
TOTAL	23,505	49,247	37,541	12,513	12,513	12,513	147,934	12,513

Savings ($K) Constant Dollars

	1996	1997	1998	1999	2000	2001	Total	Beyond
MilCon	0	0	0	0	0	0	0	0
Person	0	4,471	8,942	8,942	8,942	8,942	40,239	8,942
Overhd	0	1,159	2,439	8,404	8,404	8,404	28,810	8,404
Moving	0	0	148	0	0	0	148	0
Missio	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
TOTAL	0	5,630	11,529	17,346	17,346	17,346	69,196	17,346

INPUT DATA REPORT (COBRA V5.08)
Data As Of 10:37 05/04/1995, Report Created 15:38 05/03/1995

Department : ARMY
Option Package : PO1-5
Scenario File : C:\COBRA\MOTBYREV.CBR
Std Fctrs File : C:\COBRA\SF7DEC.SFF

INPUT SCREEN ONE - GENERAL SCENARIO INFORMATION

Model Year One : FY 1996

Model does Time-Phasing of Construction/Shutdown: Yes

Base Name	Strategy:
BAYONNE, NJ	Closes in FY 1998
FORT MONMOUTH, NJ	Realignment
BASE X, US	Realignment

Summary:

CLOSE BAYONNE MILITARY OCEAN TERMINAL, TRANSFER MILITARY TRAFFIC MANAGEMENT EASTERN AREA COMMAND TO FORT MONMOUTH AND THE TRAFFIC MANAGEMENT PORTION OF THE 1301ST MPC TO FORT MONMOUTH. ENCLAVE NAVY TENANTS AND NATIONAL ARCHIVES.

INPUT SCREEN TWO - DISTANCE TABLE

From Base:	To Base:	Distance:
BAYONNE, NJ	FORT MONMOUTH, NJ	50 mi
BAYONNE, NJ	BASE X, US	1,340 mi

INPUT SCREEN THREE - MOVEMENT TABLE

Transfers from BAYONNE, NJ to FORT MONMOUTH, NJ

	1996	1997	1998	1999	2000	2001
Officer Positions:	0	0	22	0	0	0
Enlisted Positions:	0	0	9	0	0	0
Civilian Positions:	0	0	616	0	0	0
Student Positions:	0	0	0	0	0	0
Missn Eqpt (tons):	0	0	0	0	0	0
Suppt Eqpt (tons):	0	0	0	0	0	0
Mil Light Vehic (tons):	0	0	0	0	0	0
Heavy/Spec Vehic (tons):	0	0	0	0	0	0

Transfers from BAYONNE, NJ to BASE X, US

	1996	1997	1998	1999	2000	2001
Officer Positions:	0	0	4	0	0	0
Enlisted Positions:	0	0	57	0	0	0
Civilian Positions:	0	0	145	0	0	0
Student Positions:	0	0	0	0	0	0
Missn Eqpt (tons):	0	0	0	0	0	0
Suppt Eqpt (tons):	0	0	0	0	0	0
Mil Light Vehic (tons):	0	0	0	0	0	0
Heavy/Spec Vehic (tons):	0	0	0	0	0	0

Data As Of 10:37 05/04/1995, Report Created 15:38 05/03/1995

Department : ARMY
Option Package : PO1-5
Scenario File : C:\COBRA\MOTBYREV.CBR
Std Fctrs File : C:\COBRA\SF7DEC.SFF

INPUT SCREEN FOUR - STATIC BASE INFORMATION

Name: BAYONNE, NJ

Total Officer Employees:	45	RPMA Non-Payroll ($K/Year):	2,501
Total Enlisted Employees:	120	Communications ($K/Year):	0
Total Student Employees:	0	BOS Non-Payroll ($K/Year):	16,482
Total Civilian Employees:	1,732	BOS Payroll ($K/Year):	166
Mil Families Living On Base:	100.0%	Family Housing ($K/Year):	443
Civilians Not Willing To Move:	6.0%	Area Cost Factor:	1.21
Officer Housing Units Avail:	0	CHAMPUS In-Pat ($/Visit):	0
Enlisted Housing Units Avail:	0	CHAMPUS Out-Pat ($/Visit):	0
Total Base Facilities(KSF):	5,026	CHAMPUS Shift to Medicare:	0.0%
Officer VHA ($/Month):	384	Activity Code:	34515
Enlisted VHA ($/Month):	245		
Per Diem Rate ($/Day):	125	Homeowner Assistance Program:	No
Freight Cost ($/Ton/Mile):	0.07	Unique Activity Information:	No

Name: FORT MONMOUTH, NJ

Total Officer Employees:	416	RPMA Non-Payroll ($K/Year):	13,001
Total Enlisted Employees:	505	Communications ($K/Year):	0
Total Student Employees:	406	BOS Non-Payroll ($K/Year):	60,417
Total Civilian Employees:	7,341	BOS Payroll ($K/Year):	39,182
Mil Families Living On Base:	100.0%	Family Housing ($K/Year):	3,861
Civilians Not Willing To Move:	6.0%	Area Cost Factor:	1.19
Officer Housing Units Avail:	0	CHAMPUS In-Pat ($/Visit):	0
Enlisted Housing Units Avail:	0	CHAMPUS Out-Pat ($/Visit):	0
Total Base Facilities(KSF):	4,474	CHAMPUS Shift to Medicare:	0.0%
Officer VHA ($/Month):	441	Activity Code:	34555
Enlisted VHA ($/Month):	261		
Per Diem Rate ($/Day):	118	Homeowner Assistance Program:	No
Freight Cost ($/Ton/Mile):	0.07	Unique Activity Information:	No

Name: BASE X, US

Total Officer Employees:	752	RPMA Non-Payroll ($K/Year):	11,891
Total Enlisted Employees:	4,208	Communications ($K/Year):	1,514
Total Student Employees:	1,121	BOS Non-Payroll ($K/Year):	29,982
Total Civilian Employees:	2,709	BOS Payroll ($K/Year):	21,877
Mil Families Living On Base:	55.0%	Family Housing ($K/Year):	8,151
Civilians Not Willing To Move:	6.0%	Area Cost Factor:	1.09
Officer Housing Units Avail:	0	CHAMPUS In-Pat ($/Visit):	0
Enlisted Housing Units Avail:	0	CHAMPUS Out-Pat ($/Visit):	0
Total Base Facilities(KSF):	6,091	CHAMPUS Shift to Medicare:	0.0%
Officer VHA ($/Month):	178	Activity Code:	BASEX
Enlisted VHA ($/Month):	132		
Per Diem Rate ($/Day):	101	Homeowner Assistance Program:	No
Freight Cost ($/Ton/Mile):	0.07	Unique Activity Information:	No

Data As Of 10:37 05/04/1995, Report Created 15:38 05/03/1995

Department : ARMY
Option Package : PO1-5
Scenario File : C:\COBRA\MOTBYREV.CBR
Std Fctrs File : C:\COBRA\SF7DEC.SFF

INPUT SCREEN FIVE - DYNAMIC BASE INFORMATION

Name: BAYONNE, NJ

	1996	1997	1998	1999	2000	2001
1-Time Unique Cost ($K):	0	0	1,521	0	0	0
1-Time Unique Save ($K):	0	0	0	0	0	0
1-Time Moving Cost ($K):	0	0	0	0	0	0
1-Time Moving Save ($K):	0	0	0	0	0	0
Env Non-MilCon Reqd($K):	0	0	0	0	0	0
Activ Mission Cost ($K):	0	8,790	8,790	8,790	8,790	8,790
Activ Mission Save ($K):	0	0	0	0	0	0
Misc Recurring Cost($K):	0	0	0	0	0	0
Misc Recurring Save($K):	0	0	0	0	0	0
Land (+Buy/-Sales) ($K):	0	0	0	0	0	0
Construction Schedule(%):	0%	0%	0%	0%	0%	0%
Shutdown Schedule (%):	0%	0%	0%	0%	0%	0%
MilCon Cost Avoidnc($K):	0	0	0	0	0	0
Fam Housing Avoidnc($K):	0	0	0	0	0	0
Procurement Avoidnc($K):	0	0	0	0	0	0
CHAMPUS In-Patients/Yr:	0	0	0	0	0	0
CHAMPUS Out-Patients/Yr:	0	0	0	0	0	0

Facil ShutDown(KSF): 4,454 Perc Family Housing ShutDown: 100.0%

Name: FORT MONMOUTH, NJ

	1996	1997	1998	1999	2000	2001
1-Time Unique Cost ($K):	0	0	0	0	0	0
1-Time Unique Save ($K):	0	0	0	0	0	0
1-Time Moving Cost ($K):	0	0	0	0	0	0
1-Time Moving Save ($K):	0	0	0	0	0	0
Env Non-MilCon Reqd($K):	0	0	0	0	0	0
Activ Mission Cost ($K):	0	0	0	0	0	0
Activ Mission Save ($K):	0	0	0	0	0	0
Misc Recurring Cost($K):	0	0	0	0	0	0
Misc Recurring Save($K):	0	0	0	0	0	0
Land (+Buy/-Sales) ($K):	0	0	0	0	0	0
Construction Schedule(%):	0%	0%	0%	0%	0%	0%
Shutdown Schedule (%):	0%	0%	0%	0%	0%	0%
MilCon Cost Avoidnc($K):	0	0	0	0	0	0
Fam Housing Avoidnc($K):	0	0	0	0	0	0
Procurement Avoidnc($K):	0	0	0	0	0	0
CHAMPUS In-Patients/Yr:	0	0	0	0	0	0
CHAMPUS Out-Patients/Yr:	0	0	0	0	0	0

Facil ShutDown(KSF): 0 Perc Family Housing ShutDown: 0.0%

Name: BASE X, US

	1996	1997	1998	1999	2000	2001
1-Time Unique Cost ($K):	0	0	0	0	0	0
1-Time Unique Save ($K):	0	0	0	0	0	0
1-Time Moving Cost ($K):	0	0	0	0	0	0
1-Time Moving Save ($K):	0	0	0	0	0	0
Env Non-MilCon Reqd($K):	0	0	0	0	0	0
Activ Mission Cost ($K):	0	0	0	0	0	0
Activ Mission Save ($K):	0	0	0	0	0	0
Misc Recurring Cost($K):	0	0	0	0	0	0
Misc Recurring Save($K):	0	0	0	0	0	0
Land (+Buy/-Sales) ($K):	0	0	0	0	0	0
Construction Schedule(%):	0%	0%	0%	0%	0%	0%
Shutdown Schedule (%):	0%	0%	0%	0%	0%	0%
MilCon Cost Avoidnc($K):	0	0	0	0	0	0
Fam Housing Avoidnc($K):	0	0	0	0	0	0
Procurement Avoidnc($K):	0	0	0	0	0	0
CHAMPUS In-Patients/Yr:	0	0	0	0	0	0
CHAMPUS Out-Patients/Yr:	0	0	0	0	0	0

Facil ShutDown(KSF): 0 Perc Family Housing ShutDown: 0.0%

Data As Of 10:37 05/04/1995, Report Created 15:38 05/03/1995

Department : ARMY
Option Package : PO1-5
Scenario File : C:\COBRA\MOTBYREV.CBR
Std Fctrs File : C:\COBRA\SF7DEC.SFF

INPUT SCREEN SIX - BASE PERSONNEL INFORMATION

Name: BAYONNE, NJ

	1996	1997	1998	1999	2000	2001
Off Force Struc Change:	0	0	0	0	0	0
Enl Force Struc Change:	0	0	0	0	0	0
Civ Force Struc Change:	0	0	0	0	0	0
Stu Force Struc Change:	0	0	0	0	0	0
Off Scenario Change:	0	-5	0	0	0	0
Enl Scenario Change:	0	-3	0	0	0	0
Civ Scenario Change:	0	-185	0	0	0	0
Off Change(No Sal Save):	0	0	0	0	0	0
Enl Change(No Sal Save):	0	0	0	0	0	0
Civ Change(No Sal Save):	0	0	0	0	0	0
Caretakers - Military:	0	0	0	0	0	0
Caretakers - Civilian:	0	0	0	0	0	0

INPUT SCREEN SIX - BASE PERSONNEL INFORMATION

Name: FORT MONMOUTH, NJ

	1996	1997	1998	1999	2000	2001
Off Force Struc Change:	0	4	0	0	0	0
Enl Force Struc Change:	0	110	0	0	0	0
Civ Force Struc Change:	0	267	9	-72	0	0
Stu Force Struc Change:	0	-134	0	0	0	0
Off Scenario Change:	0	0	0	0	0	0
Er Scenario Change:	0	0	0	0	0	0
Civ Scenario Change:	0	0	0	0	0	0
Off Change(No Sal Save):	0	0	0	0	0	0
Enl Change(No Sal Save):	0	0	0	0	0	0
Civ Change(No Sal Save):	0	0	0	0	0	0
Caretakers - Military:	0	0	0	0	0	0
Caretakers - Civilian:	0	0	0	0	0	0

INPUT SCREEN SEVEN - BASE MILITARY CONSTRUCTION INFORMATION

Name: BAYONNE, NJ

Description	Categ	New MilCon	Rehab MilCon	Total Cost($K)
Enclave	OTHER	0	0	29,000

Name: FORT MONMOUTH, NJ

Description	Categ	New MilCon	Rehab MilCon	Total Cost($K)
GEN PURPOSE ADMIN	ADMIN	130,000	0	0
EASTERN AREA HQ PLUS DOCUMENTATION SUPPORT PORTION OF 1301ST MPC.				
WAREHOUSE	STORA	23,400	0	0

Department : ARMY
Option Package : PO1-5
Scenario File : C:\COBRA\MOTBYREV.CBR
Std Fctrs File : C:\COBRA\SF7DEC.SFF

EXPLANATORY NOTES (INPUT SCREEN NINE)

REDUCED THE FACILITY SQUARE FOOTAGE CLOSED BY THE QUANTITY BEING USED BY THE

NATIONAL ARCHIVES, AND NAVAL TENANTS, AS FOLLOWS:

NATIONAL ARCHIVES SUBTOTAL 243,488 SQ FT

NAVAL SEALIFT COMMAND SUBTOTAL 239,591 SQ FT

ALSO HAS 871,200 SQ FT OPEN STORAGE

NAVAL RESALE SUBTOTAL 65,184 SQ FT

NAVAL SEA SYSTEM SUBTOTAL 20,000

TOTAL STORAGE/WAREHOUSE FACILITY SQ FT ENCLAVED 572,063 SQ FT

NAVY SEALIFT PERSONNEL ASIP ADJUSTED PER BSAT INPUT DOWN: 1 OFF,8 ENL,52 CIV

ATTACHMENTS

FOOTNOTE 2

BOTTOM LINE ISSUES:

- IS THE ARMY READY TO GIVE UP ACCESS TO THEIR ONLY PORT PROPERTY ON EACH COAST?
  - ARMY SHOULD SUPPORT RETENTION OF MOTS
- ONCE THE PORT PROPERTY IS GIVEN UP, IT CAN NEVER BE RECOVERED.

TABS ASSUMPTION

COMMERCIAL PORTS CAN HANDLE MRC WORKLOAD

RISK!!

FOOTNOTES 3, 24 & 25

UNCLASSIFIED

DEPARTMENT OF THE ARMY

OFFICE OF THE DEPUTY CHIEF OF STAFF FOR OPERATIONS AND PLANS
400 ARMY PENTAGON
WASHINGTON, DC 20310-0400

REPLY TO ATTENTION OF

DAMO-SSW

MEMORANDUM THRU CHIEF, FORCE STATIONING DIVISION RW 24 Feb 95

FOR DIRECTOR, THE ARMY BASING STUDY

SUBJECT: Impact of closing MOTBY (BY = Bayonne) and MOTBA (BA = Bay Area) -- INFORMATION MEMORANDUM

1. Purpose: To provide operational impact of potential closure of MOTBA and MOTBY.

2. Discussion:

a. MRS BURU port data, provided by MTMC-TEA and MTMC-RM port data show that the New York port complex (w/MOTBY as a subset) provides 40% of the port thruput capacity for the Atlantic coast. MOTBY provides 20% of the New York port complex thruput or 8% of the Atlantic coast total.

b. MRS BURU port data, provided by MTMC-TEA and MTMC-RM port data show that the Bay Area port complex (w/MOTBA as a subset) provides 25% of the port thruput capacity for the Pacific coast. MOTBA provides an undetermined total ranging from 15 - 40% of the Bay Area port complex thruput.

c. MTMC coordinates Port Allocation Orders (PAOs) for use of civilian port facilities during emergencies. These agreements currently call for a 48 hour response time. On-going negotiations at some ports (including Oakland) reveal a resistance to 48 hours and a request to substitute a 7 days response time. In Oakland the current PAO increases the number of RO/RO berths from 2 to 5 in 48 hours.

d. MOTBY is contibuting little to nothing to port thruput at this time as it requires significant dredging to reopen.

3. Operational Impact: Marginal to negligible, considering PAOs can substitute for full time presence. Recommend should DoD divest itself of MOTBY and MOTBA, then the selling agreement should include a PAO with a longterm requirement for a 48-96 hour response time.

WILLIAM G. FOSTER
COL, GS
Chief, War Plans Division

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FOOTNOTE 12

PORTS

INSTALLATION ASSESSMENT

Bayonne, NJ
Oakland, CA
Sunny Point, NC

MILITARY VALUE ASSESSMENT

Sunny Point, NC
Bayonne, NJ
Oakland, CA

FOOTNOTE 13

MTWPL 1 January 1995

MEMORANDUM FOR Commander, Military Traffic Management Command, ATTN: MTPL-ST ("Dutch" Dalziel), 5611 Columbia Pike, Falls Church VA 22041-5050

SUBJECT: BRAC 95 Background

1.. This will hopefully answer questions concerning the methodology used to constrain throughput off the west coast. First, we are working from the latest version of STRADS at the area command, it is not the latest version. Second, we are running an older version of STRADS with an older iteration of the TPFDD loaded.

2. Having said that, this was the process used:

a. The first model run was made using the movement requirements data and throughput capabilities as they were forwarded to us from HQ MTMC. This run provided us with the "unconstrained" data. We selected "Schedule to Meet RDD" as the basic parameter for the model run.

b. To produce the "constrained" data, we reduced Oakland's capability by 29,900 MT to account for the loss of Oakland Army Base. Our going in assumption was that the Port of Oakland would convert the base from primarily a RORO/breakbulk-oriented facility to support its expanding containerized operations. We also assumed that we would not seek a Port Planning Order (PPO) to retain return rights to the facilities which we would "abandon." Using this as the only constraint, we again selected "Schedule to Meet RDD" as the basic parameter for the model run.

c. Following the model run, we first looked at units which were "Impossible to Close," i.e., those which would not meet the supported CINC's required delivery date in theater. The number of units which missed RDDs were not significant. However, when we compared the dates a particular ULN would arrive at the SPOD, a significant number of units arrived later under the "constrained" model (from one day to three weeks later) than they did under the "unconstrained" model. This brings up an interesting point. The TABS group may say "So what? The units still arrive by the time the supported CINC says he needs them." I don't think this is necessarily what the supported CINC would say. I can't remember the name of the Civil War general who insisted on "being the firstust with the mostest," but I can assure you based on almost six years in theater that there's not one CINC I've worked with who would willingly agree to avoidable delays in forces closing on his theater of operations. The problem is that at the TPFDD refinement conferences, we always inject "reality" into the CINC's desired closure dates. The net effect is not so much a case of when the CINC wants forces to arrive, but rather the relative order or sequence of their arrival given lift, onload, discharge, and other throughput constraints. Let's not

forget that the current OPLAN is event-driven and not time-driven as used to be the case. A day's delay in the arrival of reinforcements will compel the CINC to remain on the defensive at least one more day; additional delays further delay taking the offensive, could force the CINC to trade land for time (in an area where there isn't much land to trade off to begin with), and allied casualties would likely mount while we fight the enemy's war and not our own. So much for the editorial comments.

d. With respect to the examples cited, I won't identify the specific units (otherwise we'd have to work this in a classified mode). But here's a line-by-line rundown of what's on the graphic we produced.

(1) For the Infantry Div (M), four of eight ULNs associated with this UIC arrived at the SPOD 16-17 days later under the constrained model versus the unconstrained model, which gave us a 16.5 day average delay. Outwardly, this looks like only 50% of the division arrives later. However, ULNs for the same UIC do not necessarily have equivalent combat power. When you look at the tonnage involved with the later arriving ULNs (429.8 of 483.4 tons), 89% is a more realistic figure.

(2) For the Infantry Bde, four of six ULNs (and 179.9 of 196.2 tons) arrived at the SPOD 16 days later under the constrained model.

(3) For the Division Artillery, five of seven ULNs (375.1 of 414.1 tons) arrived at the SPOD 16 days later, and at least one ULN was impossible to close by its RDD.

(4) For the Engineering Pipeline Construction Co, all nine ULNs (730.2 tons) were not only 17 days later arriving at the SPOD, but again at least one ULN was impossible to close by its RDD. Not a problem until you figure in order for heavy mechanized units to advance, they need wholesale quantities of fuel and there aren't enough refueling vehicles in theater to do the job alone.

(5) For the POL Supply Co, six of nine ULNs representing 82% of the UICs tonnage averaged 11 days later under the constrained model.

(6) For the Patriot Bn (slice), four of seven ULNs representing 97% of the UICs tonnage averaged 3.5 days later under the constrained model.

3. Please bear in mind that these comparisons were made under a very tight schedule, and we did not get a chance to do a line-by-line laydown of all UICs. However, of the roughly 800 ULNs we did compare, fully one-third arrived at the SPOD later using the constrained model than the unconstrained model--again, the only difference in the two models was the 29,900 reduction in throughput capacity owing to the loss of Oakland Army Base.

THOMAS E. PARKER
Lt Col, USAF

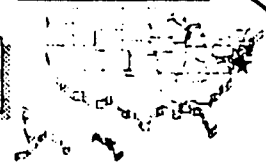
FOOTNOTE 14

PORTS

SUNNY POINT

BAYONNE
OAKLAND

BAYONNE MILITARY OCEAN TERMINAL (MOT)



FORT MONMOUTH

1301st MAJOR PORT COMMAND

MTMC EASTERN AREA COMMAND

BAYONNE

COSTS ($M)

O&M	34
MILCON	27
OTHER	6
TOTAL	67

PAYBACK PERIOD (YEARS)	4
BREAK EVEN YEAR	2002
STEADY STATE ($M)	18 (1999)
20 YEAR NPV ($M)	175

CLOSE BAYONNE MILITARY OCEAN TERMINAL

RELOCATE MTMC EASTERN AREA HQ & 1301ST MAJOR PORT COMMAND TO FORT MONMOUTH

IMPACT SUMMARY
BAYONNE MOT, NJ

OPERATIONAL:
- Some loss to operational capability; stationing strategy supports closure
- Assumes commercial port capacity will be available to support power projection requirements
- Cost includes tariff charges
- Action expected to lower current surcharge rate at other Eastern Area port facilities
- No recommendations from previous BRAC rounds

PERSONNEL:

	Military	Civilian
Reductions	8	185
Realignments	31	616

TENANTS

Navy:
- Sealift Cmd 559
- Resale 164

National Archives 100

ENVIRONMENTAL: No significant limitations

ECONOMIC: 1.4 % Direct and indirect job loss from total civilian employment of 250K

OTHER SERVICE/DOD FACTORS: Navy tenants

ALTERNATIVES CONSIDERED None

FOOTNOTE 18

- Non-binding letter of intent
  - Planning document
  - Not legally binding commercial document
- Indicates:
  - Op Plan exists requiring port
  - Port meets DOD requirements
- May specify exact features of port to be used during contingency
- MTMC & owner agree on how orderly transfer of facilities will be made at future time
- Issued by MARAD at MTMC's request
- Effective generally for 3 yrs w/options
- 18 in effect at 11 strategic seaports
- Lays ground work for & expedites the issuance of NSPOs or NAOs but is not a prerequisite
- Activation
  - MTMC notifies port of deployment and intent to use port
  - Port official agrees or declines to abide by PPO
  - Port may offer similar capabilities at other piers or wharves consistent with PPO
- If PPO is executed as planned, normal commercial procedures are used to obtain services at the port
- If port refuses to cooperate, legal and binding means are available to obtain the needed facilities

- CFR 46 Part 340 assures facilities available during crisis
- Authority from DPA of 1950
- Issued at MTMC's request when normal means fail
- Must be in support of emergency deployment of U.S. forces
- Failure to comply with NSPO punishable by fines and/or imprisonment
- PPO normally in effect but not a requirement to issue NSPO
- NSPO is "stand aside" order
  - Not exclusive use of entire port
  - Military ops have priority, "gets what they want."
  - Normally issued for 30 day period with renewal options by subsequent PPO
- Effective 1 min after midnight on date specified in the order
- Beneficial occupancy by federal agency not later than 48 hrs after delivery of order

- CFR 46 Part 340 assures facilities available during crisis
- Authority from DPA of 1950
- Issued at MTMC's request when normal means fail
- Must be in support of emergency deployment of U.S. forces
- Failure to comply with NAO punishable by fines and/or imprisonment
- PPO normally in effect but not a requirement to issue NAO
- NAO is exclusive, emergency allocation of specified facility for a sustainment period
- Not expected to be issued
  - Plans assume sustainment will be by commercial lines
  - Only one NAO exists, issued at request of federal port controller
- Effective 1 min after midnight on date specified in the order
- Beneficial occupancy by federal agency not later than 48 hrs after delivery of order

FOOTNOTE 28

DEPARTMENT OF THE ARMY
HEADQUARTERS, MILITARY TRAFFIC MANAGEMENT COMMAND
5611 COLUMBIA PIKE
FALLS CHURCH, VA 22041-5050

REPLY TO ATTENTION OF

MTRM (5-10a)

03 APR 1995
S: 14 Apr 95

MEMORANDUM FOR Commander, MTMC Eastern Area, ATTN: G1 (Col T. Frazier), Bayonne, NJ 07002-5302

SUBJECT: 1995 Base Realignment and Closure (BRAC 95) Relocation/Inactivation of Tenant Activities

1. References:

a. Secretary of Defense Recommendation for BRAC 95.

b. Memorandum from HADQ, ACSIM, dtd 1 Mar 95, Subject: Headquarters, Department of the Army Base Realignment and Closure (BRAC) Implementation Guidance - BRAC 95.

c. AR 5-10, Reduction and Realignment Reporting Procedures, dtd 15 Jan 93.

d. AR 5-XX (DRAFT), Management Stationing, dtd 1 Oct 94.

e. AR 200-2, Environmental Effects of Army Actions, dtd 23 Dec 88.

2. Purpose of this action is to obtain your recommendations on discretionary locations for the units/activities at Bayonne that fall under your purview.

a. Approval authority for Army activities' discretionary locations is HQDA (References 1b, 1c, 1d); MTMC is tasked to provide recommendations to HQDA.

b. NonArmy tenants must also be addressed. Approval should be IAW your procedures; however, we need to include your recommendations and/or decisions in our planning process. We must also plan for your movement, etc. If tenant will be moving to an Army installation, approval must also conform to Army procedures.

3. Request completion of Enclosure 1 for each activity located at Bayonne (one each relocation analysis form for each UIC and forward to HQ MTMC, ATTN: MTRM-M (Dianne Luna/Loretta Graves), to arrive 14 Apr 95. Need strong rationale for why specific location is considered over other locations. Coordination with the gaining installation and their headquarters (MACOM/MAJCOM) is mandatory.

4. Enclosure 2 is the assumed list of Bayonne tenants. It is based on the Nov 94 version of the Army Installation Stationing Plan (ASIP) for Bayonne, NJ. Authorized strengths are for FY 2000 and are the basis for determination of facility requirements at gaining locations; strengths at time of movement may vary from this. Request you provide a copy of this memorandum to each tenant on the installation.

5. Gaining installations will be required to prepare NEPA documentation for receipt of activities (references 1b and 1e); therefore, all moving activities are required to provide information to the gaining location as required to prepare the documents. Coordination should begin as soon as your preferred sites are identified with the assumption that they will be approved.

6. Activities requesting to move to discretionary locations should avoid requirements for new construction and/or renovation as they are unlikely to be approved.

7. HQDA has tasked HQ MTMC to develop two (2) scenarios, one with the enclave and one without.

8. Points of contact for this action are N. Dianne Luna and Loretta Graves, DSN 289-1144/2414.

FOR THE COMMANDER:

JOSEPH E. JENKINS, III
Deputy Chief of Staff for
Resource Management

FOOTNOTE 29

DEPARTMENT OF THE ARMY
HEADQUARTERS, MILITARY TRAFFIC MANAGEMENT COMMAND
5611 COLUMBIA PIKE
FALLS CHURCH, VA 22041-5050

REPLY TO ATTENTION OF

S: 24 April 1995

MTDTC (500-5b)

14 APR 1995

MEMORANDUM FOR

Commander, MTMC Eastern Area, Bayonne, NJ 07002-5302
Commander, MTMC Western Area, Oakland Army Base, Oakland, CA 94626-5000
Director, MTMC Transportation Engineering Agency, 720 Thimble Shoals Boulevard, Suite 130, Newport News, VA 23604-2574

SUBJECT: Participation in Research Model Working Group

1. The Maritime Administration (MARAD) of the Department of Transportation (DOT) has contracted the Louisiana State University (LSU) National Ports and Waterways Institute to develop a tactical and operations response model to analyze the disruption and displacement of commercial port traffic caused by unforeseen military cargo being sent through a port. MTMC and MARAD are developing a working committee to assist the LSU team with the application of the model.

2. The purpose of an initial meeting is to develop parameters to determine the ports' needs. As the LSU team begins the model process, they want to be sure that they know what to look at and how to look at it. Expertise is needed from our offices to verify the methodology they are using and to provide them with the data sources to be used. The first meeting will allow us to discuss the overall plan of the model and to provide the LSU team with a scenario, to include unclassified time-phased deployment data. As listed in the "Input Requirements for Response Model to Assess Military Operations in a Marine Terminal" (Attachment 1), you can see that a lot of information is needed to accurately exercise this model.

3. Following this initial meeting, the working group will meet infrequently, only to discuss the preliminary findings of the model. The tentative schedule is to meet once every four months to check the status and confirm that the model is still "on track." Involvement in this project is not extensive but time must be taken initially to provide the LSU team with accurate deployment calculations so they can begin their task.

4. This model, if designed and used correctly, can benefit the military in planning our deployment by giving us the quantitative results of how we disturb this one leg of the commercial sector. Once the model is completed, we can use the model to determine the following:

1) The accuracy of port planning order facilities.
2) The amount of commercial cargo disrupted by a military deployment.

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MTDTC
SUBJECT: Participation in Research Model Working Group

130 - 4
Capt. Mike Armstead
Diana

3) The cost to the military for the disruption.
4) The port facilities within that port that can pick up the disrupted cargo.

5. Attached is the proposal that the LSU team submitted to MARAD. Request you review this document and provide this headquarters a point of contact from your organization to assist in this effort. ~~The first meeting will be 26 April 1995 from 1330-1600 hours.~~ The location is MARAD, Department of Transportation, Room 4440, 400 Seventh Street, SW., Washington, D.C. 20590. Contact Mr. Bill Bristor at (202) 366-5468 for parking passes, if needed. Easy metro access is found at the L'Enfant Plaza station.

6. Provide names to CPT Maribeth Schetter, MTPL-RD, DSN 289-1042, NLT 24 April 1995. (E-Mail address: PLSEC%CIDSS2.CIDSS@BAILEYS-EMFE.ARMY.MIL)

William Lucas
WILLIAM R. LUCAS
Deputy to the Commander

2 Atchs

U.S. Department of Transportation
Maritime Administration

Memorandum

Subject: ACTION: Modification of Contract DTMA91-94-H-00019

Date: Feb 27, 1995

From: William B. Bristor, Jr.
AOTR

Reply to Attn. of:

To: Jeffrey W. Mullins
Contracting Officer

The subject contract covers the Response Model to Disruption of Maritime Transportation Systems. Under this project, the contractor is to develop a generic computerized model to evaluate the effects of disruption to varied impacts for use of the port facilities and will apply the model to one port.

At MARAD's request, in response to a requirement from the Military Traffic Management Command, the contractor was asked to develop a modification to the research scope with an expanded list of ports to be evaluated. That modification is attached.

Additional funding in the amount of $ 75,000 is budgeted under Maritime Security in the National Security area (Application of Port Demand Model) out of the approved FY 95 Research and Development plan.

Attachment

Proposal

For Modification of the Research Scope for "Response Model to Disruption of Maritime Transportation System"

Contract #: DTMA91-94-H-00019

Submitted to:

Maritime Administration
United States Department of Transportation

Submitted by:
National Ports and Waterways Institute
Louisiana State University
1300 N. 17th Street, Suite 220
Rosslyn, VA 22209

Date: February 24, 1995

I. Scope of Modification

Currently, LSU National Ports and Waterways Institute (NPWI) is under contract with MARAD to develop a tactical and operational response model to maritime system disruption for assistance in decision making during periods when established patterns of shipping services are impaired. The model concept and application should be illustrated by an example of actual system disruption with a realistic set of conditions. Designation of such example is to be provided by MARAD. Recently MARAD instructed NPWI to use as an example selection of terminals within a port in the Gulf of Mexico for utilization during military mobilization.

As we understand, currently MARAD and the Department of Defense are in the process of selecting the most appropriate port terminals which can be used during military mobilization. The selected terminals should meet all military requirements and at the same time cause minimum possible disruption of on-going commercial port services. It appears, therefore, most efficient to expand the scope of the existing contract and apply the model concept to support selection decisions for ports under consideration. As a result of this scope expansion, MARAD will receive not only a planning tool but also practical application of this tool and specific recommendations for ports/terminals designation during military mobilization.

Unforeseen disruptions to commercial navigation can have substantial cost and service impacts on users and providers of maritime services. In addition to direct impacts of higher costs and lower levels of service, there may be a variety of indirect impacts that can have adverse implications for the perception of the relative reliability of the port system. By definition the timing and extent of unanticipated disruptions to maritime services cannot be predicted. However, once they occur and their duration and intensity are forecasted, tactical and operational alternatives to minimize adverse impacts can be prescribed.

The emphasis of this research is supplying maritime users and providers with sufficient flexibility to adopt a planning framework of tactical and operational alternatives for avoidance or minimization of adverse impacts of disruption of normal service patterns. A tactical and operational planning framework can be useful to not only minimize costs of direct impacts of maritime service disruption but also allow users and providers, such as ports, to quantify the effects of service disruptions in future transactions to incorporate risks into market analysis and planning.

The research methodology considered in this program is based on the "capacitated network model", which is part of a broader family of models commonly called network optimization models. The modelling will require a two step process, starting with the base case defining impaired transportation system without mitigating solutions, and extending to tactical and operational alternatives in the second step. The linear programming model will be used to achieve two purposes:

1- Cost calculation - compilation and comparison of the total cost of different tactical and operational alternatives and the base case in response to disruptions to normal maritime services. The costs will be for a variety of alternative ports, terminals, equipment, operational methods and other considerations as applicable.

2- Traffic Allocation - assignment of traffic to the tactical and operational alternatives that have lower total costs compared to the base case, be it physical inability of use or rising congestion. Rearrangement of traffic also is subject to capacity and other constraints such as delivery time, delay, availability of specialized facilities, etc.

Accordingly the model will contain a series of "if "type statements related to different tactical and operation menues for cargoes, ports, storage, duration, components.

Application of the model to specific selection of the ports/terminals most suitable to be designated for the use during military mobilization will require additional scope of work, which can be formulated by the following tasks and assumptions:

1 - The comparative analysis will include 12 ports and will be conducted at the berth level, meaning that both, terminals within a port as well as different ports will be considered.

2 - It will be assumed that military needs should be met as much as possible at the same locations and can not be distributed among terminals under consideration, unless demand for military cargo handling exceeds capacity of a single terminal.

3 - Up to three scenarios of military demands should be provided to the NPWI for evaluation. Each scenario description should include as a minimum duration of operation, cargo handling volumes and nominal/effective handling rates by type of cargo, such as containers, reefers, vehicles and other RO/RO types of cargo, break bulk and bulk, storage/parking needs, types of vessels and any specific features affecting cargo handling rates or storage space. If volume is expected to substantially fluctuate, a distribution of demand over the overall mobilization period should also be included. For more detail, see model input requirements in Attachment I.

4 - Among 12 ports to be evaluated, the 3 will be chosen for detailed analysis, including visits to the port sites. With the cooperation of the ports under consideration NPWI will collect all necessary information to determine existing terminal capacities and their current utilizations as well as formulate alternative solutions. For the terminals identified as options for military use the same capacity will also be modified for handling military cargo as defined in item 3.

5 - The remaining 9 ports will be accessed based, mostly, on published information, such as inventory of port facilities, port annual reports, etc. Up to the extent possible, this information will be verified and updated.

6 - The capacities will be estimated based on a stock and flow methodology to analyze terminal operations and related facilities. The main facility components are categorized either as Flow Processing Components - the facilities that transfer cargos among vessels, trains and trucks, or Stock Holding Components - the facilities that store the cargo in between flows.

7 - For each scenario to accommodate military demand (Item 3) "Displaced Capacities" will be estimated and a set of alternatives to absorb a disruption in normal provision of services will be established. These alternatives may include designation of different terminals for military use, reallocation of commercial traffic among remaining port facilities in the port, changing cargo handling equipment, extending hours of operation, and other tactical and operational measures.

8 - The model will be exercised to determine solutions which fully meet military requirements and at the same time minimize additional costs to accommodate commercial traffic during periods of extra demand on port system.

The resulting deliverables will provide information for selection of terminals for military mobilization in the 12 ports under consideration. Deliverables will include prescriptions of optimum allocations of commercial traffic, as well as other tactical and operational measures during periods of mobilization by different scenarios according to the duration, volume and structure of military shipments.

II. Cost Estimate and Schedule

The estimated cost to conduct the proposed expansion of the scope is $75,000. This will bring the total cost under modified contract to $125,000.

It is proposed that the duration of modified contract will be 12 months from the date of its approval.

Attachment 1

Input Requirements for Response Model to Assess Military Operations in a Marine Terminal

1. Vessel Information

- Dimensions (draft fully loaded, LOA, molded breadth)

- Type (RoRo/LoLo, ramp dimensions and location for RoRo, cranes for LoLo including SWL and reach)

- Needs for tug assist (bow thrusters), bunker, other supplies

2. Cargo and Personnel Information

- Type of units (rolling, lifted), packaging (palletized, containerized, breakbulk), typical dimensions and oversizes (L x W x H, weight)

- Number of units and tonnage per ship and for the overall operation (per each category)

- Number of people involved by major function

3. Operational Requirements

- Transport modes by which cargo is brought into or removed from terminal (rail, truck, barge, feeder vessel), number of vehicles (per ship/operation) and need for rail trackage/parking space/moving berthage (dwell time)

- On-terminal cargo storage (open/covered, volume, stacking requirements, sq ft, dwell time)

- Equipment for loading/unloading vehicles and for storage-to-dock transfer (forklifts, hostlers, chassis)

- Safety and security (distance to non-military activities, barricade, fire fighting equipment, HAZMAT, certification of civilian labor)

- Ships' handling time (hours between berthing/deberthing)

- Duration of entire operation (days) and level of activity (average, peak)

DEPARTMENT OF THE ARMY
HEADQUARTERS, MILITARY TRAFFIC MANAGEMENT COMMAND
5611 COLUMBIA PIKE
FALLS CHURCH, VA 22041-5050

REPLY TO ATTENTION OF
Office of the Deputy to the Commander

Mr. John Pisani
Office of Ports and Domestic Shipping
Maritime Administration
400 Seventh Street, SW
Washington, DC 20590

Dear Mr. Pisani,

After our meeting with the Louisiana State University National Ports and Waterways Institute, I am very excited to have the Military Traffic Management Command (MTMC) participate in this modeling effort. I agree that we must move fast and get started as soon as possible.

To begin this process, MTMC has identified the following ports to undergo a *detailed analysis*:

Port of New York/New Jersey
Port of Savannah, GA
Port of Oakland, CA

MTMC has also identified the following ports to undergo a *less intensive study*:

Port of Hampton Roads, VA
Port of Morehead City, NC
Port of Wilmington, NC
Port of Charleston, SC
Port of Jacksonville, FL
Port of Beaumont, TX
Port of Galveston, TX
Port of Long Beach, CA
Port of Tacoma, WA

I am looking forward to being a part of this effort and anxiously await to see the findings of the study. I think that both MTMC and MARAD will benefit greatly by using this model and I hope that it will validate the way we do business now or provide us with suitable alternatives to make us more efficient and effective.

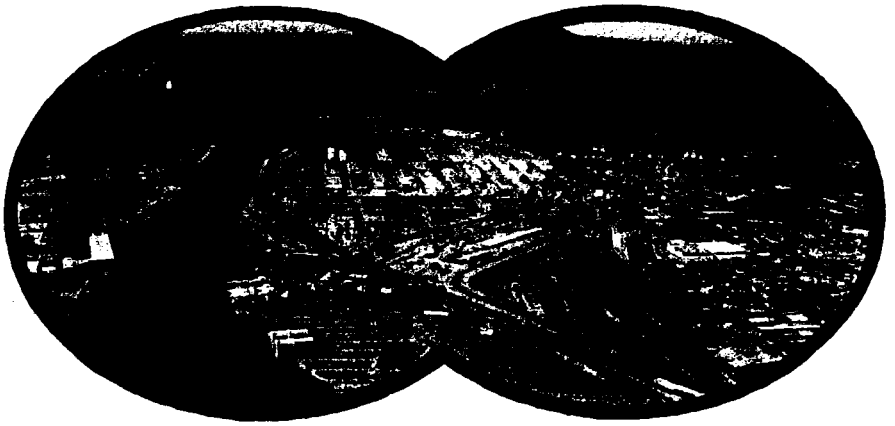
William R. Lucas
Deputy to the Commander

Document Separator

PORT OF OAKLAND

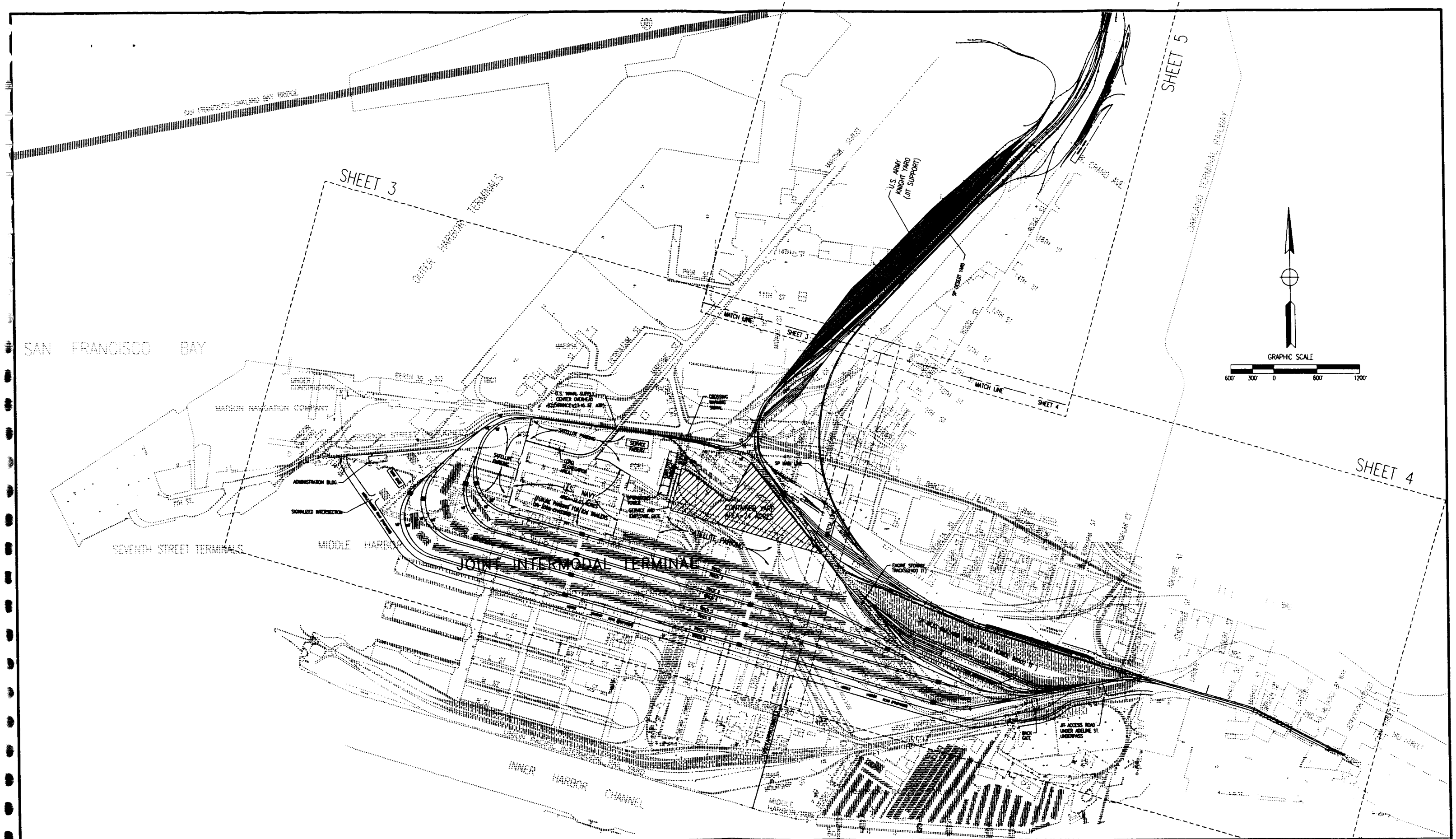
Joint Intermodal Terminal

Operating Plan Executive Summary



Summit/Lynch Consulting Engineers, Inc.
Frederic R. Harris, Inc.
F.E. Jordan Associates, Inc.

February, 1995



SUMMIT/LYNCH
CONSULTING ENGINEERS
ONE CORPORATE CENTER
1320 WILLOW PASS ROAD
CONCORD, CALIFORNIA
PHONE: (510) 798-2920 FAX: (510) 798-2924

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DATE: 2-27-95	DRAWN BY: AUC
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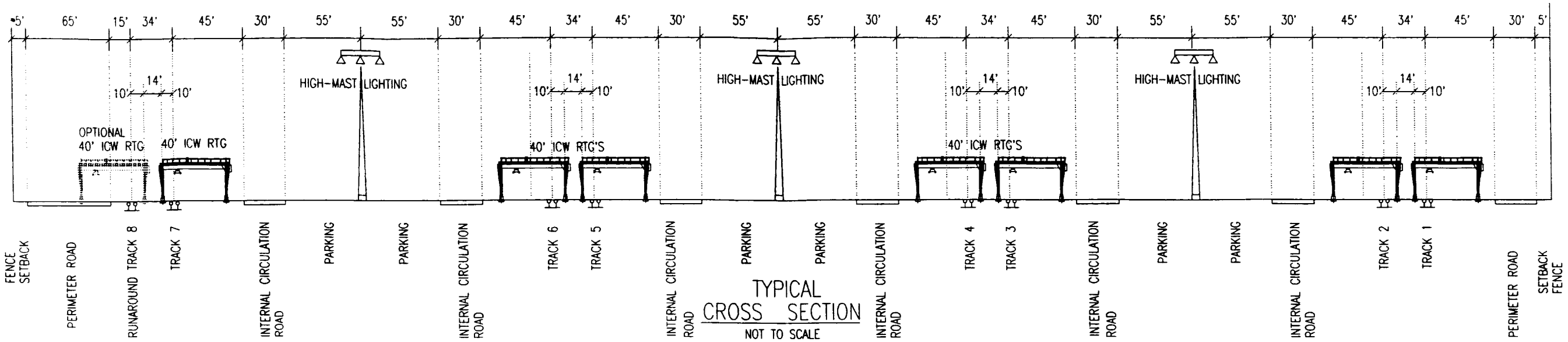
PROPOSED OAKLAND JOINT INTERMODAL
ALTERNATE 1B
FACILITY LAYOUT

SHEET 1 OF 5



TYPICAL CROSS SECTION
NOT TO SCALE

GENERAL FEATURES

308' CAR LENGTH UNLOADING TRACKS

TRACK NO.	LENGTH UNDER CRANE	CAR SPOTS
1	6030 TF	20
2	6030 TF	20
3	6027 TF	19
4	6027 TF	19
5	6960 TF	23
6	6960 TF	23
7	8241 TF	27
8	RUNAROUND (7884 TF)	
TOTAL=46,275 TF = 151 CARS		

AREA=341 ACRES
(INCLUDING CONTAINER YARD)

PARKING SLOTS ON JIT

TYPE OF PARKING	FINAL BUILDOUT [1]		PLUS NAVY PARCEL [2]		PLUS CONTAINER [3] YARD REMOVED	
	ACRES	SLOTS	ACRES	SLOTS	ACRES	SLOTS
CENTER-ROW	51.17	3823	51.17	3823	51.17	3823
SATELLITE (FOR TRAILERS, CONTAINERS ON CHASSIS)	25.0	675	50.0	1350	74.4	2010
CHASSIS SLOTS (PACK-PARKED)	20.64	2064	28.6	2860	28.6	2860

1. ASSUMES SATELLITE PARKING AT 27 SLOTS/ACRE, CHASSIS PACK-PARKED AT 100/ACRE
2. ASSUMES NAVY PARCEL IS DIVIDED INTO 75% SATELLITE SLOTS AND 25% CHASSIS AREAS
3. ASSUMES TO CY IS RELOCATED OFF THE JIT PROPERTY WITH 100% OF THE PROPERTY DEDICATED TO SATELLITE PARKING

KNIGHT YARD

TRACK NO.	TRACK FEET	CAR SPOTS (308' CARS)
1	3645	12
2	3650	12
3	3400	11
4	4395	14
5	3645	12
6	3555	11
7	4175	13
8	4223	13
9	4050	13
10	3970	12
11	3800	12
12	3628	11
13	3470	11
14	3205	10
15	3080	10
16	3005	9
17	2882	9
18	2815	9
19	2575	8
20	2365	7
21	2140	7
22	1890	6
23	1695	5
24	1445	4
TOTAL=76,703 TF = 241 CARS		

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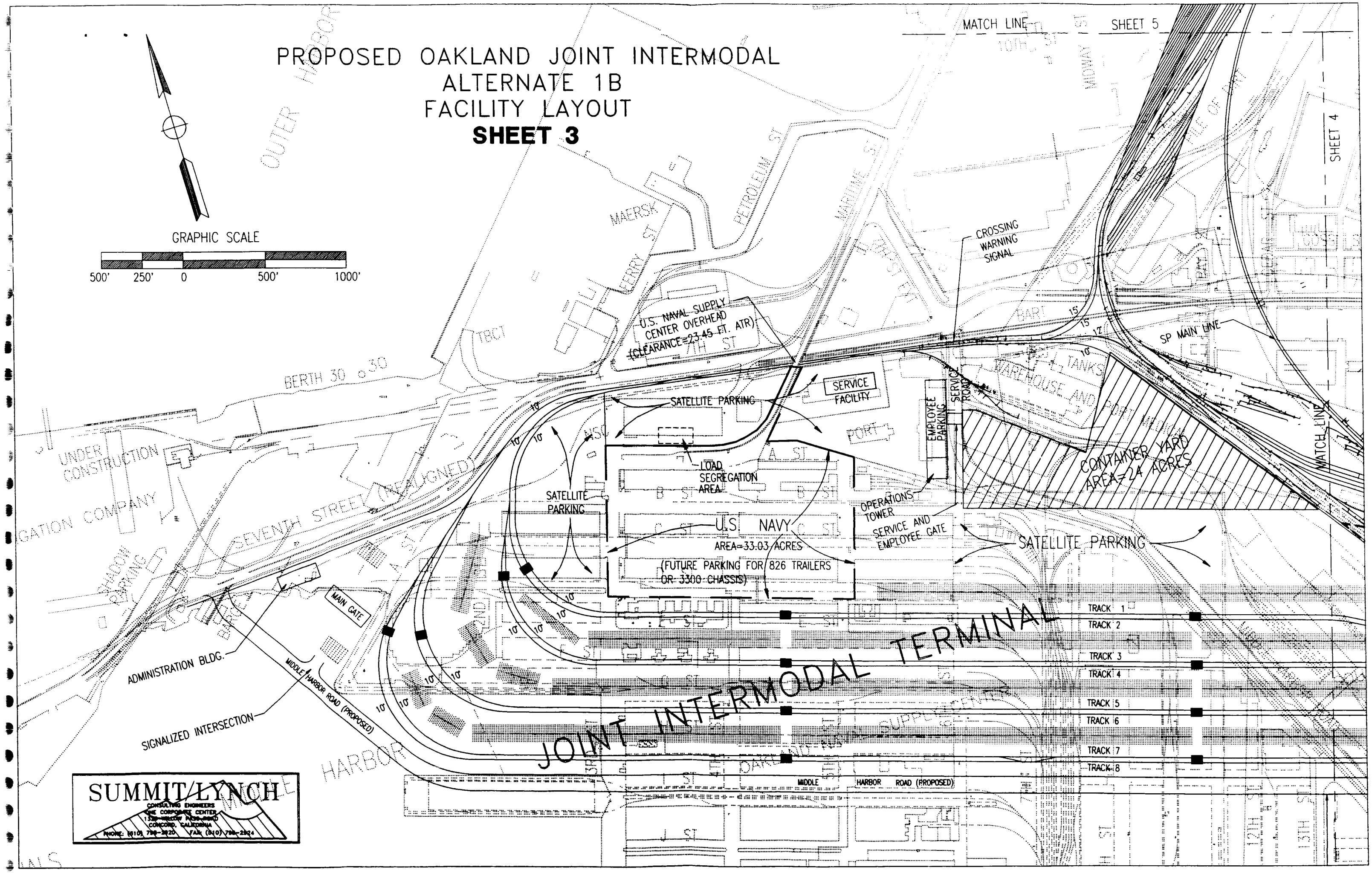
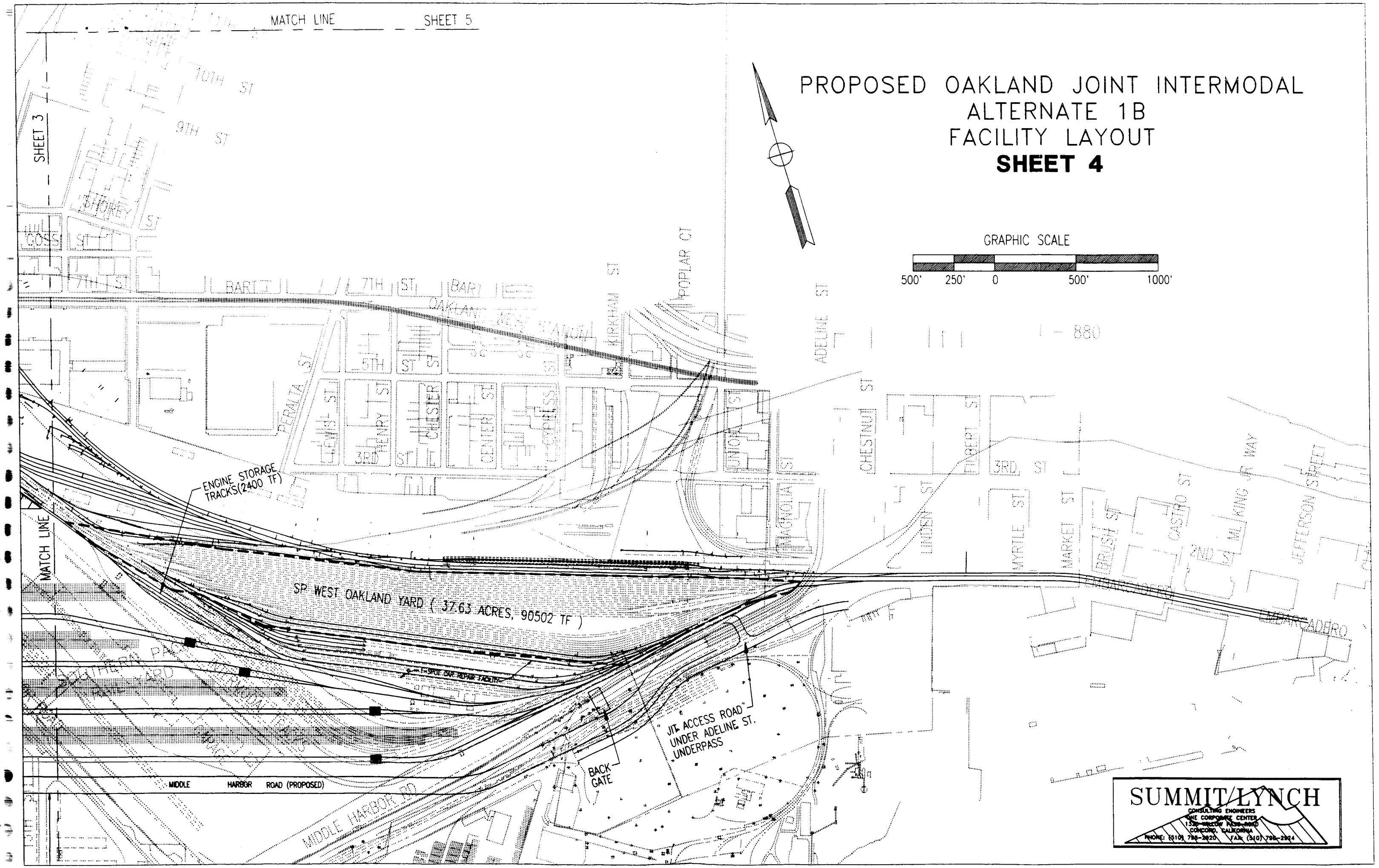
DESIGNED BY: MRC
CHECKED BY:
DRAWN BY: AUC

PROPOSED OAKLAND JOINT INTERMODAL
ALTERNATE 1B
FACILITY LAYOUT

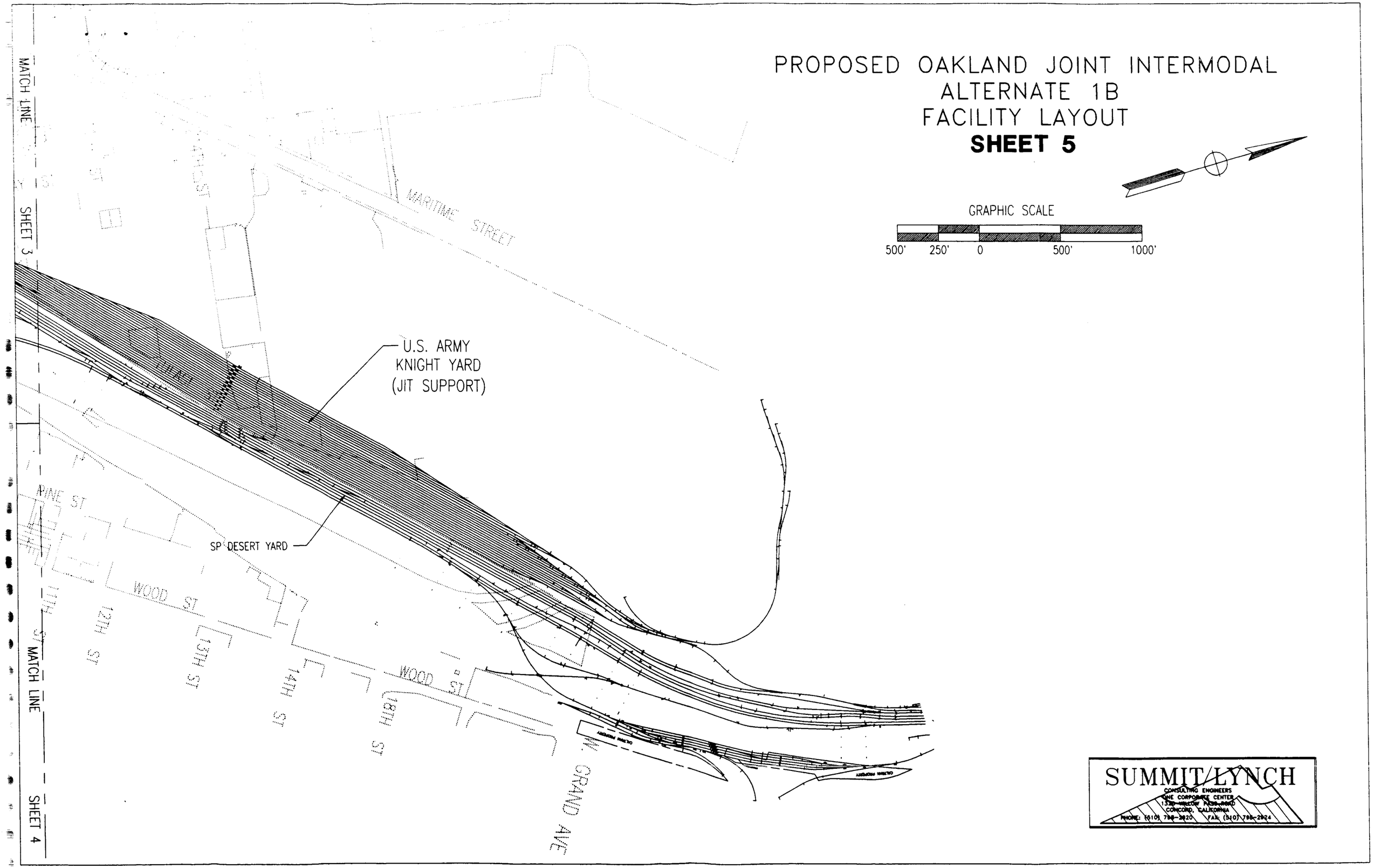
PROPOSED OAKLAND JOINT INTERMODAL
ALTERNATE 1B
FACILITY LAYOUT
SHEET 3



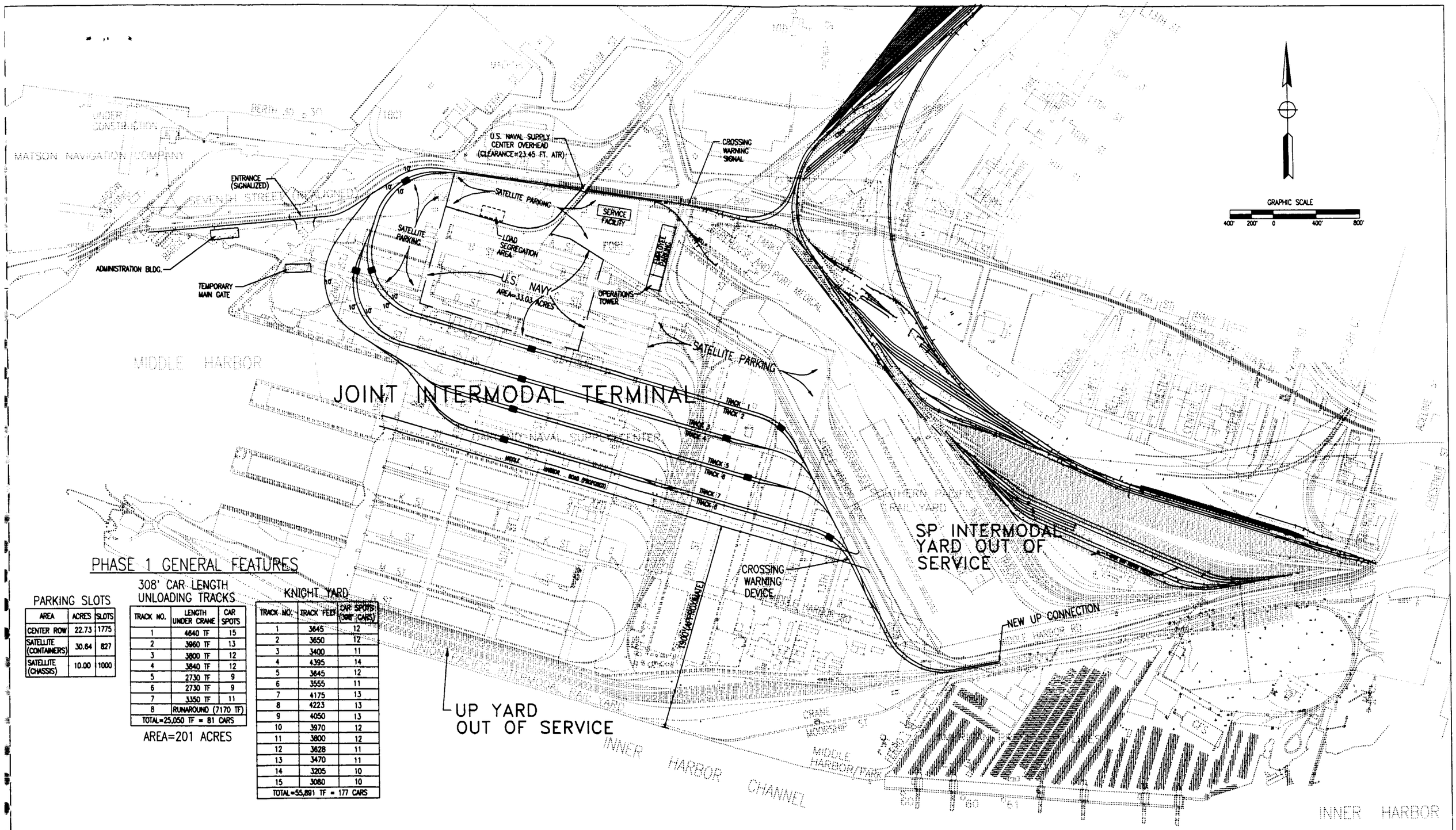
PROPOSED OAKLAND JOINT INTERMODAL
ALTERNATE 1B
FACILITY LAYOUT
SHEET 4



PROPOSED OAKLAND JOINT INTERMODAL
ALTERNATE 1B
FACILITY LAYOUT
SHEET 5



APPENDIX B PROJECT PHASING DRAWINGS



PHASE 1 GENERAL FEATURES

PARKING SLOTS

AREA	ACRES	SLOTS
CENTER ROW	22.73	1775
SATELLITE (CONTAINERS)	30.64	827
SATELLITE (CHASSIS)	10.00	1000

308' CAR LENGTH UNLOADING TRACKS

TRACK NO.	LENGTH UNDER CRANE	CAR SPOTS
1	4640 TF	15
2	3960 TF	13
3	3800 TF	12
4	3840 TF	12
5	2730 TF	9
6	2730 TF	9
7	3350 TF	11
8	RUNAROUND (7170 TF)	
TOTAL=25,050 TF = 81 CARS		

AREA=201 ACRES

KNIGHT YARD

TRACK NO.	TRACK FEET	CAR SPOTS (308' CARS)
1	3645	12
2	3650	12
3	3400	11
4	4395	14
5	3645	12
6	3555	11
7	4175	13
8	4223	13
9	4050	13
10	3970	12
11	3800	12
12	3628	11
13	3470	11
14	3205	10
15	3080	10
TOTAL=55,891 TF = 177 CARS		

SUMMIT/LYNCH
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PHONE: (510) 798-2820 FAX: (510) 798-2924

SCALE: 1"=400'	DESIGNED BY: MRC
JOB #: P00194	CHECKED BY:
DATE: 2-27-95	DRAWN BY: AUC
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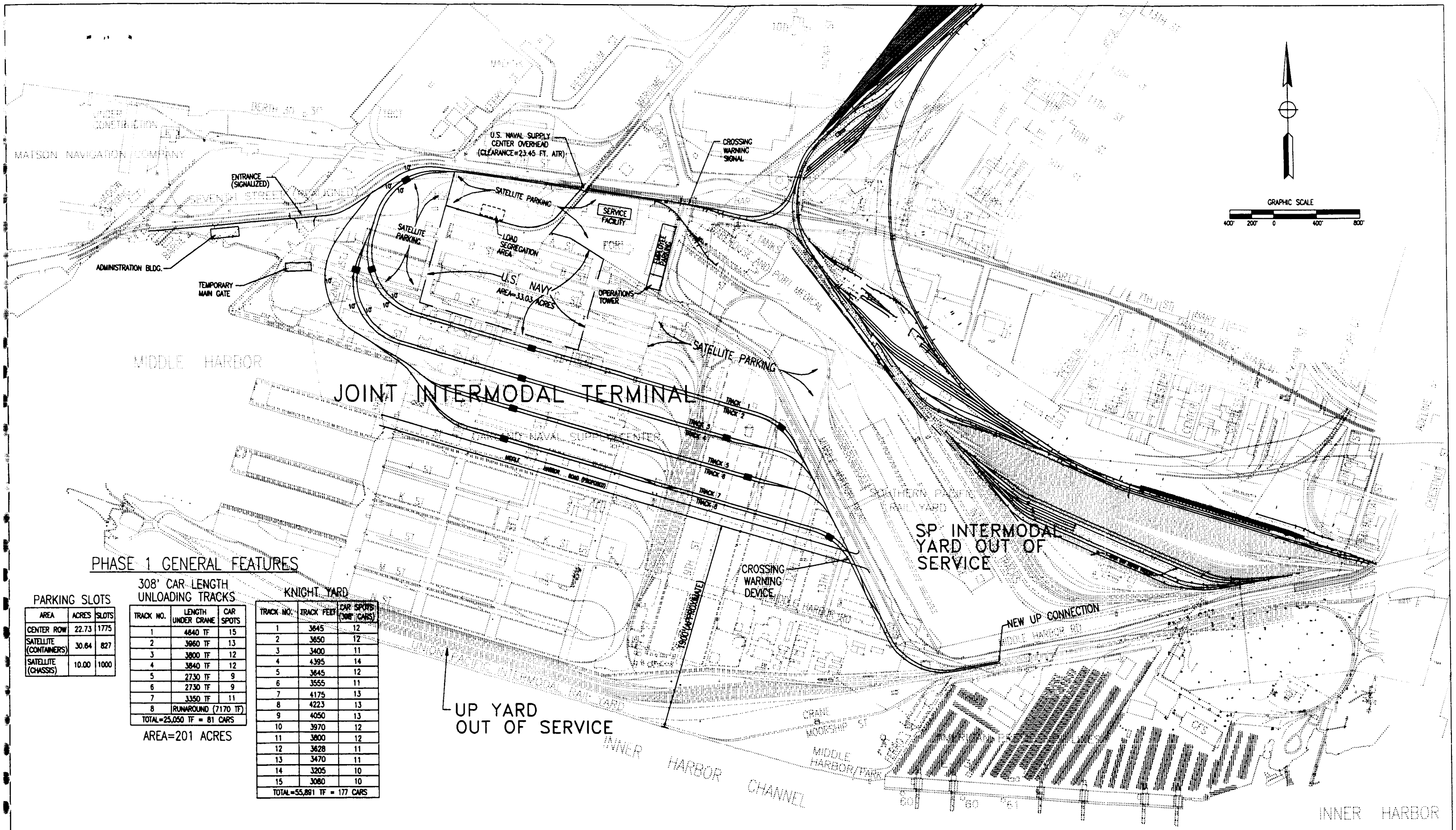
PHASE 1—TEMPORARY JIT

SHEET 1 OF 3



PHASE 1 GENERAL FEATURES

PARKING SLOTS

AREA	ACRES	SLOTS
CENTER ROW	22.73	1775
SATELLITE (CONTAINERS)	30.64	827
SATELLITE (CHASSIS)	10.00	1000

308' CAR LENGTH UNLOADING TRACKS

TRACK NO.	LENGTH UNDER CRANE	CAR SPOTS
1	4640 TF	15
2	3960 TF	13
3	3800 TF	12
4	3840 TF	12
5	2730 TF	9
6	2730 TF	9
7	3350 TF	11
8	RUNAROUND (7170 TF)	
TOTAL=25,050 TF = 81 CARS		

AREA=201 ACRES

KNIGHT YARD

TRACK NO.	TRACK FEET	CAR SPOTS (308' CARS)
1	3645	12
2	3650	12
3	3400	11
4	4395	14
5	3645	12
6	3555	11
7	4175	13
8	4223	13
9	4050	13
10	3970	12
11	3600	12
12	3628	11
13	3470	11
14	3205	10
15	3080	10
TOTAL=55,891 TF = 177 CARS		

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CONCORD, CALIFORNIA
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SCALE: 1"=400'	DESIGNED BY: MRC
JOB #: P00194	CHECKED BY:
DATE: 2-27-95	DRAWN BY: AUC
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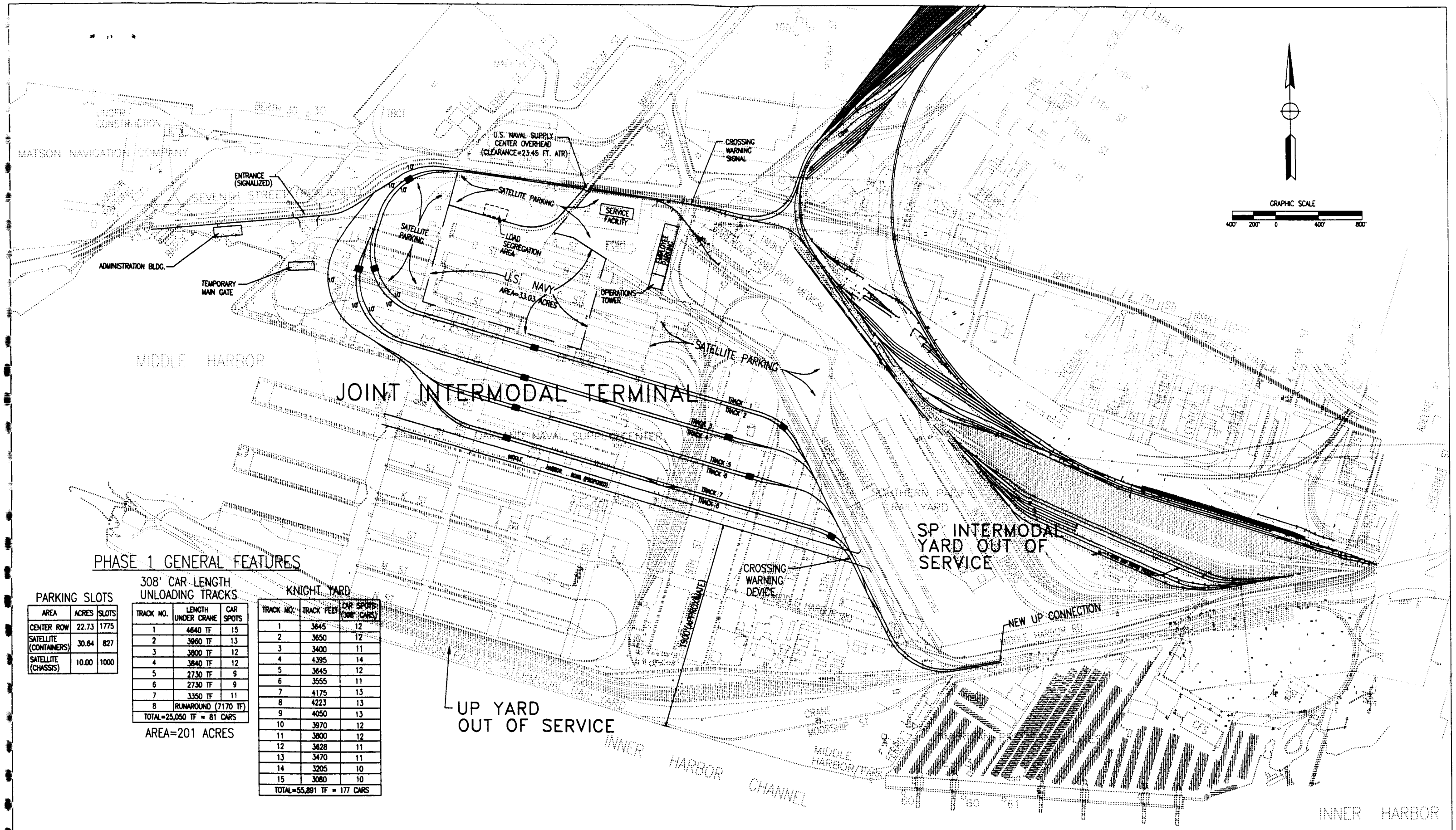
PHASE 1—TEMPORARY JIT

SHEET 1 OF 3



PHASE 1 GENERAL FEATURES

PARKING SLOTS

AREA	ACRES	SLOTS
CENTER ROW	22.73	1775
SATELLITE (CONTAINERS)	30.64	827
SATELLITE (CHASSIS)	10.00	1000

308' CAR LENGTH UNLOADING TRACKS

TRACK NO.	LENGTH UNDER CRANE	CAR SPOTS
1	4640 TF	15
2	3960 TF	13
3	3800 TF	12
4	3840 TF	12
5	2730 TF	9
6	2730 TF	9
7	3350 TF	11
8	RUNAROUND (7170 TF)	
TOTAL=25,050 TF = 81 CARS		

AREA=201 ACRES

KNIGHT YARD

TRACK NO.	TRACK FEET	CAR SPOTS (308' CARS)
1	3645	12
2	3650	12
3	3400	11
4	4395	14
5	3645	12
6	3555	11
7	4175	13
8	4223	13
9	4050	13
10	3970	12
11	3800	12
12	3628	11
13	3470	11
14	3205	10
15	3080	10
TOTAL=55,891 TF = 177 CARS		

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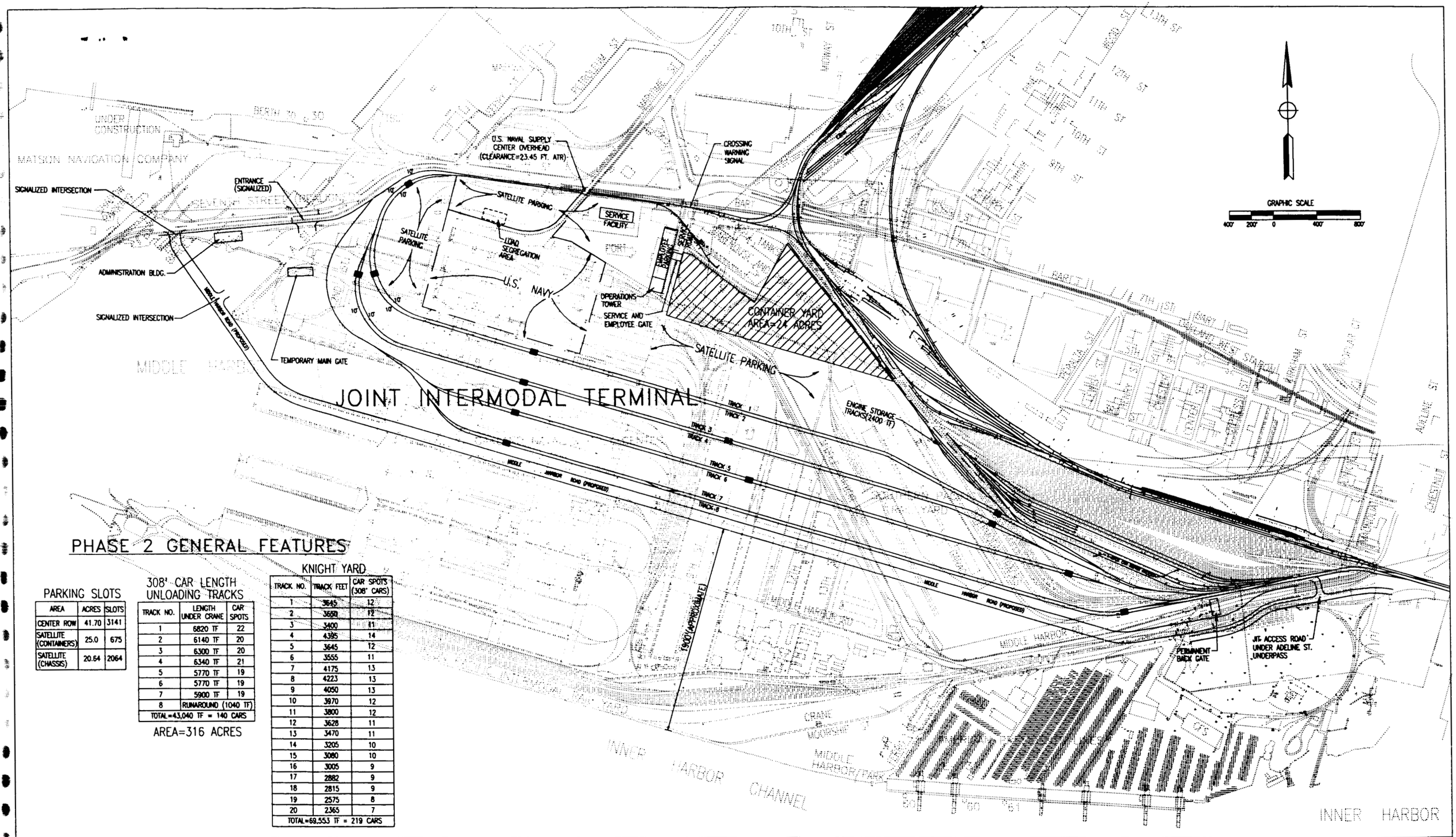
PHASE 1—TEMPORARY JIT



PHASE 2 GENERAL FEATURES

PARKING SLOTS

AREA	ACRES	SLOTS
CENTER ROW	41.70	3141
SATELLITE (CONTAINERS)	25.0	675
SATELLITE (CHASSIS)	20.64	2064

308' CAR LENGTH UNLOADING TRACKS

TRACK NO.	LENGTH UNDER CRANE	CAR SPOTS
1	6820 TF	22
2	6140 TF	20
3	6300 TF	20
4	6340 TF	21
5	5770 TF	19
6	5770 TF	19
7	5900 TF	19
8	RUNAROUND (1040 TF)	
TOTAL=43,040 TF = 140 CARS		

AREA=316 ACRES

KNIGHT YARD

TRACK NO.	TRACK FEET	CAR SPOTS (308' CARS)
1	3645	12
2	3650	12
3	3400	11
4	4395	14
5	3645	12
6	3555	11
7	4175	13
8	4223	13
9	4050	13
10	3970	12
11	3800	12
12	3628	11
13	3470	11
14	3205	10
15	3080	10
16	3005	9
17	2882	9
18	2815	9
19	2575	8
20	2365	7
TOTAL=69,553 TF = 219 CARS		

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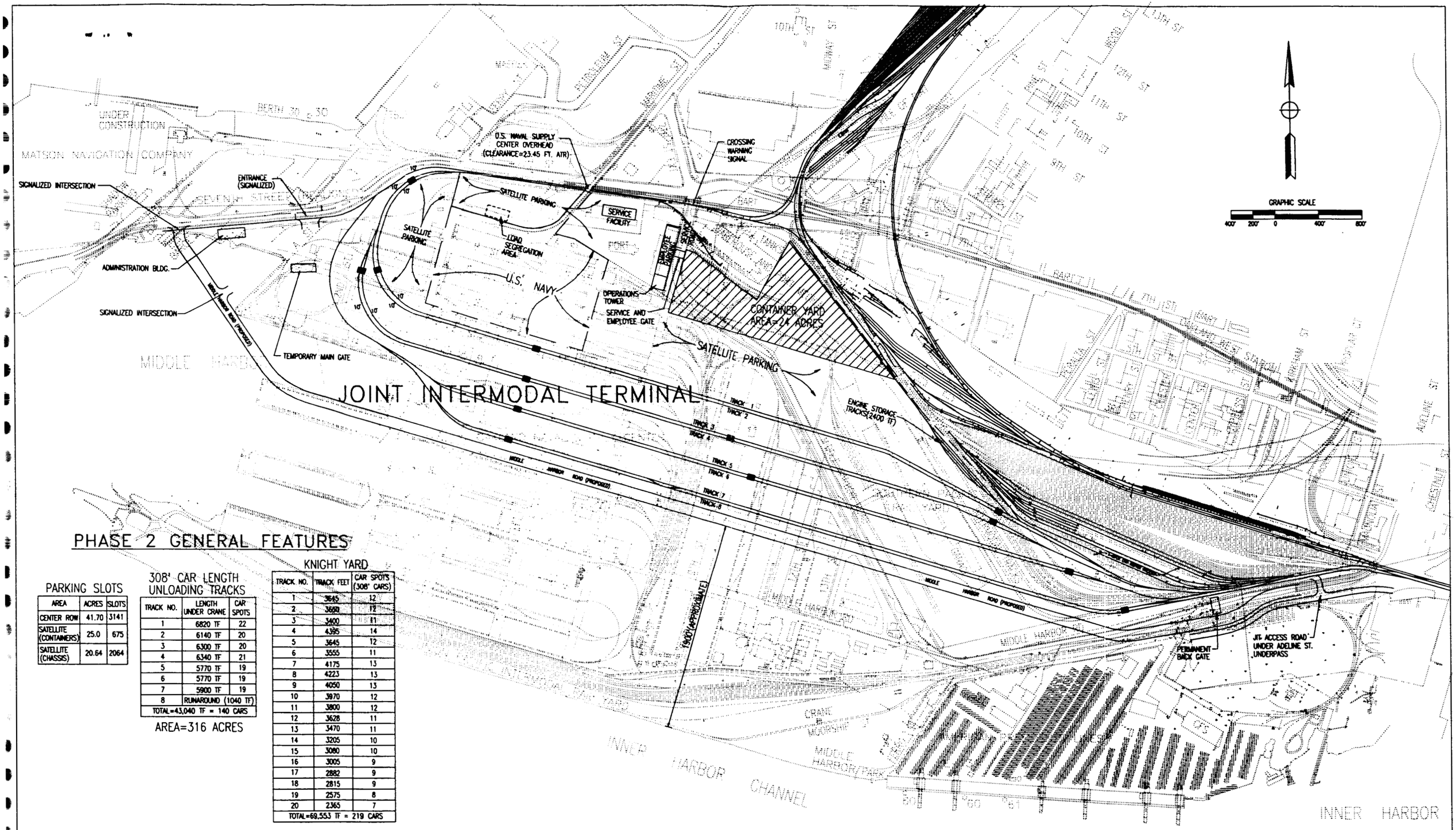
PHASE 2—INTERIM JIT



PHASE 2 GENERAL FEATURES

PARKING SLOTS

AREA	ACRES	SLOTS
CENTER ROW	41.70	3141
SATELLITE (CONTAINERS)	25.0	675
SATELLITE (CHASSIS)	20.64	2064

308' CAR LENGTH UNLOADING TRACKS

TRACK NO.	LENGTH UNDER CRANE	CAR SPOTS
1	6820 TF	22
2	6140 TF	20
3	6300 TF	20
4	6340 TF	21
5	5770 TF	19
6	5770 TF	19
7	5900 TF	19
8	RUNAROUND (1040 TF)	
TOTAL=43,040 TF = 140 CARS		

AREA=316 ACRES

KNIGHT YARD

TRACK NO.	TRACK FEET	CAR SPOTS (308' CARS)
1	3645	12
2	3650	12
3	3400	11
4	4395	14
5	3645	12
6	3555	11
7	4175	13
8	4223	13
9	4050	13
10	3970	12
11	3800	12
12	3628	11
13	3470	11
14	3205	10
15	3080	10
16	3005	9
17	2882	9
18	2815	9
19	2575	8
20	2365	7
TOTAL=69,553 TF = 219 CARS		

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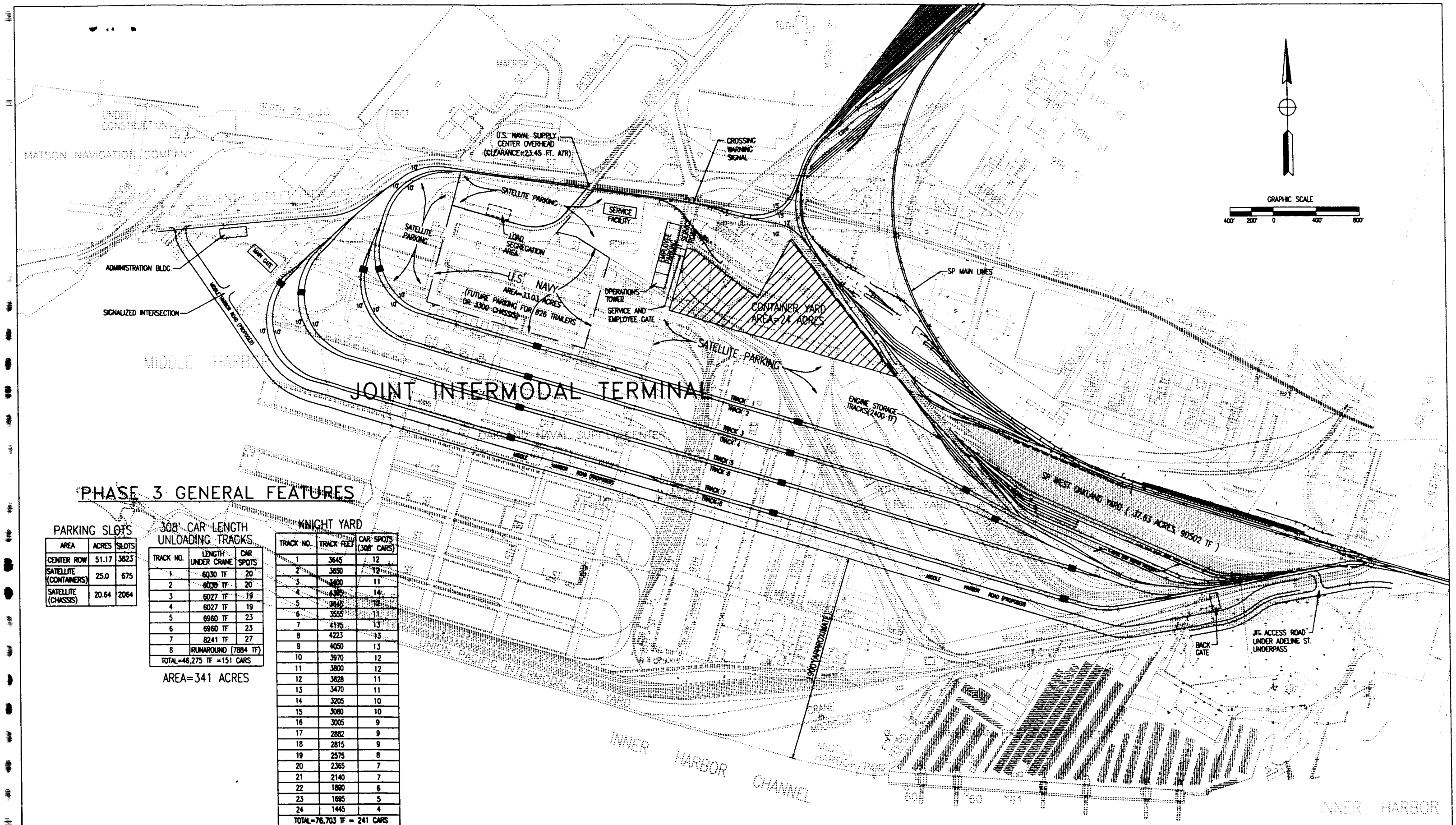
PHASE 2-INTERIM JIT



PHASE 3 GENERAL FEATURES

PARKING SLOTS

AREA	ACRES	SLOTS
CENTER ROW	51.17	3823
SATELLITE (CONTAINERS)	25.0	675
SATELLITE (CHASSIS)	20.64	2064

308' CAR LENGTH UNLOADING TRACKS

TRACK NO.	LENGTH UNDER CRANE	CAR SPOTS
1	6030 TF	20
2	6030 TF	20
3	6027 TF	19
4	6027 TF	19
5	6960 TF	23
6	6960 TF	23
7	8241 TF	27
8	RUNAROUND (7884 TF)	
TOTAL=46,275 TF =151 CARS		

AREA=341 ACRES

KNIGHT YARD

TRACK NO.	TRACK REF	CAR SPOTS (308' CARS)
1	3645	12
2	3650	12
3	3400	11
4	4385	14
5	3645	12
6	3555	11
7	4175	13
8	4223	13
9	4050	13
10	3970	12
11	3800	12
12	3628	11
13	3470	11
14	3205	10
15	3080	10
16	3005	9
17	2882	9
18	2815	9
19	2575	8
20	2365	7
21	2140	7
22	1890	6
23	1695	5
24	1445	4
TOTAL=76,703 TF = 241 CARS		

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PHASE 3—FINAL JIT

SHEET 3 OF 3

Document Separator

Port of Oakland

VISION 2000

Expansion and Modernization Programs

Port of Oakland • Maritime Division • March 1995
530 Water Street • Oakland, CA 94604-2064 • Tel. No. (510) 272-1305 • Fax (510) 839-6899

INTRODUCTION

The Port of Oakland is moving forward. We are expanding, modernizing and investing in facilities to meet the needs of our shipping line clients. Our customers continue to add larger class ships at a steady pace. The post-panamax class vessels require deeper channels, longer berths and 4th generation cranes with increased outreach and height. To meet the needs of our customers, the Port of Oakland has developed the Vision 2000 program.

WHAT IS VISION 2000?

Vision 2000 is a systematic program of modernizing and expanding Oakland's facilities. The program consists of four major elements:

Our highest priority is dredging.

- Dredging
- Naval Supply Center Property Acquisition
- Joint Intermodal Terminal
- Terminal Modernization & Expansion

Our highest priority is dredging. To date, we have accomplished our initial objective of dredging the harbor channels to 38 feet. Our next goal is to deepen the channels to 42 feet. President Clinton's assistance was instrumental in making dredging a national priority and directing the Army Corps of Engineers to move our project forward. The 42-foot project began in December 1994.

Oakland's ability to expand depends on the availability of additional acreage. We have now occupied the initial 76.5 acres of a 200 acre parcel recently acquired from the Naval Supply Center and have initiated negotiations for additional acreage. Intermodally, our expansion efforts will focus on the development of near-dock facilities with direct access for all rail and ocean carrier participants. The modernization and expansion component represents ongoing projects to upgrade our cranes, berths, and infrastructure. The goal is to create more efficient terminals that meet the needs of our shipping line customers.

This brochure is designed to familiarize you with our Vision 2000 program and benefits. We hope that you will find the information useful and informative. A Vision 2000 video is also available. For additional information or a copy of the video, please feel free to contact the Maritime Division at 510-272-1305.

DREDGING

BACKGROUND

The continuing increase in containership size requires deeper channels at the Port of Oakland. Fourth generation containerships carrying up to 4,400 containers (in TEU's) are now commonplace. Figure 1 illustrates the number of newbuild ships (including panamax and post-panamax) that now call or may call Oakland in the near future. Oakland's highest priority is the dredging of deep draft channels to provide for the safe navigation of the larger class ships.

SHIPPING LINE	NUMBER & SIZE OF SHIPS	DEPLOYMENT DATE
APL	6 - 4,800 TEU's	1995
APL	3 - 3,600 TEU's	1996
Cho Yang	6 - 4,000 TEU's	1995
COSCO	5 - 3,500 TEU's	Deployed
COSCO	6 - 5,250 TEU's	1996/97
Evergreen	5 - 4,900 TEU's	1994/95
DSR-Senator	3 - 2,850 TEU's	Deployed
Hanjin	6 - 4,024 TEU's	Deployed
Hanjin	2 - 4,970 TEU's	1996/97
Hapag Lloyd	6 - 4,000 TEU's	1995/96
Hyundai	6 - 5,046 TEU's	1996
K-Line	5 - 3,456 TEU's	Deployed
Maersk Line	5 - 4,800 TEU's	1995/96
Maersk Line	3 - 4,000 TEU's	1995/96
Maersk Line	1 - 4,300 TEU	1996
Mitsui-O.S.K. Line	5 - 4,800 TEU's	1995
Mitsui-O.S.K. Line	3 - 2,900 TEU's	1995
NOL	6 - 4,392 TEU's	1995/96
N.Y.K. Line	3 - 4,800 TEU's	1995
Nedlloyd	4 - 4,000 TEU's	1994/95
OOCL	6 - 4,950 TEU's	1995/96
P & O	2 - 4,000 TEU's	1997
Sea Land	4 - 4,000 TEU's	1995/96
Yangming	4 - 3,500 TEU's	1995

FIGURE 1 - NEWBUILD SHIPS

DESCRIPTION

The Port of Oakland's dredging program is a federally authorized project now being implemented by the Army Corps of Engineers to deepen the Port's Inner and Outer Harbor channels to a depth of -42 feet MLLW. The cost of the project is cost shared between the Port and the federal government. The project has two separate phases. The deepening of the harbor to -38 feet MLLW was successfully completed in December 1992. A contract for the second phase was awarded in December 1994 to deepen both the Inner and Outer Harbor channels to -42 feet MLLW.

The 42-foot phase will require the removal of approximately 5.6 million cubic yards of dredged material. The identification, assessment and approval of appropriate upland and ocean dredge disposal sites is a major element of the 42-foot project.

Significant progress has been achieved in the 42-foot phase with the identification of Galbraith Golf Course as an upland site for disposal of approximately 1.0 million cubic yards of dredge materials. The Galbraith site is owned by the Port and is located close to the Oakland International Airport. An ocean disposal site will be used for 2.6 million cubic yards of dredge materials and 2.0 million cubic yards is proposed for use in wetlands restoration at Sonoma Baylands.

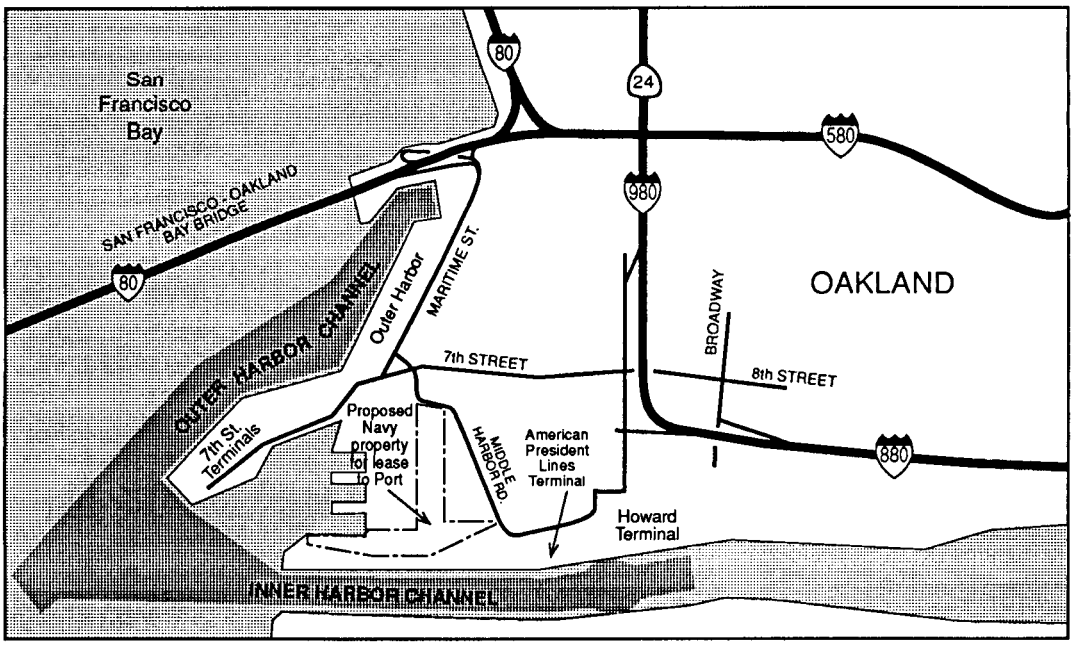


FIGURE 2 - PORT OF OAKLAND DREDGING MAP

IMPROVING THE DREDGING PROCESS

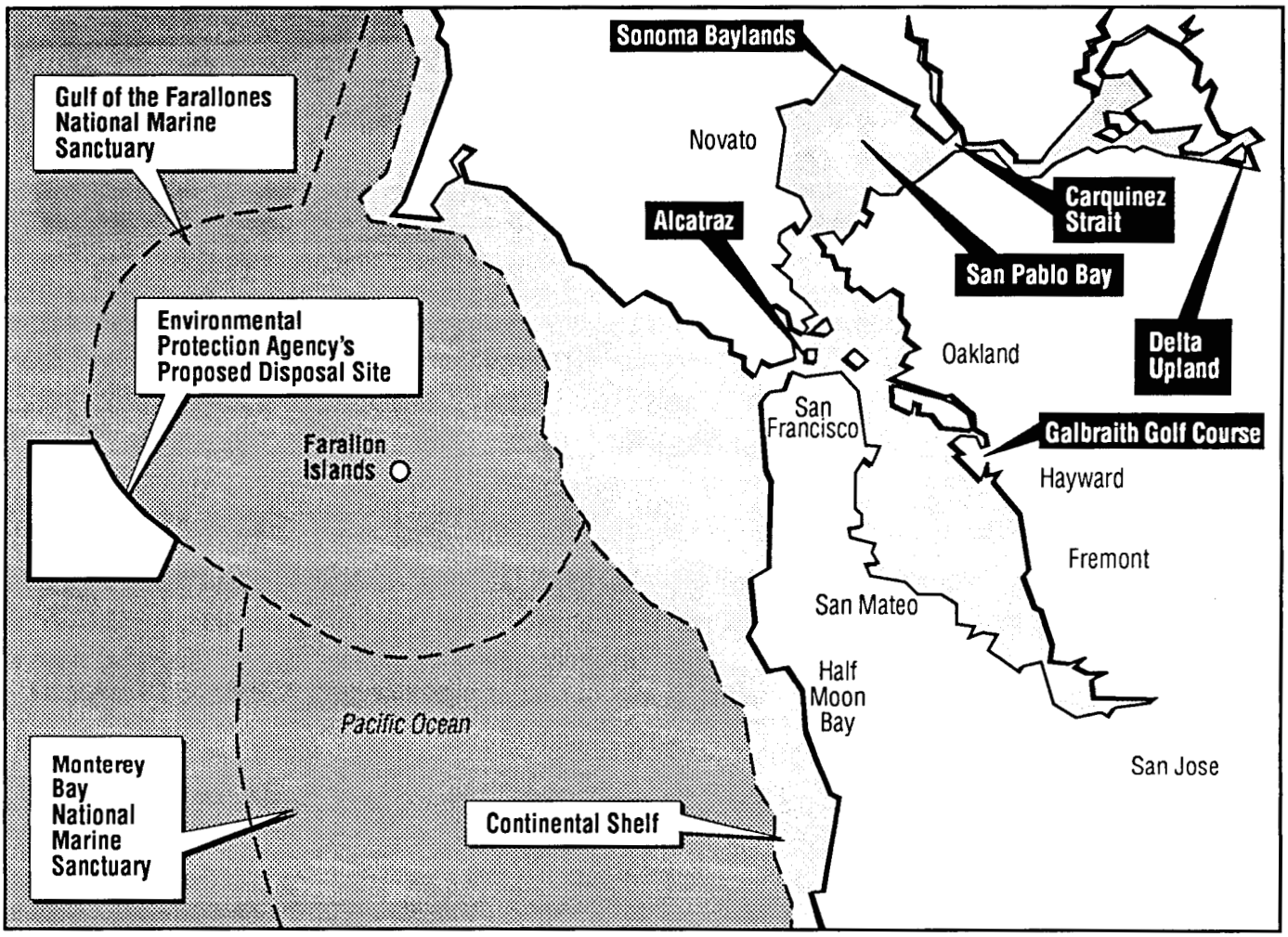
The complexity and challenges of the dredging approval process have resulted in lengthy delays and high costs for Oakland and our shipping lines. The Port of Oakland management has taken a leadership role in improving the dredging process. Working closely with our elected officials, the Port's executives and Congressman Ronald V. Dellums were able to advise President Clinton about the serious impact of continued dredging delays. President Clinton responded positively to our request for assistance and visited the Port of Oakland in August of 1993. During his visit he directed the Army Corps of Engineers to "get on with it" to move our dredging project forward. A direct result of his visit was the establishment of a "White House Oakland Dredging Task Force" whose purpose is to monitor and advance the progress of Oakland's dredging projects.

The Interagency Working Group on the Dredging Process was established by the U.S. Department of Transportation on October 28, 1993 to identify and address interagency problems with the national dredging processes. Members of the group include the Army, Environmental Protection Agency (EPA), U.S. Department of the Interior, National Marine Fisheries and the National Oceanic & Atmospheric Administration (NOAA). These agencies are responsible for administering over 60 laws that regulate the dredging process. The group's report proposes several changes to the dredging process. Work also continues with the American Association of Port Authorities (AAPA) to establish a National Dredging Policy in 1995. A consistent policy will help to ensure that future dredging projects can be implemented in a timely and cost-effective manner.

CURRENT STATUS

The 42-foot project is moving forward at a steady pace. Significant progress has occurred with the identification of suitable disposal sites. The Environmental Protection Agency (EPA) has completed the process to enable the use of an disposal site 50 miles west of the Golden Gate Bridge. The state and federal government have agreed on the use of clean sediment to

restore a tidal wetland - Sonoma Baylands. The Port and City of Oakland have signed an agreement to use Galbraith Golf Course as an upland disposal site for approximately 1.0 million cubic yards of dredge materials. The balance of the material is suitable for aquatic disposal.



Source: Examiner Graphics

FIGURE 3 - MAP OF POTENTIAL DREDGE DISPOSAL SITES

SCHEDULE

The 42-foot project started in December 1994 with the award of a construction contract to Dutra Construction Company. The contractor has until April 1997 to complete the dredging. However, his preliminary schedule indicates he will complete the work by the end of 1996.

NAVAL SUPPLY CENTER (NSC).....

BACKGROUND

In early 1940, the Port/City of Oakland sold approximately 400 acres to the U.S. Government for one dollar for the development of the Naval Supply Center. As part of the sale, and included in the grant deed, is a clause which provides that the title to the land shall revert automatically to the Port if the lands "shall cease substantially to be used for a naval supply depot, or for other naval or military purposes." Both the San Francisco Bay Plan and the Seaport Plan designate this land for port priority use. Since the mid 1980's, the Port of Oakland has been engaged in negotiations to acquire surplus Navy property. Enabling legislation, jointly drafted by the Port and the Navy and sponsored by Congressman Ronald V. Dellums, was signed into law in November 1987. The legislation authorized the Port and Navy to negotiate a long-term lease of up to 220 acres of the Naval Supply Center for commercial use.

DESCRIPTION

The Naval Supply Center has recently changed its name to the "Fleet Industrial and Supply Center, Oakland (FISCO)". FISCO's 541 acre facility is located in the middle of the Port terminal area and adjacent to the Union Pacific rail yard. The Port has two objectives for the short and long-term development of the FISCO property. Our short-term goal is to immediately lease up to 220 acres to meet current railroad operational needs and to stimulate economic activity and job creation. This is proceeding with the creation of the Port of Oakland's "Harbor Transportation Center" that includes truck depots, warehousing space, intermodal facilities and expansion space for Union Pacific. The long-term goal is to ultimately acquire a total of 400 plus acres of the FISCO property for the long-term development of new intermodal and container/terminal facilities. Acquisition of the 400 plus acres will increase Oakland's present size in excess of 50 percent.

CURRENT STATUS

When President Clinton visited the Port of Oakland on August 13, 1993 he also directed the Navy to immediately finalize negotiations to lease up to approximately 220 acres of land for 50 years to the Port of Oakland. Oakland successfully concluded negotiations with the Navy on December 3,

1993 to acquire the first parcel of the Navy property consisting of 76.5 acres. The Port and Navy are now working towards transfer of the remaining acres. Several design options are being developed and an artist's concept for the redeveloped property follows. Full build-out of the property will occur over a period of five to seven years as additional parcels of land are acquired and funding sources are identified.

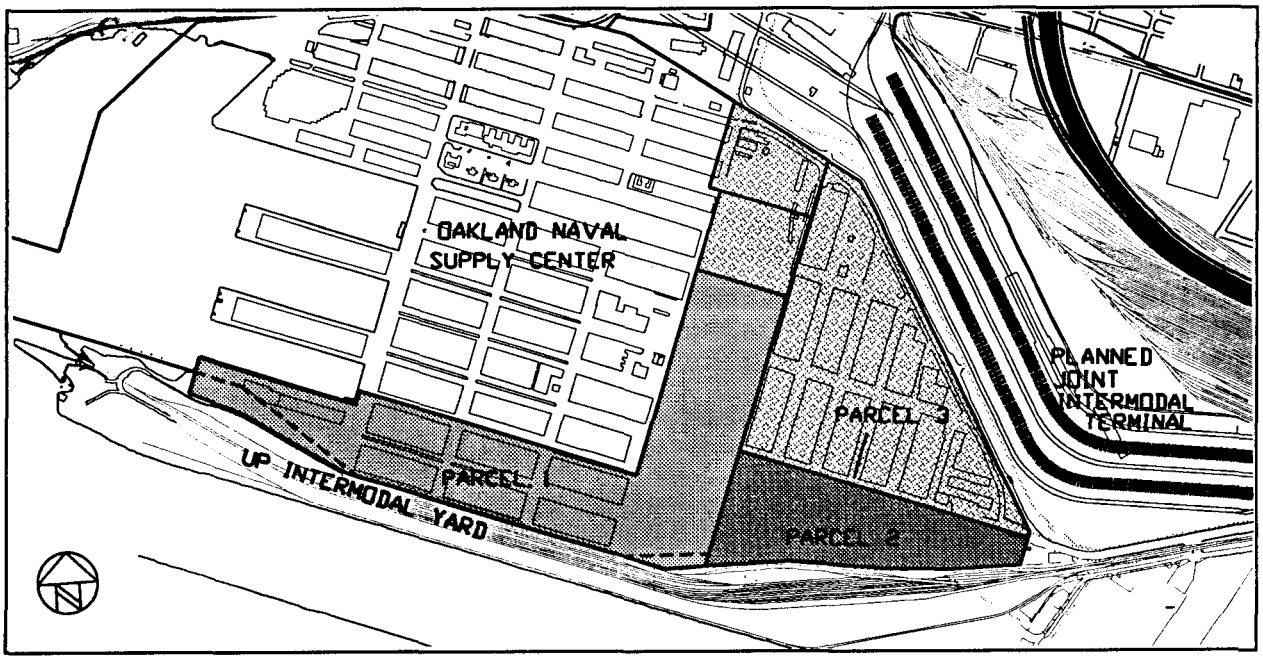


FIGURE 4 - NAVAL SUPPLY CENTER MAP

SCHEDULE

The development of the Navy property is being phased to make the earliest and most productive use of each parcel as land is acquired by the Port. The first 76.5 acres has been turned over to the Port and is being used for interim rail, trucking and transloading operations employing over 200 people.

Acquisition and development of the balance of the 200 acres will take place as the Navy is able to transfer materials and operations. Starting in May 1995, transfer of other parcels of the Navy property will occur as the Secretary of Defense in consultation with the Commander of FISCO is able to determine that they are available for lease. Ultimately, acquisition of all available acreage will permit Oakland to develop additional berths, cargo handling and intermodal facilities.

JOINT INTERMODAL TERMINAL (JIT).....

BACKGROUND

The growth of the Pacific Rim economies and their demand for more exports and imports has resulted in a doubling of cargo moving through West Coast ports in the last ten years. This growth directly spurred the dramatic increase in intermodal rail transportation shipments. The intermodal mode made overland rail transit times from the West Coast to central and eastern U.S. points superior and cost competitive with all-water service via the Panama Canal. The Port of Oakland has targeted the intermodal market as our most significant opportunity for future growth.

DESCRIPTION

The Joint Intermodal Terminal (JIT) is a proposed intermodal facility, to be served ultimately by Oakland's three transcontinental railroads - Southern Pacific (SP), Union Pacific (UP), and the Santa Fe (ATSF). The proposed JIT is envisioned as one large centrally located facility that will provide economies of scale to the user. It will be an independently operated common-user intermodal facility. The advantages of the proposed JIT are:

- expanded and improved facilities with shared capital improvements,
- more cost efficient rail yard operations offering economies of scale through the elimination of redundant rail facilities,
- and competitive, near-dock rail access provided by three transcontinental railroads.

The recently acquired Naval Supply Center land (adjacent to the Southern Pacific's West Oakland intermodal yard) as well as Southern Pacific property have been identified as potential sites for the JIT. These sites offer the following advantages:

- a large intermodal facility with room for expansion,
- central location at the Port and near all marine terminals,
- existing rail access from all directions, and
- quick access to major freeways (see map in Appendix).

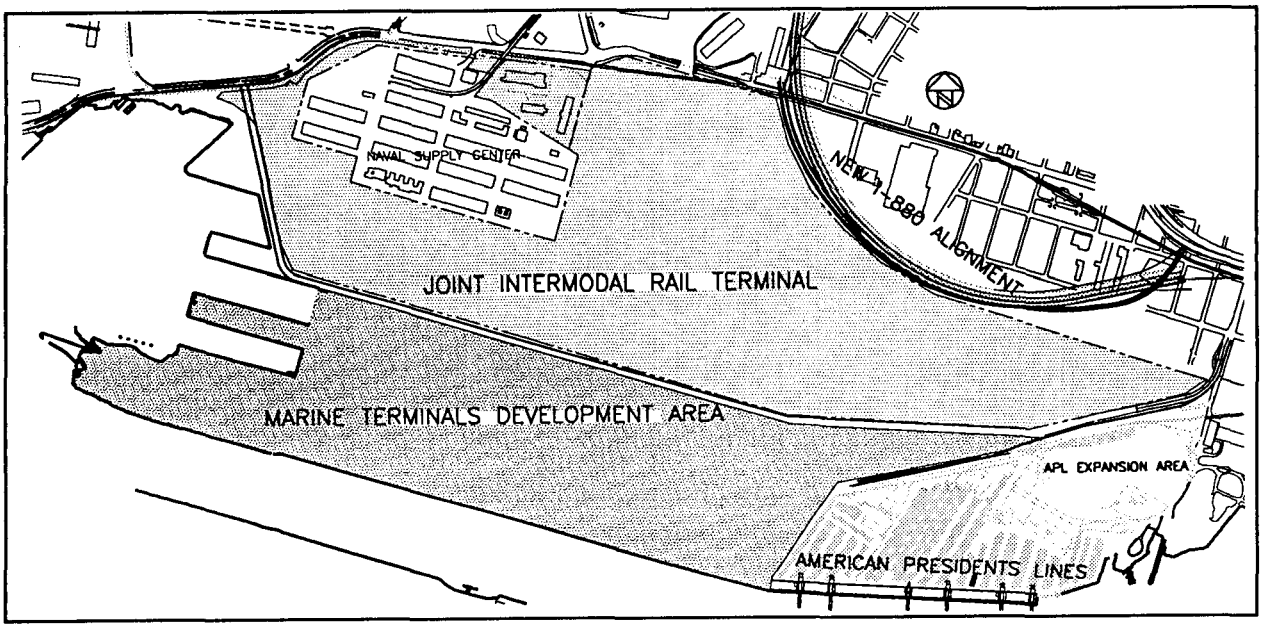


FIGURE 5 - CONCEPTUAL JIT SITE MAP

CURRENT STATUS

The Port is actively pursuing the JIT concept with the three railroads and has signed a memorandum of understanding (MOU) with the Southern Pacific and Union Pacific. This memo of understanding outlines the process for developing the JIT and allows us to start the planning of the facility. Concurrently, the Port is soliciting the input of our shipping line customers who control the intermodal routings.

Finally, the Port has placed the proposed JIT and several street improvement projects on the Metropolitan Transportation Commission's list of projects eligible for Federal funding under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The Port has already been granted $2.4 million for preliminary design work. We are also seeking additional federal funding for the construction phase of the JIT.

SCHEDULE

Discussions with the UP, SP and ATSF railroads are ongoing. Now that the MOU is signed, Summit/Lynch Consulting Engineers have been retained to develop an operating plan for the facility. The Port of Oakland and the railroads will then proceed with the preliminary engineering design for the JIT when the operating plan is completed in early 1995. Our highest priority with the JIT will be to design a facility that fully meets the needs of the ocean carriers and the participating railroads.

TERMINAL MODERNIZATION & EXPANSION.....

BACKGROUND

The Vision 2000 program represents a far-reaching strategy to keep the Port of Oakland competitive and to fully anticipate the requirements of the 21st century. The successful completion of the 42-foot dredging project, the acquisition of the Navy Supply Center property and the development of a JIT facility will provide a solid foundation for Oakland to meet the needs of our shipping line customers. Our customer's needs also require Oakland to have an ongoing program of expansion and modernization to maintain and upgrade our facilities. The Port funds some of these projects through our capital improvement program (CIP) and other projects are jointly financed with our customers. We also work in cooperation with other public agencies on infrastructure projects (primarily roadways) to provide improved access to the Port.

DESCRIPTION

The Port of Oakland has plans for over $300 million in Maritime capital improvements between fiscal year 1994 to 1998. The projects planned or in process include terminal improvements, infrastructure and roadway improvements.

MAJOR TERMINAL IMPROVEMENTS:

- TraPac - in January 1994 a completely new 38 acre Berth 30 facility was opened for Trapac. This new facility features two new Mitsui-Paceco 40 long ton cranes and a berth of 1,100 feet.
- Howard - renovate and modernize gate complex, raise 2 cranes to a height of 100 feet, retrofit crane from Seventh Street to 100 feet, demolish transit sheds, and extend berth by 300 feet in 1995.
- Sea Land - renovate gate to feature high tech video identification system, pave the yard, raise the height on one gantry crane, widen the legs on three of the cranes, modify crane transfer and power systems.
- APL - pave five acre Sherex yard and widen Ferro Street at Middle Harbor.
- 7th Street Terminal - in 1995 a completely redesigned and enhanced gate complex will be developed and constructed.

ROADWAY IMPROVEMENTS:

- Middle Harbor Road Improvement - Formerly known as the SP road, Middle Harbor Road has been reconstructed to have two lanes in each direction with a fifth left turn lane in the center and break-down lanes on each side. New rail crossings and two traffic signals have been added.
- I-880 Cypress Replacement Project - The Cypress Freeway (destroyed in the 1989 earthquake) will be replaced in seven phases. Work began in January 1994 and should be complete by late 1998.

HEAVY WEIGHT CONTAINER PROGRAM:

- The heavy container program was established in 1986 and allows for the legal movement of heavy weight containers. Permits are issued by the Port and City of Oakland. All permitted loads must move on triple axle chassis equipment. The route was extended to all of Oakland's industrial and commerical streets in March of 1993.
- A major enhancement to this program is being planned whereby the Port of Oakland would assume control over all harbor roads. This would allow the same equipment to move between terminals and on-street, minimizing equipment licensing, maintenance and purchase costs. In effect, the Port of Oakland would be a giant terminal separated only by fences, with all roads accessible, and utilizing standardized off-street equipment.

CONCLUSION

The Vision 2000 program is the Port of Oakland's committment to our customers. Significant milestones have been reached with the 42-foot dredging project, the JIT project, the NSC property acquisition and our terminal modernization & expansion program. Working in close partnership with our customers, we are confident of meeting the challenges and opportunities of the next century. The Port of Oakland's Maritime Division is here to work with you to meet your needs. Please contact your Port of Oakland representative or the Maritime Division at 510-272-1305 for further information.

APPENDIX

PORT OF OAKLAND MARINE FACILITIES

0 1/2 1 Nautical mile
0 1/2 1 Mile
0 1/2 1 Kilometer

N E S W

- Terminal gates
- Major container freight stations
- Public truck scales
- Permitted container routes: Current, Planned
- Major freeways
- Intermodal rail facilities
- Gantry cranes

Rt-880 is temporarily rerouted southbound via Rt-580 and Rt-980. For current roadway information, call (1-800) 272-1461 or outside California call toll free (1-800) 227-2726.

Rt-880 is temporarily rerouted northbound via Rt-980 and Rt-580. For current roadway information, call (1-800) 272-1461 or outside California call toll free (1-800) 227-2726.

Interstate 880 extension under construction

Oakland Outer Harbor Channel
Oakland Inner Harbor Channel
OUTER HARBOR
INNER HARBOR
MIDDLE HARBOR
OAKLAND
ALAMEDA
Pacific Ocean
San Francisco-Oakland Bay Bridge
MacArthur Freeway
John B. Williams Freeway
Nimitz Freeway
Southern Pacific RR
Santa Fe RR
Southern Pacific Railroad
Union Pacific Railroad
Union Pacific RR
Oakland Terminal Railway
Southern Pacific Railroad
Santa Fe Wood St. Yard
Northport Beach
Burma Rd.
Bataan Ave.
Chungking St.
Maritime St.
West Grand Ave.
32nd St.
San Pablo Ave.
Telegraph Ave.
Brush St.
Castro St.
City Hall
14th St.
11th St.
6th St.
4th St.
3rd St.
2nd St.
8th ST.
7th ST.
5th ST.
3rd ST.
Wood St.
Peralta St.
Mandela Pkwy.
Kirkham St.
Union St.
Magnolia St.
Adeline St.
Market St.
King Jr. Way
Martin Luther
Jefferson St.
Clay St.
Washington St.
Broadway
Franklin St.
Webster St.
Harrison St.
Alice St.
Jackson St.
Madison St.
Oak St.
East 10th St.
East 8th St.
5th Ave.
10th Av.
Embarcadero
Alice St. Minipark
Estuary Park
Keep On Trucking Co.
Coast Guard Island
Cedar St.
Pine St.
Bay St.
Petroleum St.
Pier St.
Fifth St.
Middle Harbor Rd.
FERRO ST.
Chestnut St.
Sea-Land CFS
Maersk CFS
Matson CFS
Port Medical Services
Southern Pacific/ Pacific Transload Systems Facility (USDA Meat Inspection Station)
Complete Freight Systems Co.
Pacific Coast Container CFS
Anchor Container CFS
U.S. Cold Storage
Lynn Import/ Export Svcs.
Schnitzer Steel
APL CFS
CFS Corp.
Chipman Freight Services CFS
U.S. Customs Automated Service Center
U.S. Customs Designated Central Examination Station (CES)
Sea-Land Automobile Facility
Franklin Roosevelt Pier
Alameda-Oakland-SF Ferry
Port of Oakland Executive Offices
Jack London Square
Jack London Village
Middle Harbor Park
Oscar Neimeth Tug Service
Port View Park & International Maritime Center (under construction)
Proposed Naval Supply Center Area Intermodal Rail Development
OAKLAND ARMY BASE
OAKLAND ARMY BASE PIER 7
(Facility under major renovation)
BAY BRIDGE TERMINAL
SEA-LAND TERMINAL
YUSEN TERMINAL
MAERSK LINE TERMINAL
TRANSBAY CONTAINER TERMINAL
TRAPAC TERMINAL
MATSON TERMINAL
SEVENTH STREET MARINE CONTAINER TERMINAL
NAVAL SUPPLY CENTER
SOUTHERN PACIFIC INTERMODAL YARD
UNION PACIFIC INTERMODAL YARD
AMERICAN PRESIDENT LINES TERMINAL
HOWARD TERMINAL
NINTH AVENUE TERMINAL
X401 X402 X403 X404 X405 X406 X407 X408 X410 X411 X412 X413 X414 X415 X416 X417 X422 X423 X424 X425 X426 X427 X428 X429 X430 X431 X441 X442 X446 X447 X448 X461
7 8 9 10 20 21 22 23 24 25 26 30 32 33 34 35 37 38 40 60 61 62 63 64 67 68 69 82
8-10 20-22 25-26 32-34 37-38 60-63 67-69 82-84

SAN FRANCISCO BAY AREA

Santa Rosa
Napa
Fairfield
Sacramento
Richmond
San Francisco
PORT OF OAKLAND
OAKLAND
Oakland Int'l. Airport
S.F. Int'l. Airport
San Francisco Bay
Fremont
Palo Alto
Santa Clara
San Jose
Stockton
Sacramento River
San Joaquin River
Southern Pacific RR
Santa Fe RR
Union Pacific RR
Pacific Ocean
80 505 50 101 37 99 5 24 580 680 880 280

PORT OF OAKLAND MARINE FACILITIES

I-880 Replacement

Legend

- Permitted container routes
- Current
- Planned
- Major freeways
- I-880 replacement under construction

SAN FRANCISCO BAY

San Francisco–Oakland Bay Bridge

MARINE TERMINALS

UNION PACIFIC INTERMODAL YARD

NAVAL SUPPLY CENTER

OAKLAND ARMY BASE

SOUTHERN PACIFIC

Oakland Inner Harbor Channel

ALAMEDA

OAKLAND

Berkeley, Richmond, Sacramento

Concord

Hayward San Jose

Embarcadero

West Grand Ave.

Adeline St.

Market St.

San Pablo Ave.

Telegraph Ave.

Broadway

Wood St.

Maritime St.

I-880 Replacement

7th ST.

80

580

980

24

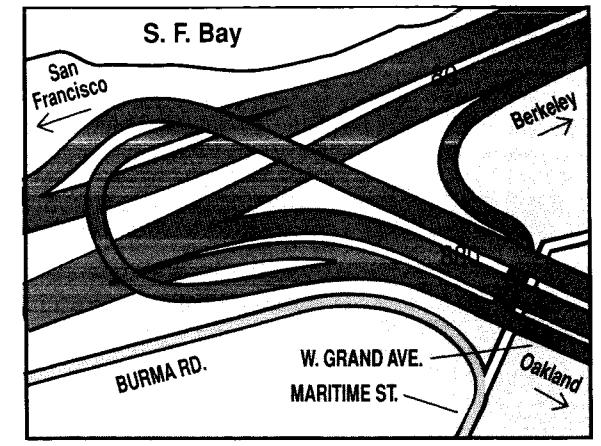
880

1

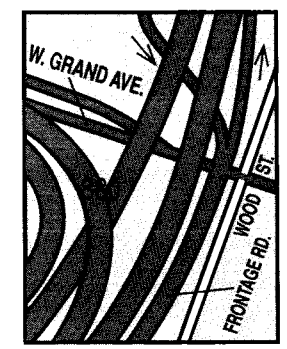
2

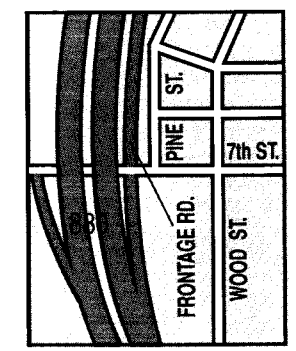
3

4

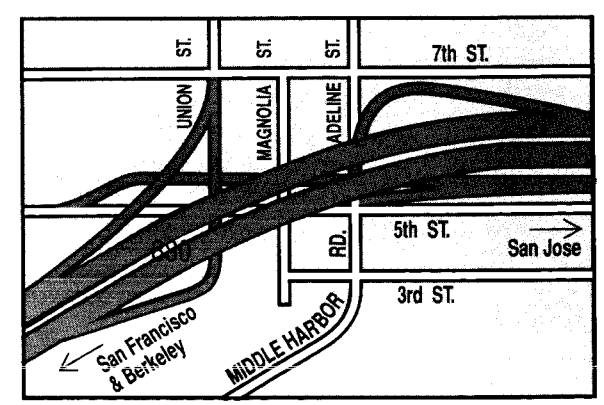


1 The West Grand Ave./I-80 Interchange will be replaced by the Toll Plaza connectors including a Maritime/ West Grand Ave. Interchange.





2 Freeway access at West Grand Ave. and at Seventh St. will be provided via a frontage road on the east side of the I-880 freeway. 3



4 An interchange at Adeline/Union Sreets and 7th St. will give access to the Port of Oakland via Middle Harbor Rd. and to Jack London Square via 5th St.

PORT OF OAKLAND MARINE FACILITIES

I-880 Replacement

Legend

- Permitted container routes
- Current
- Planned
- Major freeways
- I-880 replacement under construction

SAN FRANCISCO BAY

San Francisco–Oakland Bay Bridge

MARINE TERMINALS

UNION PACIFIC INTERMODAL YARD

NAVAL SUPPLY CENTER

Oakland Inner Harbor Channel

ALAMEDA

OAKLAND

OAKLAND ARMY BASE

I-880 Replacement

Berkeley, Richmond, Sacramento

Concord

Hayward San Jose

San Pablo Ave.

Telegraph Ave.

Broadway

Adeline St.

Market St.

West Grand Ave.

Wood St.

Maritime St.

7th ST.

Embarcadero

80

580

980

24

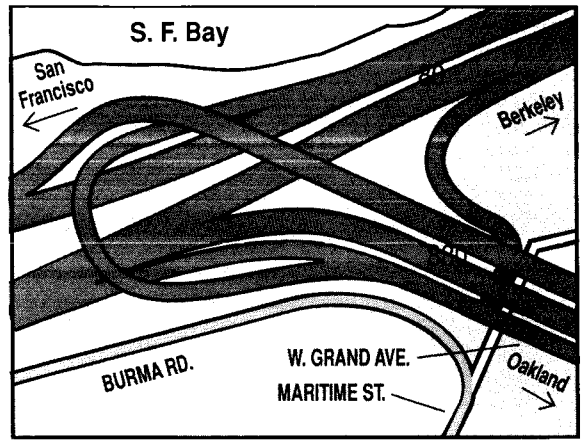
880

1

2

3

4



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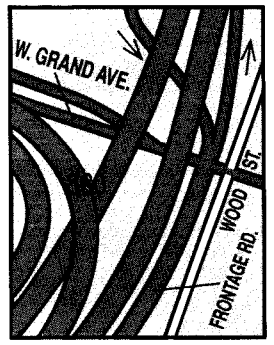

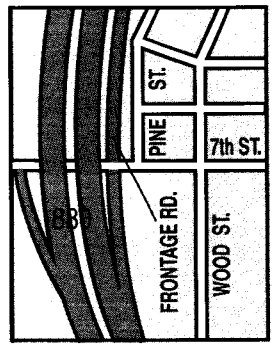

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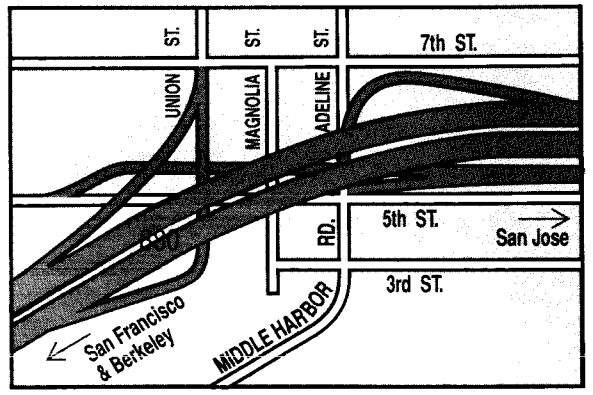

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PORT OF OAKLAND MARINE FACILITIES

I-880 Replacement

SAN FRANCISCO BAY

San Francisco–Oakland Bay Bridge

MARINE TERMINALS

UNION PACIFIC INTERMODAL YARD

NAVAL SUPPLY CENTER

Oakland Inner Harbor Channel

ALAMEDA

OAKLAND

OAKLAND ARMY BASE

I-880 Replacement

Maritime St.

Wood St.

West Grand Ave.

Adeline St.

Market St.

San Pablo Ave.

Telegraph Ave.

Broadway

7th ST.

Embarcadero

Berkeley, Richmond, Sacramento

Concord

Hayward San Jose

80

580

980

24

880

1

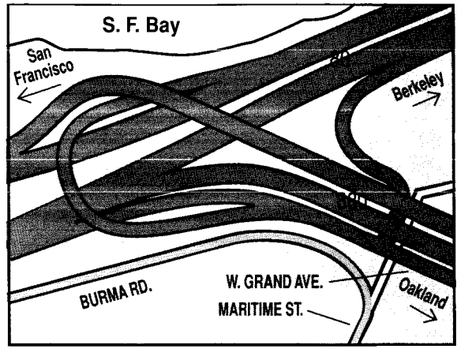
2

3

4

Legend

- Permitted container routes
  - Current
  - Planned
- Major freeways
- I-880 replacement under construction



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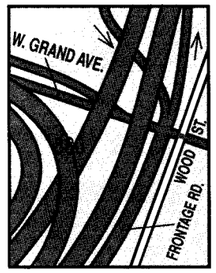

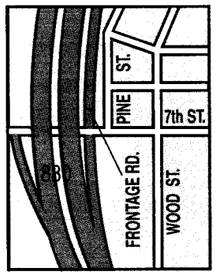

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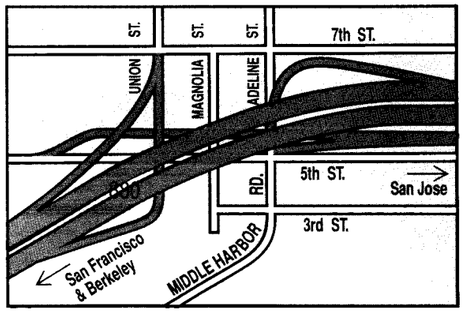

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PORT OF OAKLAND MARINE FACILITIES

I-880 Replacement

Legend

- Permitted container routes
- Current
- Planned
- Major freeways
- I-880 replacement under construction

SAN FRANCISCO BAY

San Francisco–Oakland Bay Bridge

MARINE TERMINALS

UNION PACIFIC INTERMODAL YARD

NAVAL SUPPLY CENTER

OAKLAND ARMY BASE

Oakland Inner Harbor Channel

ALAMEDA

OAKLAND

Berkeley, Richmond, Sacramento

Concord

Hayward San Jose

Embarcadero

West Grand Ave.

Wood St.

Adeline St.

Market St.

San Pablo Ave.

Telegraph Ave.

Broadway

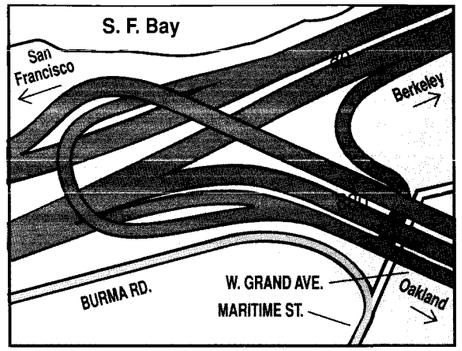
Maritime St.

7th ST.

I-880 Replacement

80 580 980 24 880

1 2 3 4



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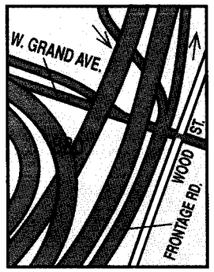

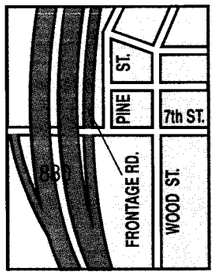

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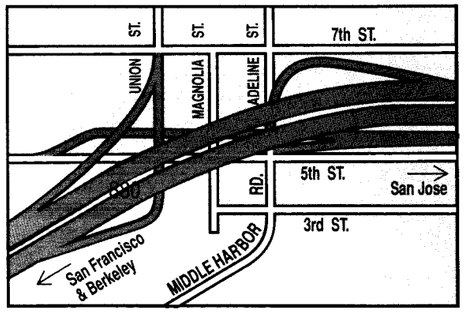

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PORT OF OAKLAND MARINE FACILITIES

I-880 Replacement

Legend

- Permitted container routes
- Current
- Planned
- Major freeways
- I-880 replacement under construction

SAN FRANCISCO BAY

San Francisco–Oakland Bay Bridge

MARINE TERMINALS

UNION PACIFIC INTERMODAL YARD

NAVAL SUPPLY CENTER

OAKLAND ARMY BASE

Maritime St.

I-880 Replacement

Wood St.

West Grand Ave.

Adeline St.

Market St.

San Pablo Ave.

Telegraph Ave.

Broadway

7th ST.

OAKLAND

Embarcadero

Hayward San Jose

Berkeley, Richmond, Sacramento

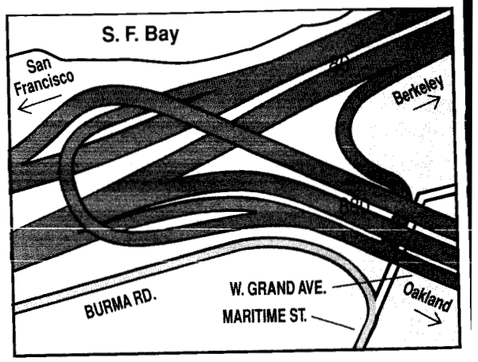
Concord

Oakland Inner Harbor Channel

ALAMEDA

80 · 580 · 980 · 24 · 880

1 · 2 · 3 · 4



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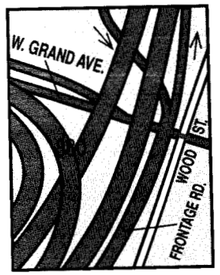
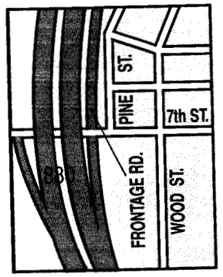
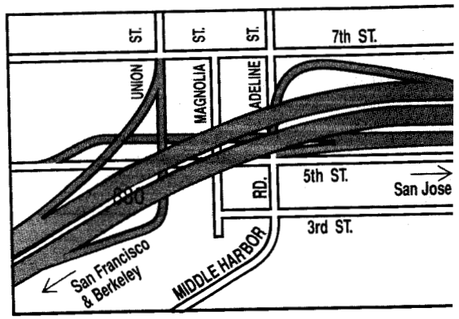




2 Freeway access at West Grand Ave. and at Seventh St. will be provided via a frontage road on the east side of the I-880 freeway.

3



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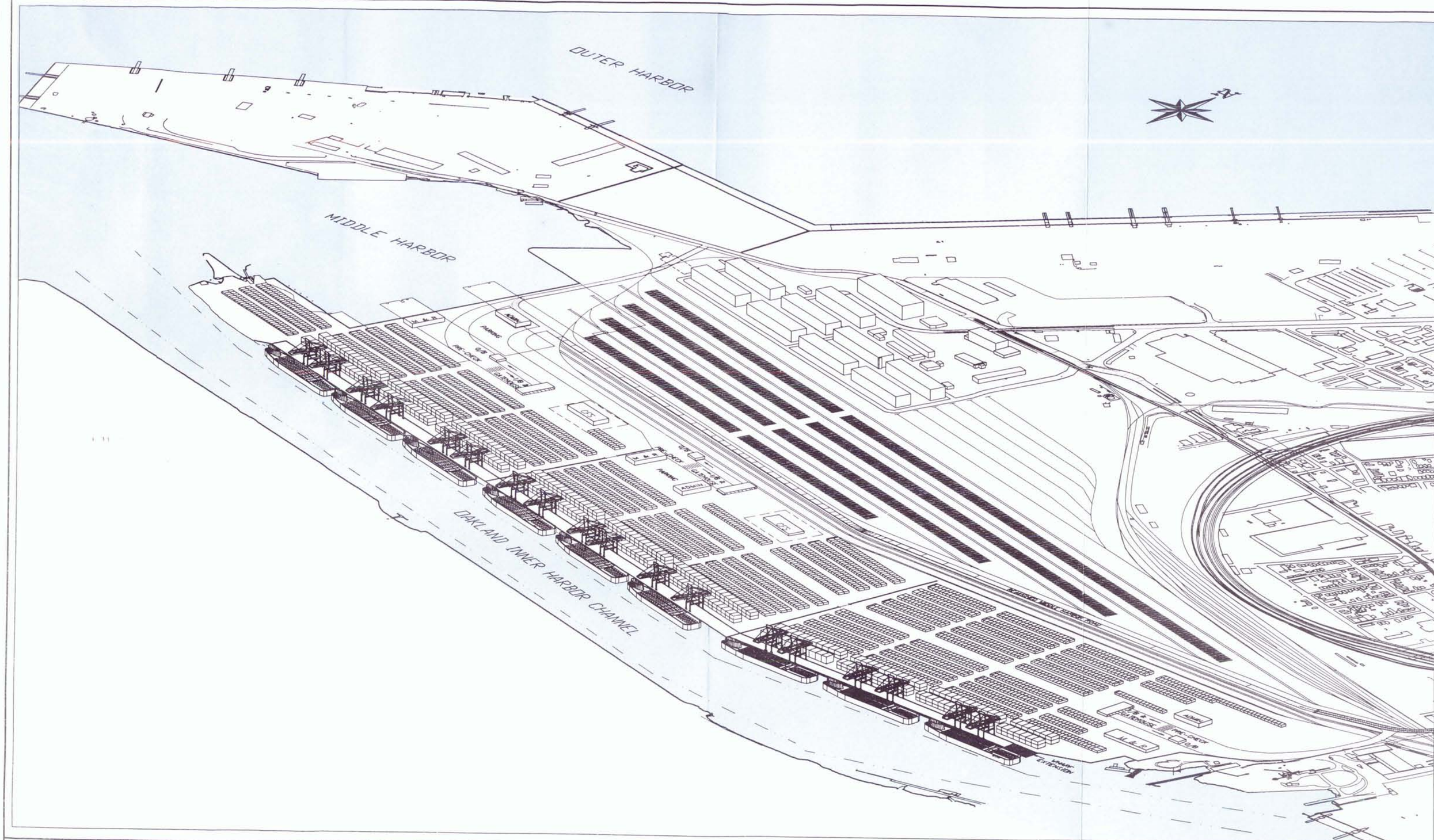


PLANS NSC-30
FIELD BOOKS

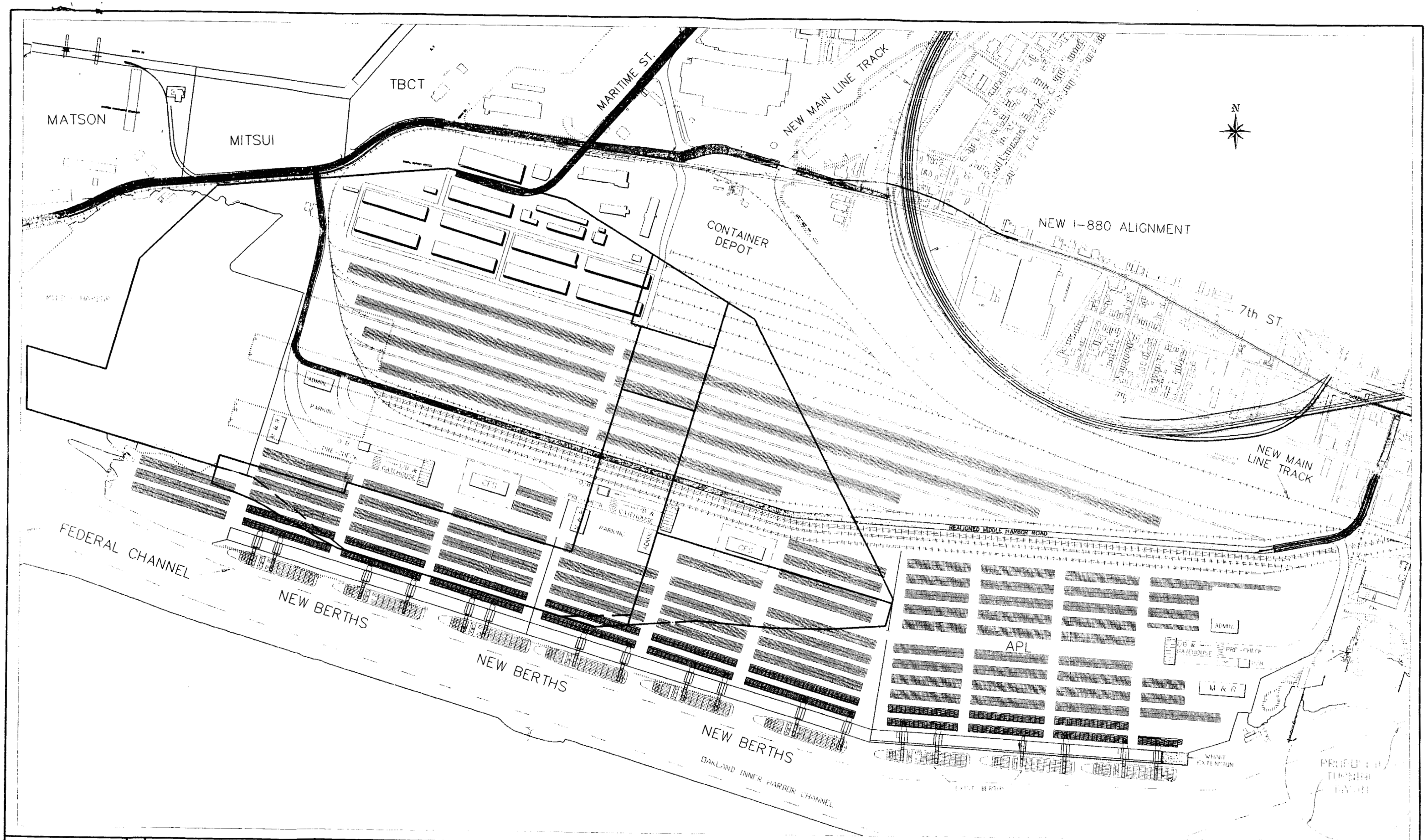
PORT OF OAKLAND

530 WATER STREET OAKLAND, CALIFORNIA

PRELIMINARY DRAWING
PROJECT PLANNING AND PROGRAMMING DEPT.

N.S.C.
DEVELOPMENT STRATEGY

DATE 6-11-93
SCALE 1" = 400'
SHEET 1 OF 1 SHEETS
AA-



PLANS:
FIELD BOOK:
ONEOMEGA

PORT OF OAKLAND

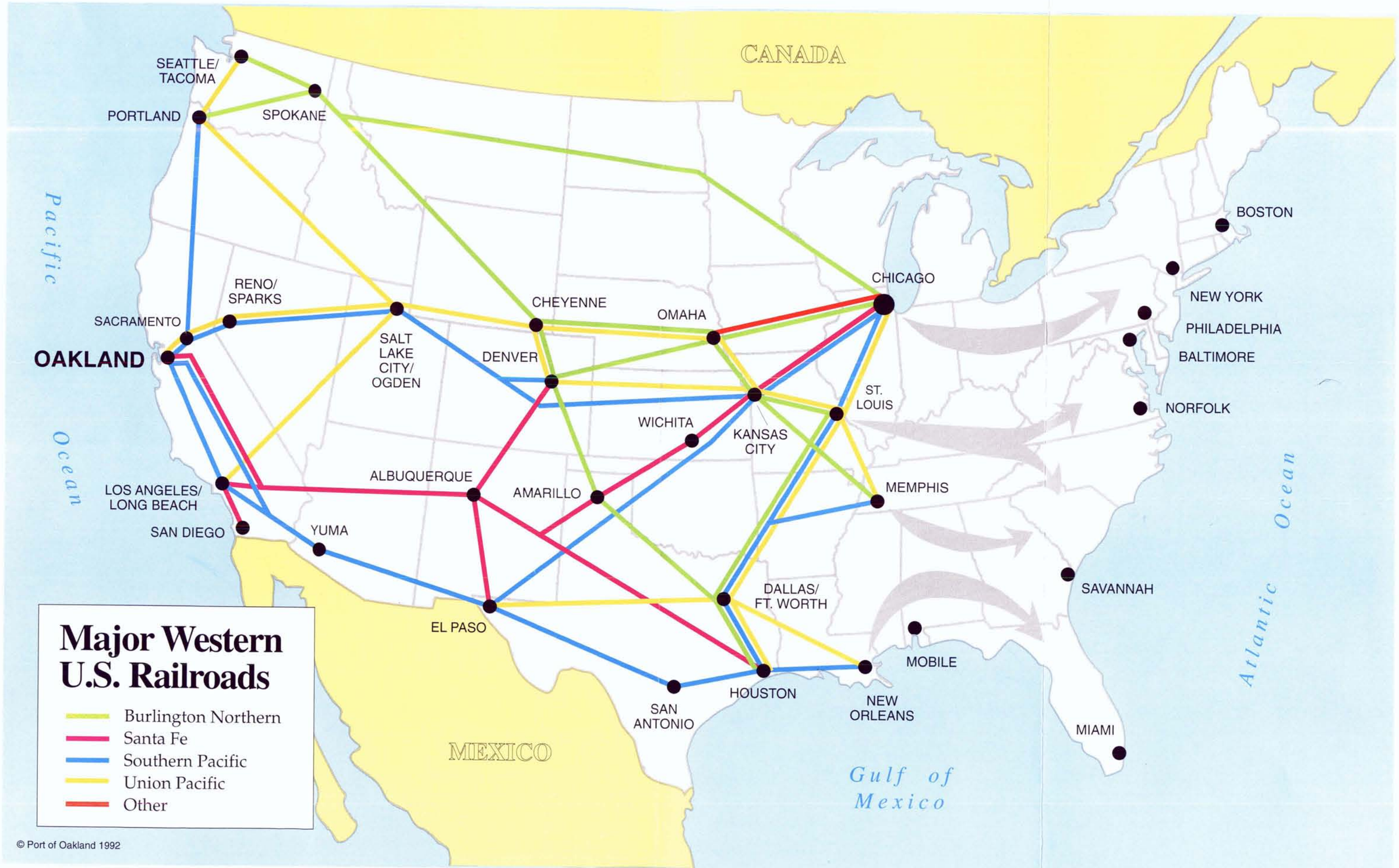
530 WATER STREET OAKLAND CALIFORNIA

PRELIMINARY DRAWING
PROJECT PLANNING AND PROGRAMMING DEPT

CONCEPTUAL DEVELOPMENT STRATEGY
FULL BUILD-OUT OPTION WITH
RR LOOP AND ON-DOCK RAIL

DATE
SCALE
SHEET

AA-



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Document Separator

MILITARY TRAFFIC MANAGEMENT COMMAND

OAKLAND ARMY BASE

A PREMIER POWER PROJECTION PLATFORM

Attendees:
Defense Base Closure & Realignment Committee Meeting
Tuesday, 23 May 1995

Committee Commissioners

Mr. Al Cornella, Lead Commissioner
Mr. S. Lee Kling
Ms. Wendi L. Steele

Committee Staffers:

Mr. Charles Smith, Senior Staffer
Mr. Rick Brown,
Mr. Ralph Kaiser
Mr. Dave Epstein

Department of the Army:

Mr. Roy Anderson, Office of Management (TABS)
Ms. Theresa Persick-Arnold, Office of Installation Management

Governor's Office:

Ms. Judy Miller, Assistant to the Governor
Director, Office of Military Base Retention

Oakland Chamber of Commerce:

Mr. Robert Toney
President/CEO
Mr. Jerry Bridges, Chairman of Military Affairs

City of Oakland:

Councilwoman Dezi Woods-Jones
Mr. Paul Nahm, Exeuctive Director, Base Reuse Authority Office

Port of Oakland:

Mr. Leo Brien, Director of Maritime

Congressional Representatives:

Mr. Russ Lowe from Senator Feinstein's office
Ms. Katy Merrill from Senator Boxer's office
Ms. Roberta Brooks from Congressman Dellums 'office

Western Area Staff

COL Richard E. Cadorette, Commander
CAPT D.S. Ensminger, Deputy Commander
COL Yerry Yon, Chief of Staff
COL James Spring, Garrison Commander
COL Doug Foye, Commander, 1302d Medium Port Command
COL Charles Johnston, Chief, Operations
COL Ron Drake, Chief, Plans
Mr. Rueben Bangan, Director, Resource Management

Military Traffic Management Command Headquarters

Ms. Diane Luna/ Ms. Loretta Graves

PORT OF OAKLAND MARINE FACILITIES

Terminal gates
Major container freight stations
Public truck scales
Permitted container routes
Current
Planned
Major freeways
Intermodal rail facilities
Proposed Naval Supply Center area intermodal rail development
Existing cranes
Cranes on order or planned

SAN FRANCISCO BAY AREA

Tides of San Francisco Bay

INFORMATION

PORT OF OAKLAND
Customer Service
Within California (510) 272-1461
Or (510) 272-1326
Outside California (800) 257-2725
Emergency contact (510) 577-4000
(after normal work hours)

Marine Terminals Dept. (510) 272-1308
Fax (510) 839-3438

Wharfingers Office/
Harbor Overweight
and Hazardous
Cargo Permits (510) 272-1313

CITY OF OAKLAND
Fire Prevention Bureau (510) 273-3851
Oakland Police (510) 273-3211

GOLDEN GATE PORTS ASSOCIATION (415) 9
MARINE EXCHANGE, S.F. BAY (415) 4

RAILROADS
Oakland Terminal Railway (510) 8
Southern Pacific (510) 8
Union Pacific (510) 8
Santa Fe (510) 2

SAN FRANCISCO BAR PILOTS (415) 7
U.S. COAST GUARD (U.S.C.G.)
Captain of Port/Marine Safety Office (510) 4
Dangerous Cargo (510) 4
Environmental Protection (510) 4
Pollution Reports (510) 4
Vessel Traffic Service (415) 5

U.S. CUSTOMS SERVICE
District Customs House (415) 7
East Bay Station (510) 7

U.S. DEPARTMENT OF
AGRICULTURE (USDA)
USDA Meat Inspection Facility (510) 2
U.S. FOOD & DRUG (510) 8
ADMINISTRATION (FDA) (415) 9

U.S. Weather Service Forecasts (415) 9

TERMINALS

American President Lines Terminal	APL
Bay Bridge Terminal	BBT
Charles P. Howard Terminal	HOWARD
Maersk Line Terminal	MAERSK
Matson Container Terminal	MATSON
Ninth Avenue Terminal	NINTH
Yusen Terminals Inc.	YTI
Sea-Land Container Terminal	SEA-LAND
Seventh Street Marine Container Terminal	7th St. MCT
TransBay Container Terminal	TBCT
TransPacific Container Service Corp. Terminal	TRAPAC

SHIPPING LINES	TERMINAL	GATE
American President Lines	APL	60-63
Atlantic Container Line (Effective 8/92)	MATSON	32-34
Australia-New Zealand Direct Line	APL	60-63
CGM French Line (Effective 8/92)	MATSON	32-34
Canadian Transport	HOWARD	67-69
Cho Yang Line	HOWARD	67-69
DSR-Senator Lines	HOWARD	67-69
d'Amico Line	HOWARD	67-69

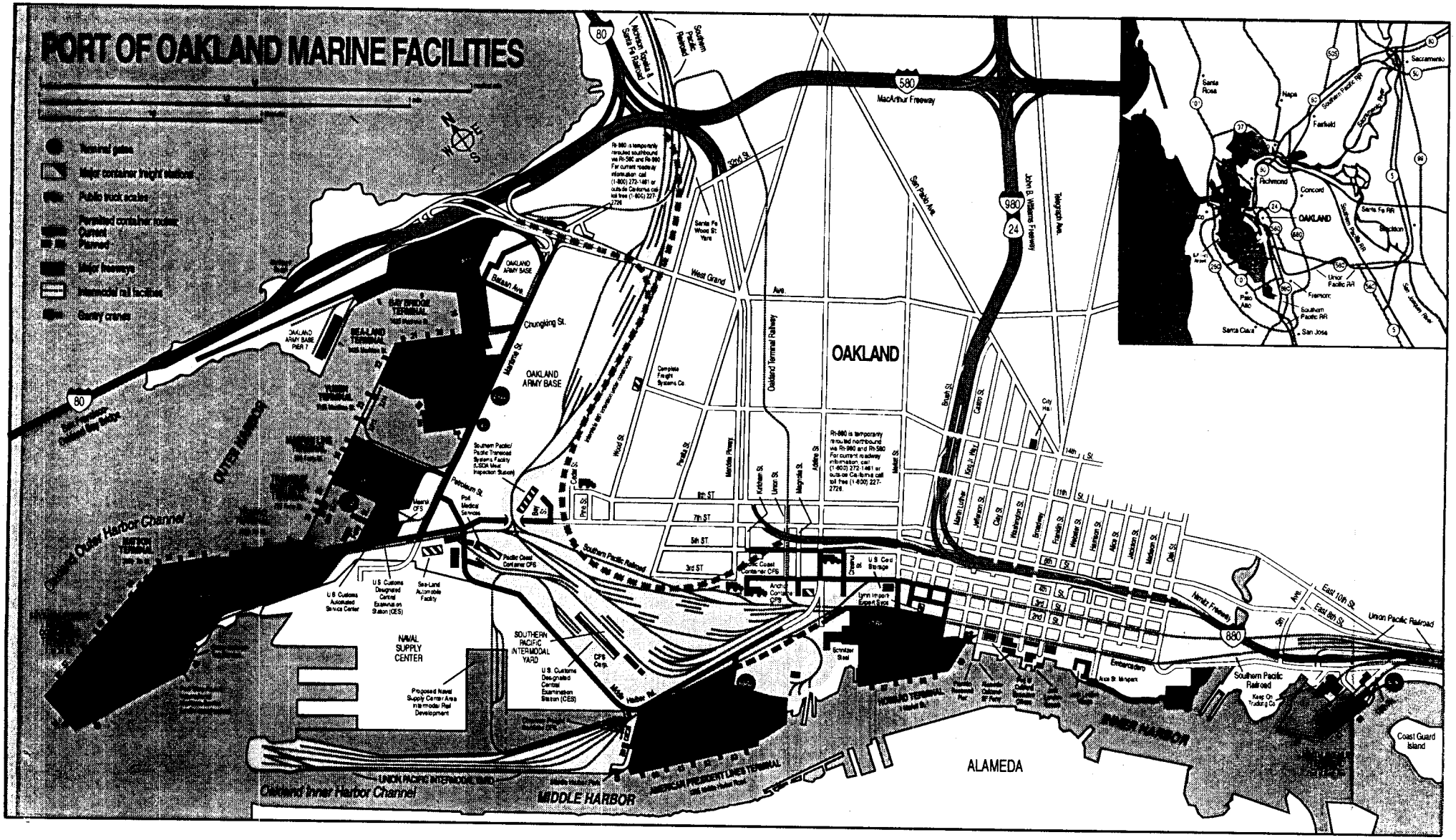
SHIPPING LINES	TERMINAL	GATE
Hanjin Shipping Co.	7th St. MCT	37, 38
Hapag-Lloyd Europe Pacific Service (Effective 8/92)	MATSON	32-34
Hawaiian Marine Lines	HOWARD	67-69
Hyundai Merchant Marine (Breakbulk)	NINTH	82-84
(Container service)	7th St. MCT	37, 38
IMT Lines	NINTH	82-84
Italia Line	HOWARD	67-69

SHIPPING LINES	TERMINAL	GATE
"K" Line	TBCT	25, 26
Maersk Line	MAERSK	24
Matson Navigation Co.	MATSON	32-34
Mitsui O.S.K. Lines, Ltd.	TRAPAC	35
N.Y.K. Line	YTI	23
Neptune Orient Lines, Ltd.	YTI	23
Norbel Service	HOWARD	67-69
Orient Overseas Container Lines	APL	60-63
P & O Containers Ltd.	MAERSK	24

SHIPPING LINES	TERMINAL	GATE
Pan Ocean Bulk Carriers	NINTH	82-84
PM&O Line	APL	60-63
Polynesia Line, Ltd.	APL	60-63
Sea-Land Service (TransPacific/Hawaii/Guam)	SEA-LAND	20-22
(Europe)	MAERSK	24
Star Shipping A/S	APL	60-63
Toko Line	NINTH	82-84
Toyofuji	APL	60-63

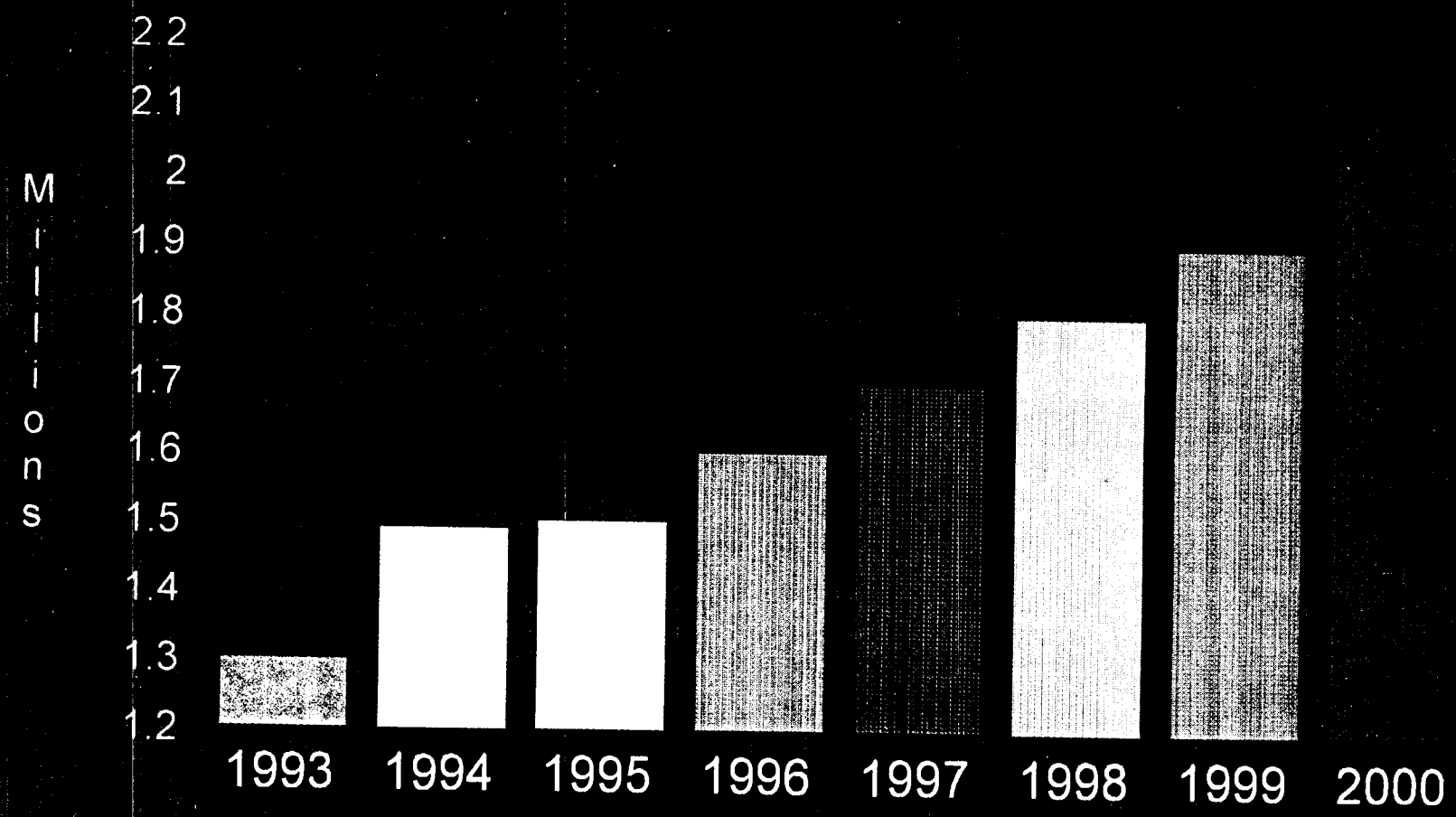
SHIPPING LINES	TERMINAL
Trade Ocean Line	NINTH
Yang Ming Line	7th St. MCT

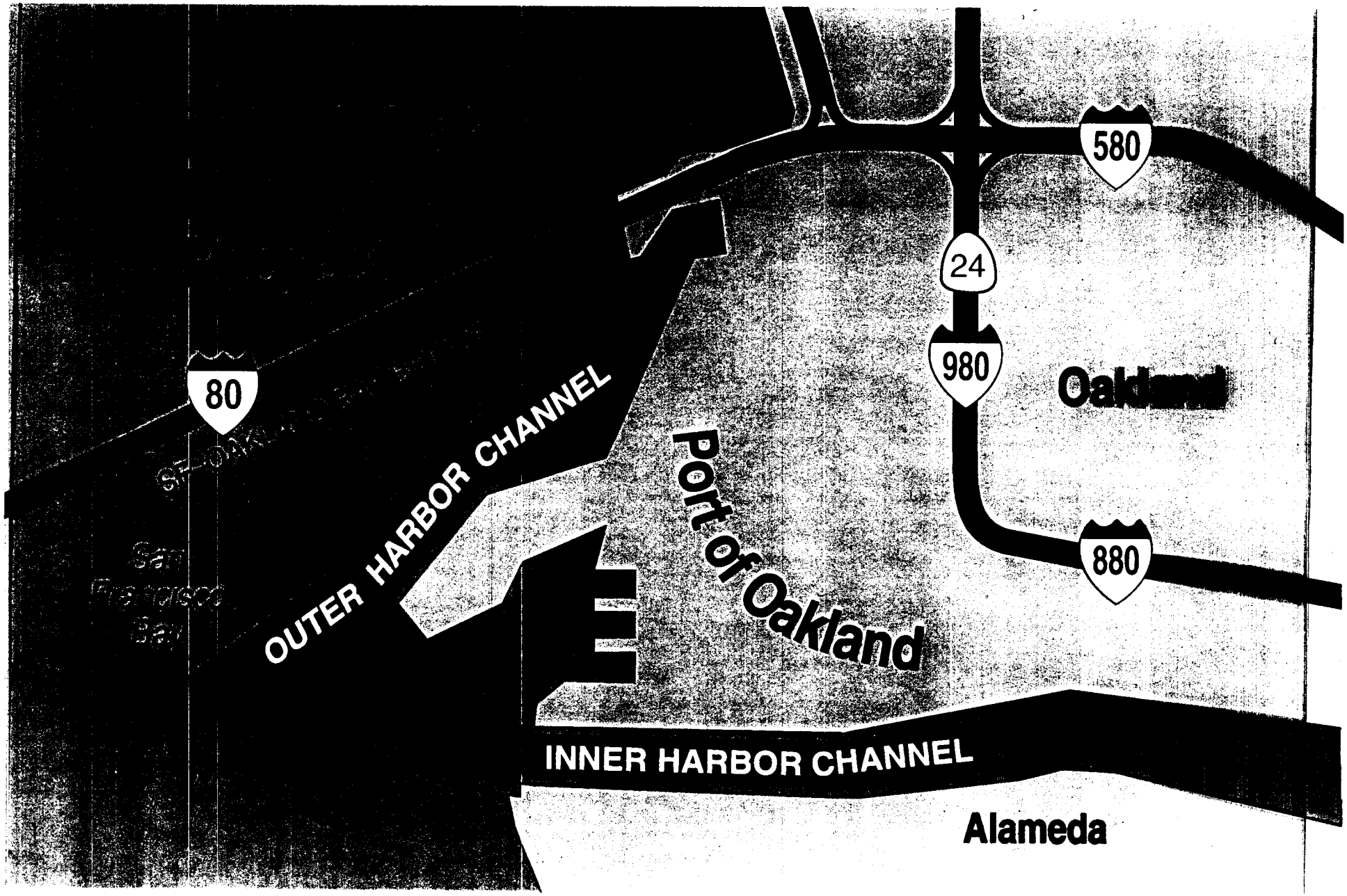
NOTE: Shipping line terminal locations are accurate as of
Terminal locations are subject to change.


PORT OF OAKLAND MARINE FACILITIES
Terminal gates
Major container freight stations
Public truck scales
Permitted container routes: Current, Planned
Major freeways
Intermodal rail facilities
Gantry cranes
OAKLAND
ALAMEDA
MacArthur Freeway
Nimitz Freeway
Southern Pacific Railroad
Union Pacific Railroad
Santa Fe Railroad
Oakland Terminal Railway
OAKLAND ARMY BASE
OAKLAND ARMY BASE PIER 7
SEA-LAND TERMINAL
BAY BRIDGE TERMINAL
TOTEM TERMINAL
Oakland Outer Harbor Channel
Oakland Inner Harbor Channel
OUTER HARBOR
MIDDLE HARBOR
INNER HARBOR
NAVAL SUPPLY CENTER
SOUTHERN PACIFIC INTERMODAL YARD
Coast Guard Island
Embarcadero
Fremont
Richmond
Concord
Fairfield
Napa
Santa Rosa
Sacramento
Santa Clara
San Jose
Pleasanton
Dublin
Livermore
Stockton
Modesto
Merced
Fresno
Bakersfield
Los Angeles
San Diego
Ventura
Santa Barbara
San Luis Obispo
Salinas
Monterey
Santa Cruz
Hollister
Gilroy
Morgan Hill
Los Banos
Coalinga
Hanford
Visalia
Tulare
Porterville
Delano
Lancaster
Palmdale
Victorville
Barstow
Needles
Blythe
Yuma
Tucson
Phoenix
Flagstaff
Las Vegas
Reno
Sparks
Carson City
Tonopah
Bishop
Mammoth Lakes
Ridgecrest
Tehachapi
Mojave
Boulder City
Kingman
Lake Havasu City
Parker
Yucca Valley
Twentynine Palms
Joshua Tree
Indio
Palm Springs

PORT OF OAKLAND

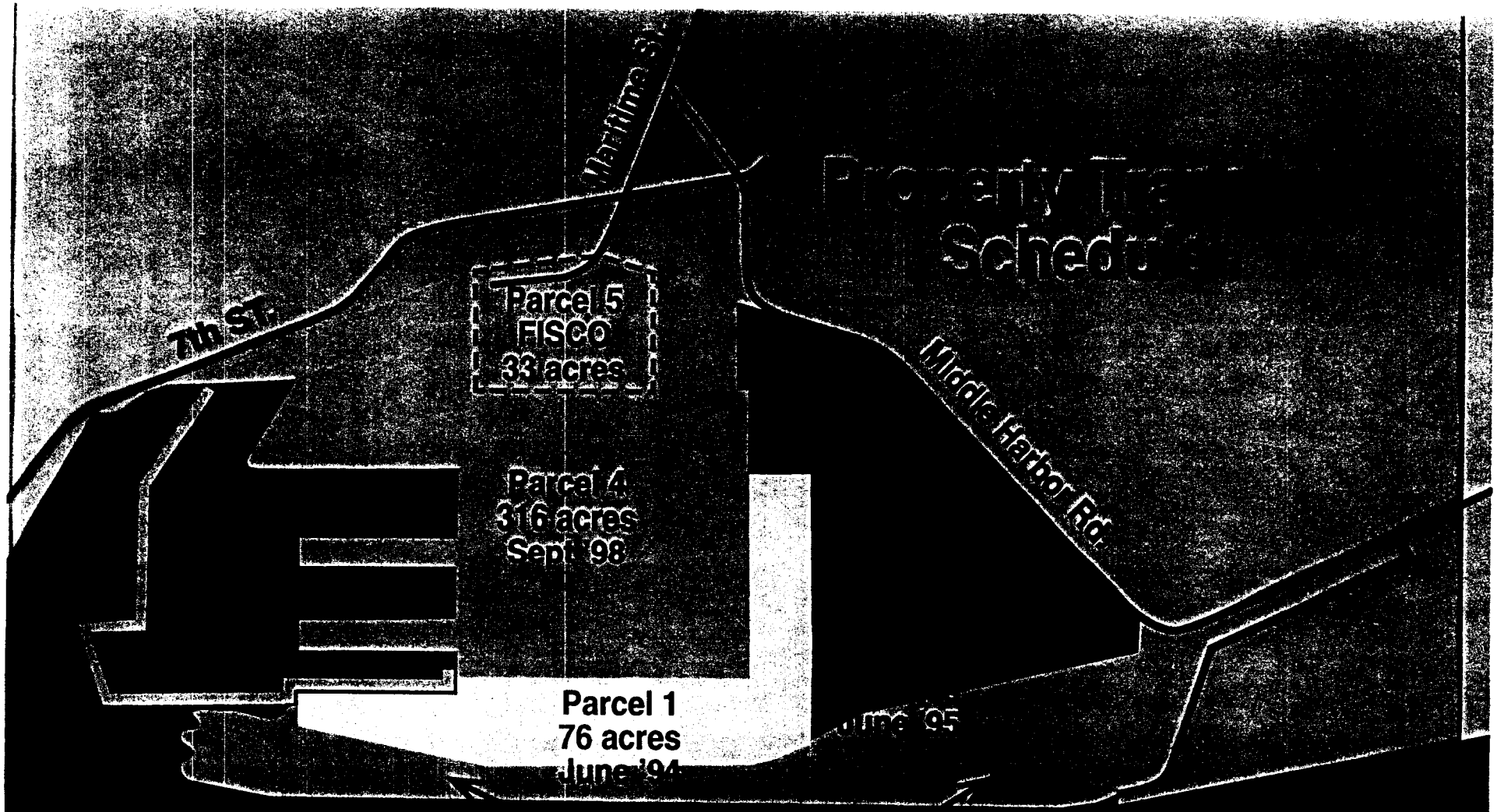
PROJECTED GROWTH IN TEUS




580
24
980
Oakland
880
80
OUTER HARBOR CHANNEL
Port of Oakland
INNER HARBOR CHANNEL
Alameda

SPECIAL LEGISLATION

Special legislation, jointly drafted by the Navy and the Port of Oakland and sponsored by Congressman Ronald V. Dellums was enacted under the Defense Authorization Act of 1993. The legislation authorizes the Secretary of the Navy to lease portions of the Fleet Industrial Supply Center Oakland to the Port of Oakland as the Secretary determines is available.

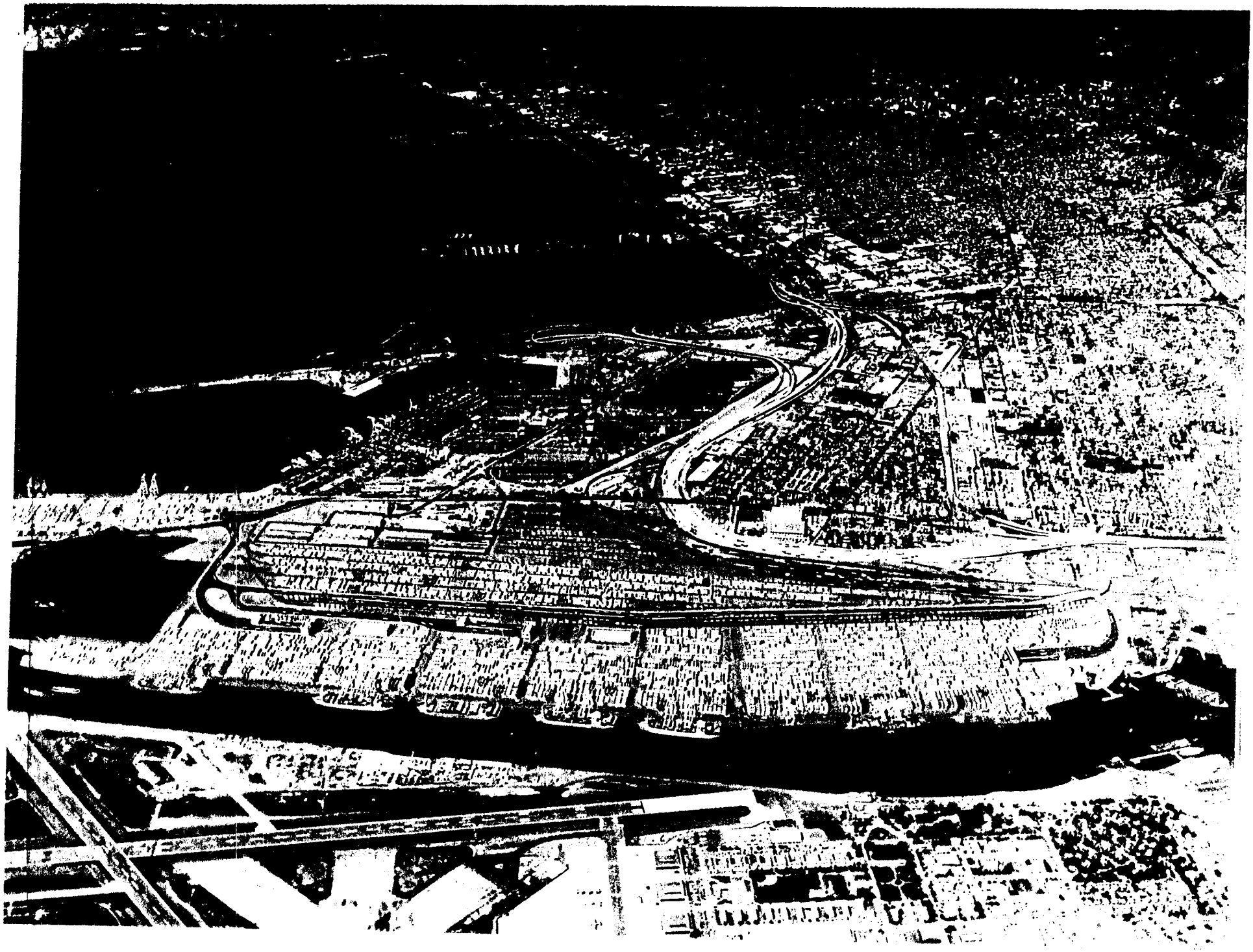


Oakland Estuary

ECONOMIC IMPACT OF INTERIM USE

Harbor Transportation Center

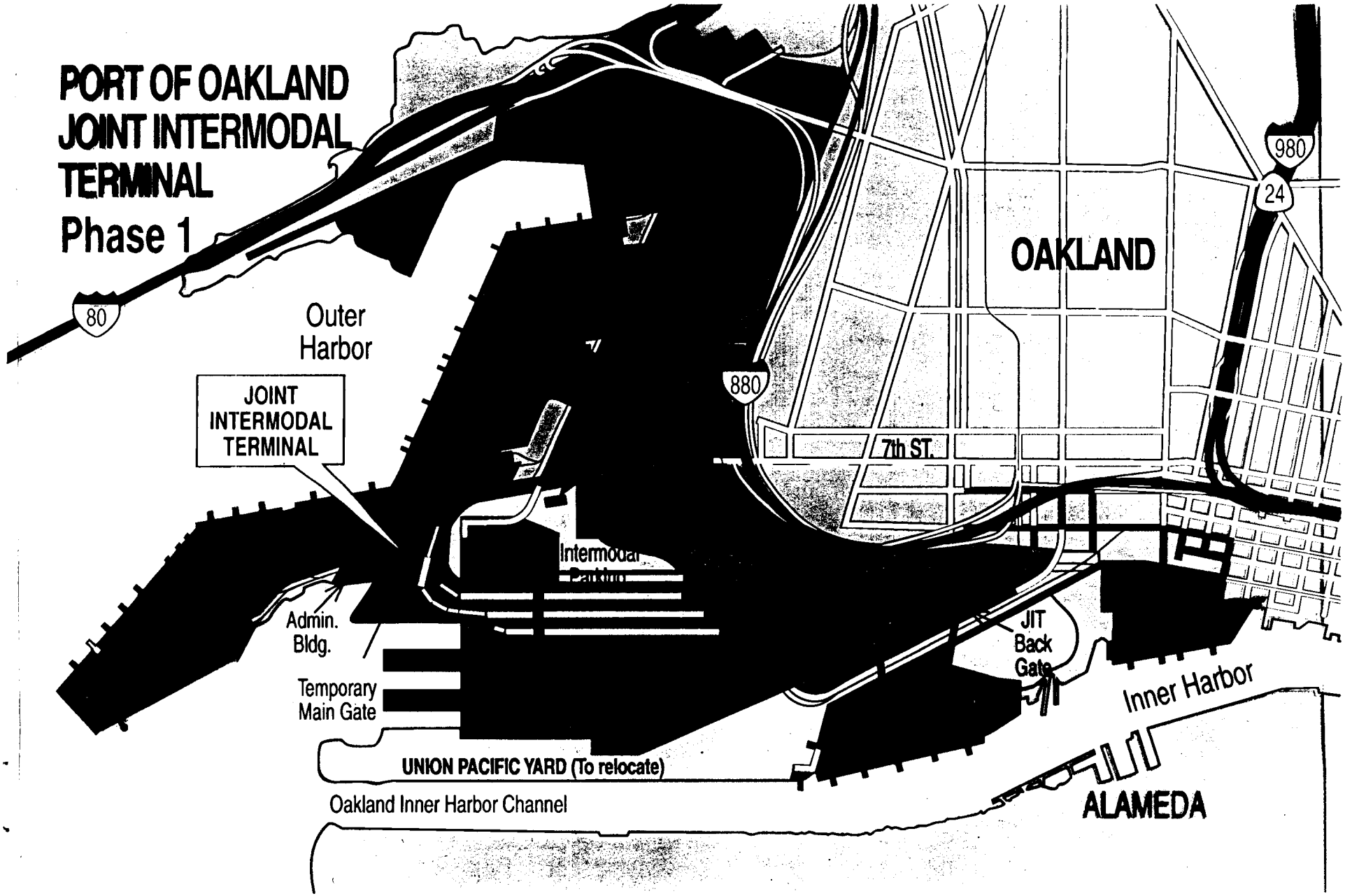
DIRECT JOBS	326
PAYROLL	$8,150,000
INDUCED JOBS	139

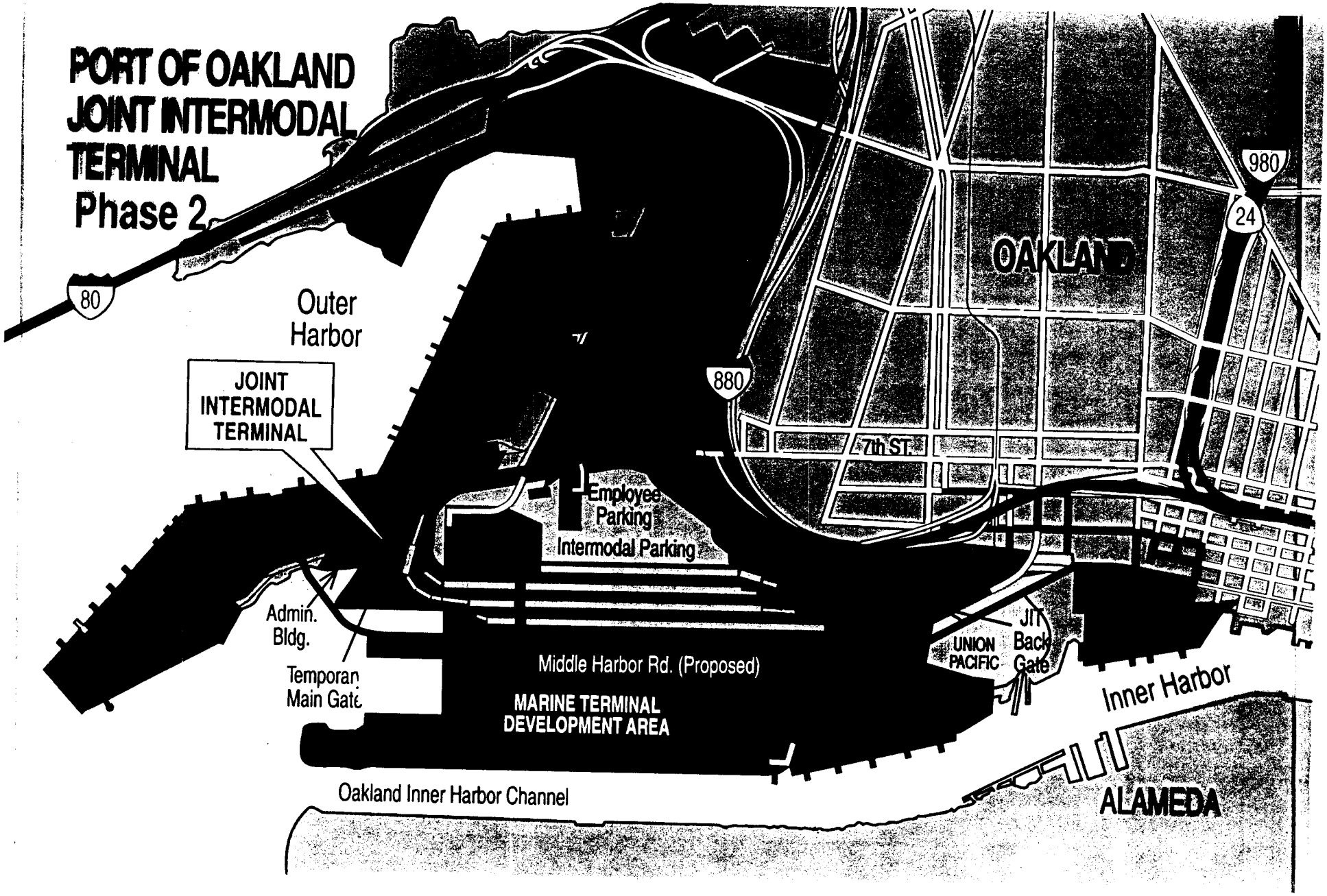


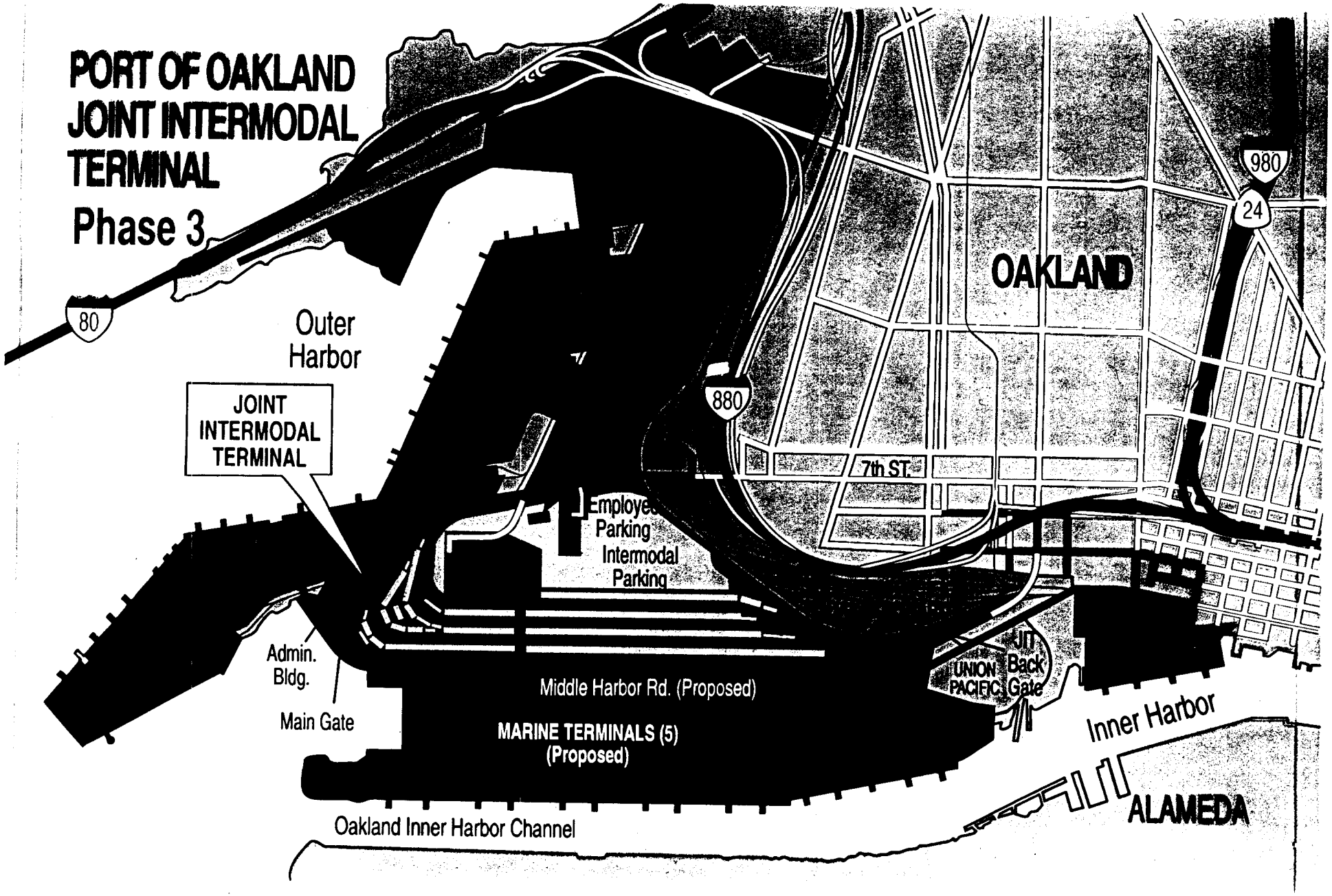
ECONOMIC IMPACT OF VISION 2000

DIRECT JOBS	**4,500**
Maritime	1,100
Railroad	800
Cargo support	2,600
INDUCED JOBS	**2,000**
BUSINESS REVENUE	**$1 billion**
Includes: Payroll	$280 million
State/local taxes	$25 million

Major U.S. Rail Systems

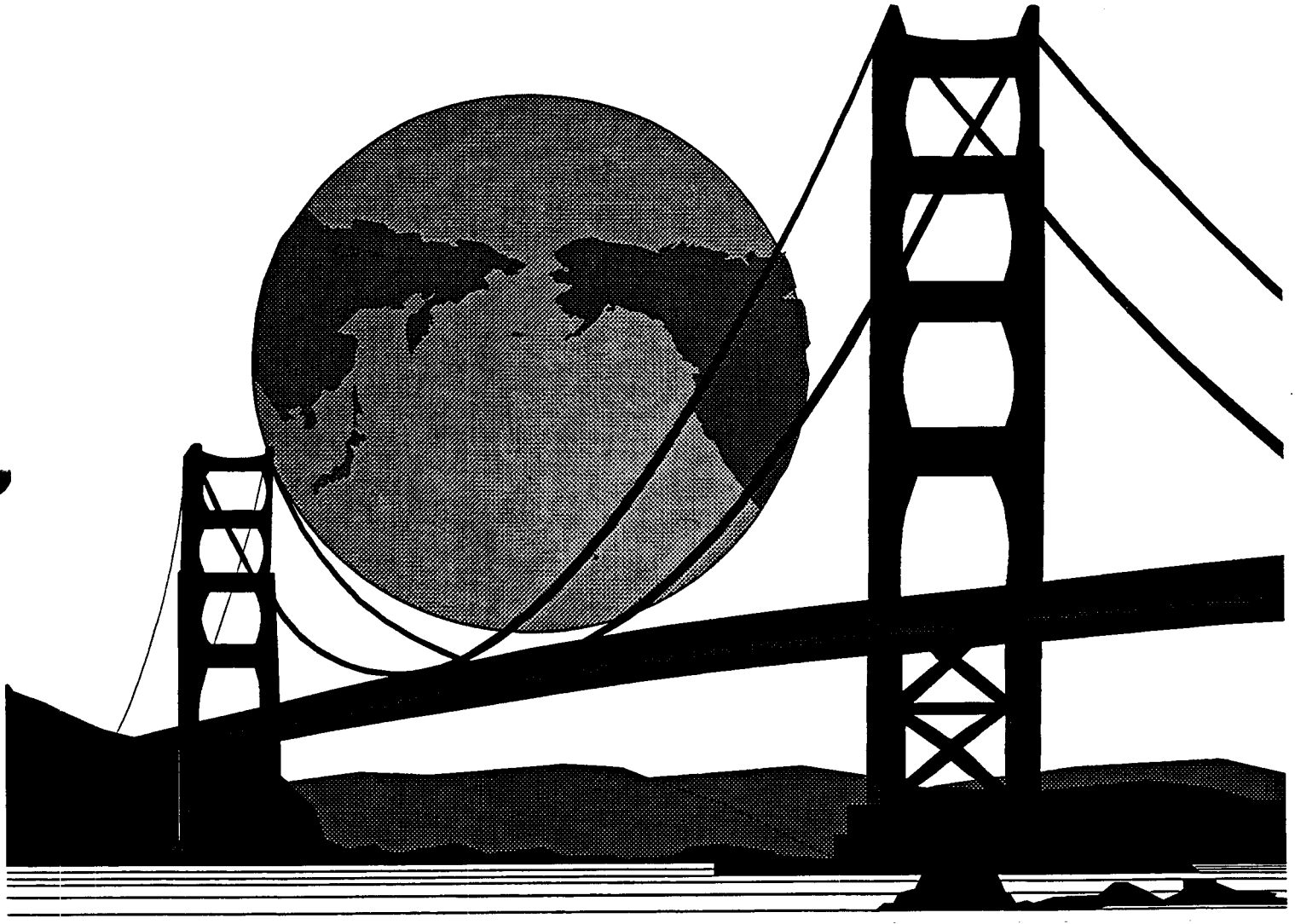

PORT OF OAKLAND
JOINT INTERMODAL
TERMINAL
Phase 1
80
Outer
Harbor
JOINT
INTERMODAL
TERMINAL
880
OAKLAND
980
24
7th ST.
Admin.
Bldg.
Temporary
Main Gate
JIT
Back
Gate
Inner Harbor
UNION PACIFIC YARD (To relocate)
Oakland Inner Harbor Channel
ALAMEDA


PORT OF OAKLAND
JOINT INTERMODAL
TERMINAL
Phase 2
80
Outer
Harbor
JOINT
INTERMODAL
TERMINAL
880
OAKLAND
980
24
7th ST.
Employee
Parking
Intermodal Parking
Admin.
Bldg.
Temporar
Main Gate
Middle Harbor Rd. (Proposed)
MARINE TERMINAL
DEVELOPMENT AREA
UNION
PACIFIC
JIT
Back
Gate
Inner Harbor
Oakland Inner Harbor Channel
ALAMEDA


PORT OF OAKLAND
JOINT INTERMODAL
TERMINAL
Phase 3
80
Outer
Harbor
JOINT
INTERMODAL
TERMINAL
880
OAKLAND
980
24
7th ST.
Employee
Parking
Intermodal
Parking
Admin.
Bldg.
Main Gate
Middle Harbor Rd. (Proposed)
MARINE TERMINALS (5)
(Proposed)
UNION
PACIFIC
JIT
Back
Gate
Inner Harbor
ALAMEDA
Oakland Inner Harbor Channel

Document Separator

1302nd Major Port Command



WE SPAN THE GLOBE

PREFACE

October 1, 1994

This brochure provides a basic understanding of the 1302nd Major Port Command, Oakland Army Base, Oakland, California, in carrying out the mission of the Military Traffic Management Command in northern California.

The mission of the 1302nd Major Port Command (hereafter called the port) is to plan for and accomplish the expeditious movement of cargo sponsored by the Department of Defense (DOD) which moves through northern California terminals within the movement programs assigned by the Military Traffic Management Command Western Area (MTMCWA).

The 1302nd serves as a power-projection platform, allowing units of the armed forces based in the continental United States (CONUS) to be rapidly deployed overseas during a contingency. This capability becomes more essential as an ever-increasing proportion of the armed forces are stationed in the CONUS in peacetime. The 1302nd is a vital segment in the transportation system which ensures that combat power gets to its place of business in the Pacific Ocean basin.

J. Douglas Foye
Colonel, U.S. Army
Commanding Officer

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I. A BRIEF HISTORY OF THE 1302ND MAJOR PORT COMMAND

The 1302nd Major Port Command can trace its lineage in the San Francisco Bay Area to the late 1890s, when the Army Transport Service began loading supplies for military outposts overseas at a single San Francisco pier along the historic Embarcadero waterfront. In the succeeding years there has been an uninterrupted military ocean terminal presence in the San Francisco-Oakland Area and, although this organization has changed its name, structure, and even its location many times over the years, we still accomplish the same mission as did our military ancestors when they loaded and discharged the stately clipper ships that sailed to and from the far ends of the globe.

In 1911 the Army recognized the need to have its own pier facilities and decided to take advantage of its waterfront location at Fort Mason, an installation which had previously been used as a coastal artillery battery site supplementing the Presidio of San Francisco. Between 1911 and the end of 1912, three finger piers were completed accommodating four vessels; and for the next 30 years, troop transports and supply ships sailed to and from this terminal installation known as the San Francisco Port of Embarkation. The First World War had little impact on the expansion of West Coast military facilities, but by the late 1930s, with the clouds of war again gathering in Europe and the deterioration of diplomatic relations with Japan, it became apparent that Fort Mason, with its three small piers, would be grossly insufficient to feed a transoceanic supply line, particularly in time of hostilities.

The outbreak of war in Europe and the strengthening of our installations in the Pacific quickly confirmed the inadequacy of the Fort Mason facility, and a crash program was initiated to find and develop additional waterfront acreage. Because the San Francisco waterfront was already congested with commercial shipping, it was decided to seek an area across the Bay in the then still-underdeveloped Oakland Outer Harbor. The first land was acquired by the War Department in January 1941, but it was not until June 1941 that actual construction began on the installation and pier facilities now known as the Oakland Army Base. Although June 1942 was the original target date for completion of this massive project, the attack on Pearl Harbor on December 7th, 1941 greatly accelerated construction efforts and by early 1942 Piers 4 and 5 were finished and in operation. By the end of the war, the Army Base had berthing facilities for 16 vessels and was able to handle up to 100 rail cars of cargo at one time.

During the years following World War II, the Oakland Army Base experienced a large post-war reduction in personnel and mission requirements. This was followed by a rapid buildup in 1950 in support of the Korean War. During this same period (1955) our name changed from Oakland Army Base to Oakland Army Terminal, under the command of the U.S. Army Transportation Terminal Command, Pacific. Shortly thereafter, this Headquarters was renamed again as the U.S. Army Transportation Terminal Command, Bay Area, with the Oakland Army Terminal as a subordinate command.

From the end of the Korean War until early 1964, the Oakland Army Base and its terminal activity underwent repeated changes in names. On July 1, 1964, a new organizational concept was adopted merging all cargo operations in the San Francisco Bay Area into a jointly staffed unit commanded by the Commanding General of the U.S. Army Terminal Command, Pacific. This organization was known as the Joint Army-Navy Ocean Terminal, or JANOT. The transformation was continued on July 1, 1965, when JANOT was redesignated as MOTBA, the Military Ocean Terminal, Bay Area. This designation remained until January 1, 1993, when the name was changed to the 1302nd Major Port Command.

From 1965 until 1975 the port's strength reacted to our country's support of the conflict in Southeast Asia. During the peak of this operation, in fiscal year 1968, over 12 million measurement tons of cargo were handled by MOTBA, and 2,904 civilian employees were assigned to the Oakland Army Base and MOTBA combined. The Persian Gulf War caused a smaller increase in cargo moved to and returned from Southwest Asia from late 1990 to 1992.

Today our tonnage throughput and the number of personnel assigned to the port are a far cry from the peak years of World War II. We can, however, look back with pride not only to our personal performance, but also to the outstanding and lasting accomplishments of our organization since we were founded in the late 1800s. Few, if any, military ports have our long and honorable history; fewer still have served with such distinction. We can look forward to the future knowing that today we accomplish a continuing and vital DOD mission, and stand ready as a highly professional cadre to serve tomorrow's mission with distinction.

PAST COMMANDERS

COL Terry A. Yon, USA	27 Jun 91 - 31 May 93
COL John E. Sims, USA	21 Jul 89 - 26 Jun 91
COL Juan R. Lopez, USA	7 Jul 88 - 30 Jun 89
COL John R. Manley, USA	11 Jul 86 - 6 Jul 88
COL Walter J. Jankowski, USA	13 Jul 84 - 10 Jul 86
COL Edward I. Hickey, Jr., USA	14 Jul 82 - 12 Jul 84
COL Richard W. Bergson, USA	19 Oct 79 - 14 Jul 82
COL George E. Pitts, USA	15 Mar 78 - 18 Oct 79
COL Jimmy D. Ross, USA	1 Apr 76 - 14 Mar 78
COL Bernard J. Conroy, USA	9 Jul 74 - 31 Mar 76
COL Clinton M. Hanks, USA	23 Jun 73 - 8 Jul 74
CAPT Elton A. Geneste, Jr., USN	1 Nov 72 - 22 Jun 73
CAPT Jack M. Park, USN	29 Apr 71 - 31 Oct 72
LTC Francis E. Scanlan, USA	28 Mar 71 - 28 Apr 71
CAPT Jackson L. Schultz, USN	23 Jul 70 - 27 Mar 71
COL Jack S. Tabb, USA	1 Aug 69 - 23 Jul 70
COL Herbert B. Erb, USA	1 Jul 68 - 31 Jul 69
CAPT John Vinn, Jr., USN	1 Jun 65 - 30 Jun 68
BG Raymond C. Conroy, USA	1 Jul 64 - 31 May 65

II. PORT OVERVIEW

MISSION INFORMATION

Mission:

The 1302nd Major Port Command is responsible for the expeditious movement of DOD-sponsored cargo moving through northern California commercial and government ocean terminals. The port must meet military needs in peace and war with emphasis on service and economy. The 1302nd is an important segment in the transportation system which enables military forces stationed in the CONUS to rapidly move to regions overseas during a war or other crisis. It is referred to as a "power-projection platform," enabling the United States to meet commitments swiftly and with force adequate to the varied needs of a global power. The 1302nd also commands and controls the 1312th Medium Port Command in Compton, California, and the 1313th Medium Port Command in Seattle, Washington, including its Alaska Detachment.

General:

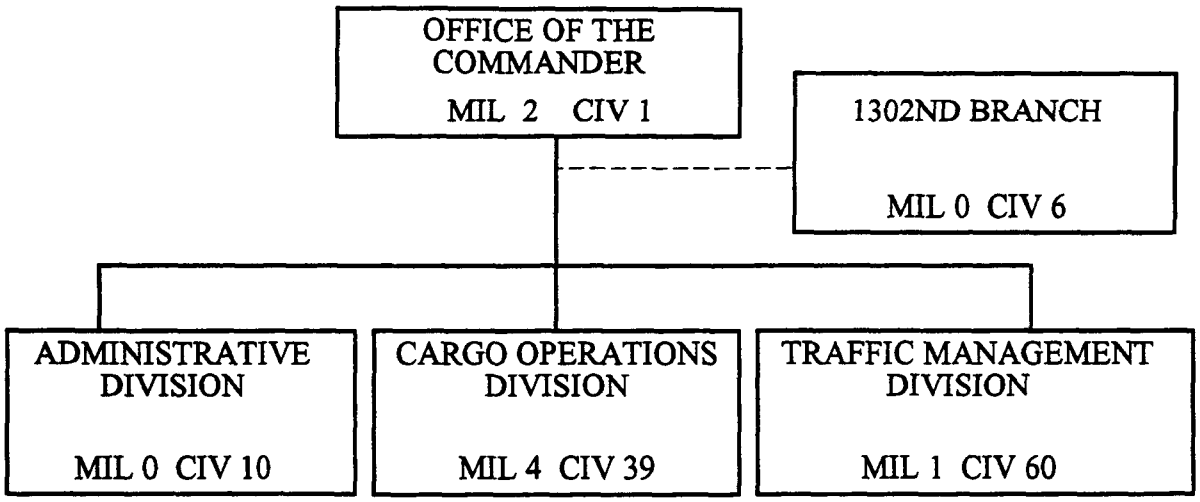
The port is the largest of three port commands on the West Coast under the Headquarters, MTMCWA. Its mission is accomplished on government-owned real estate, with government-owned fixed property and cargo-handling equipment. The two other port commands on the West Coast, the 1312th and 1313th Medium Port Commands, are located on facilities leased from commercial sources.

GEOGRAPHICAL AREA OF OPERATIONS

Each of the three West Coast port commands under MTMCWA has its geographical area of operation. The 1302nd Major Port Command, which is located at Oakland, California, handles DOD cargo moving through northern California, its area extending from the California-Oregon border in the north to just below Monterey in the south. Oregon and Washington belong to the 1313th Medium Port Command; and the southern California area from south of Monterey to the Mexican border belongs to the 1312th Medium Port Command.

There is no single rule governing which of the three port areas should be used for any given shipment. The determination is usually based on economy and other traffic management considerations such as user priority, proximity to the port, pier storage area, materials-handling equipment (MHE), required delivery date, and vessel availability. In some cases, fragility of cargo might be a consideration where over-the-road movement must be minimized, such as for delicate electronics equipment. Also, because of the large-volume vanning capability and frequency of service at the 1302nd Major Port Command, less-than-van-load shipments can often be sent here for consolidation with other cargo, resulting in greater economy and faster service. Our port is involved in processing over half of all the DOD cargo that exits from the West Coast.

ORGANIZATION



Effective 1 November 1994, the port was assigned the required strength shown above.

As a preview to the more detailed descriptions of our organizational elements which will follow, we can summarize the duties of each division. The 1302nd Branch is under the operational control of the port commander, but is organizationally on the Table of Distribution and Allowances of HQ MTMCWA; it manages our relations with contractors. The Administrative Division fills both an administrative and a budgetary role, which includes the handling of the Defense Business Operations Fund expense budget. The Cargo Operations Division has the responsibility for physically handling our cargo; and while one of its functions (import container receiving) is performed by a civil-service work force, its major role involves directing and monitoring the activities of our five contractors. The Traffic Management Division performs the traffic management function and handles our documentation, maintaining in-transit visibility of cargo moving through the port.

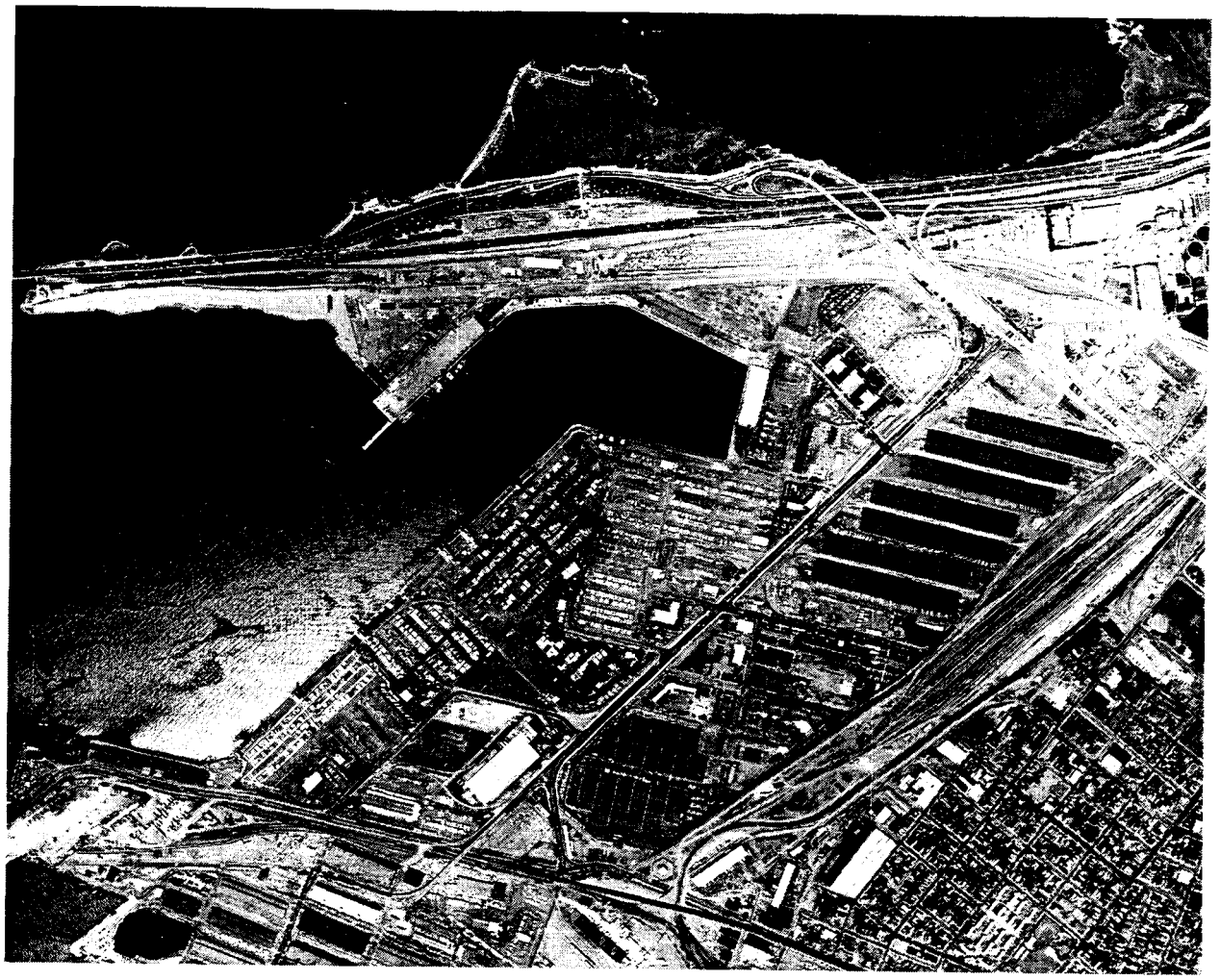
PERSONNEL

The port is a jointly staffed, business-funded activity, and currently requires 7 military personnel and 110 civil servants. Civilian personnel support is obtained from HQ MTMCWA on such matters as recruitment, position and pay management, training and development, and management-employee relations. An average of 140 contractor personnel are used monthly, of which the majority are engaged in stevedore activities and in container stuffing.

MANNING

The port is organized under Table of Distribution and Allowances MTW1M4AA and is staffed based on manpower surveys, using appropriate historical workloads.

FACILITIES



AERIAL VIEW OF THE OAKLAND ARMY BASE

This aerial view of the Oakland Army Base (OARB) and its surrounding area is a fitting preliminary for a description of the facilities, for it quickly reveals the logistical potential of our port located on San Francisco Bay, site of one of the world's largest transportation centers. Interstate highways come in from all directions, making the port highly accessible to the trucks that visit it daily. Three major rail lines also have ready access to the Oakland Army Base: the Atchison, Topeka and Santa Fe, the Union Pacific, and the Southern Pacific Railroads. The port has two rail classification yards; these are the Baldwin Yard and the Knight Yard. The port has a total of 26.43 miles of trackage which includes rail service to the wharves and warehouses.

The preceding history of the port notes that the Oakland Army Base was built largely from 1941 to 1943. Most of our fixed property dates from that period, except for the transit building at Wharf 7, which was completed in 1993.

Administrative Offices

Gilbreath Hall is a permanent two-story administrative building of 161,983 square feet. The Office of the Commander and division offices of the port occupy approximately 24,000 square feet on the lower floor of Wing 3 in the west end of the building. The building houses the offices of our parent command, the Headquarters, MTMCWA. Offices of the port's operating elements and on-base contractors are located in their respective work areas at Wharf 7 and in the warehouses.

Warehouses

There are 7 primary warehouses at the OARB (Buildings 802 through 808), located on the east side of Maritime Street. These are very similar semipermanent structures, each being almost one-fourth mile in length and having 233,640 square feet (except for Building 808 which has 235,040 square feet) of usable hard-surface storage space. The port's Container Freight Branch uses two of these warehouses, Buildings 806 and 808.

Wharves

At present the port has access to Wharves 6½ and 7, located on the Oakland Outer Harbor, devoted solely to breakbulk operations. Wharf 6½ is 945 feet long and consists of 1 berth. Wharf 7 is 1,459 feet long and consists of 2 berths, which are able to accommodate 2 vessels simultaneously. The intransit building at Wharf 7 was built in 1993, and has 79,152 square feet. Outside storage space is provided for approximately 25,000 measurement tons of cargo. An additional storage area for about 10,000 measurement tons is available in the "spit area" for wheeled and tracked vehicles. Entrance to the wharves from the deep water (up to 216 feet) of San Francisco Bay is by means of a ship channel, approximately 800 feet wide, which crosses a shoal southeast of Yerba Buena Island and narrows to 600 feet at the 7th Street Marine Terminal, where a turning basin 35 feet deep is available. The channel widens to 950 feet in the Outer Harbor to the Oakland Army Base. A vessel turning circle 1,030 feet in diameter and 35 feet deep is available opposite Wharf 6½.

Vehicle Processing Center (VPC)

The VPC includes a building of 4,600 square feet where records of privately owned vehicles (POVs) are processed, and a building for motorcycle storage. A substantial POV receiving area is available, which includes a ramp for vanning and devanning vehicles and a transit parking area for 560 POVs.

III. ORGANIZATIONAL ELEMENTS AND FUNCTIONS

OFFICE OF THE COMMANDER

COMMANDER
DEPUTY COMMANDER

Mission: The commander commands the port; reports to the Commander, MTMCWA in carrying out the assigned mission; recommends policy; implements the policies of higher headquarters; and exercises command and control over the 1312th and 1313th Medium Port Commands.

The deputy commander advises and assists the commander in the accomplishment of the assigned mission; acts for the commander in his absence; effects liaison with Headquarters, MTMCWA regarding emergency and mobilization planning; and exercises general supervision over the port under the direction of the commander.

The position of commander requires an Army colonel (O6), and the position of deputy commander requires a Navy commander (O5).

1302ND BRANCH

Mission: To function as the focal point and responsible staff element for administering assigned contracts. This branch is an element of the Contract Administration Division of the Assistant Chief of Staff for Logistics, HQ MTMCWA. The branch is under the daily operational control of the Commander, 1302nd, and is located in the port's office space.

Functions: The Administrative Contracting Officer (ACO) provides advice and assistance to the port commander on procurement and contractual matters, including expertise in contract administration for contracts used in support of the port's mission.

The contracts administered by this officer are firm fixed-price indefinite-delivery type contracts ranging in duration from one to three years. The contracts for stevedoring operations at Bay Area commercial piers, when required, are also in effect for placement of orders and administration by this branch. The portions of port operational requirements performed by contract are (1) stevedoring and allied services for the loading, unloading, and handling of breakbulk cargo; (2) shipwright carpentry services in support of stevedore cargo handling; (3) van stuffing services; (4) refrigerated cargo storage, van stuffing, and draying services; and (5) POV processing.

Contract administration functions are accomplished by the nucleus staff of the branch and responsible personnel assigned to the Cargo Operations Division. The latter personnel are appointed in writing to act as assistants to the Administrative Contracting Officer. These personnel, who perform their duty at the various work sites, are principally involved in monitoring and authenticating contract financial-management documents which are used for contract payment. These functions require personnel to have a detailed working knowledge of contract terms and specifications, a working knowledge of procedural requirements of the Financial Management System criteria and programs, and a working knowledge of inventory control. These functions provide the ACO with the day-to-day input necessary to ensure strict compliance to the expressed terms and conditions of the contract by both the contractor and the government.

ADMINISTRATIVE DIVISION

Mission: To provide administrative services, financial management, planning, and program support to the port.

Functions:

Plans and Programs: Implements programs directed by higher headquarters. Develops and coordinates supporting plans to MTMCWA contingency plans. Operates a Top-Secret communications site. Ensures support for computer programs and equipment. Prepares for and develops responses to audits, inspections, and surveys. Writes, revises, and updates terminal regulations. Prepares review and analysis briefings. Maintains statistics on operations. Presents briefings on port operations to visitors.

Personnel: Coordinates port personnel actions. Maintains manpower records and monitors strength status.

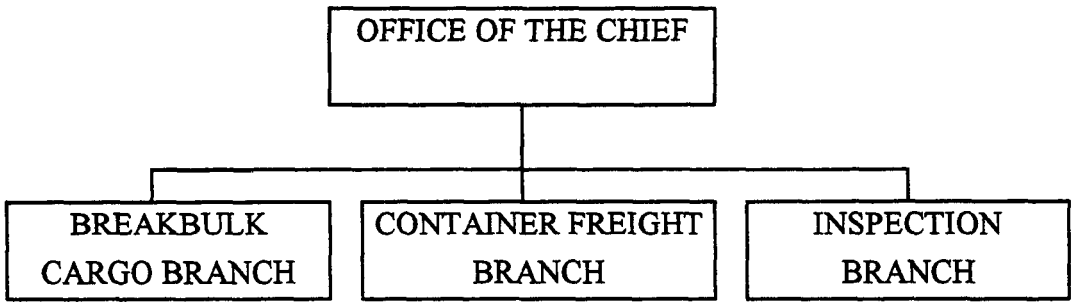
Administrative Support: Maintains a suspense system for the port's correspondence. Controls forms production and distribution. Acts as custodian for classified documents.

Budget Management: Prepares the budget for the port and monitors spending of that budget.

CARGO OPERATIONS DIVISION

Mission: To plan, expedite, and control the flow of DOD-sponsored cargo through the port. Monitor operations performed by contractors within government-owned and commercial facilities. Inspect freight for damage and for compliance with packaging instructions.

Organization:



The chief of the division reports to the port commander and directs operation of the division primarily through the Chiefs of the Breakbulk Cargo Branch, Container Freight Branch, and Inspection Branch. The branches are responsible for the processing and physical handling of all cargo moving through the port. The office of the division chief also monitors the POV contractor.

Breakbulk Cargo Branch

Located at Wharf 7, the branch is responsible for handling DOD cargo that is not containerizable. The stevedore and related terminal functions are performed by a combination of stevedore, shipwright carpentry, and equipment contractors, augmented by civil service MHE operators, in accordance with provisions delineated in the contracts and union agreements. Cargoes handled include various heavy-lift and oversized commodities, plus general miscellaneous cargo, such as steel, lumber, and hazardous materials. The stevedore contractor assumes control of all cargo received at the terminal and is responsible for its movement and documentation. Export cargo is received, documented, and staged according to destination and classification. Cargo arrives by several transportation modes: ship, truck, barge, and rail car.

Cargo destined for mid-Pacific ports comprises the major tonnage handled at the breakbulk wharves. This cargo is generally booked to government-chartered MSC-controlled ships. The government provides all documentation necessary for movement of cargo, which includes manifests, stow plans, consists, and cargo-release information. The contractor is then responsible for preparing load lists, hazardous-cargo lists, cargo-status reports, and final stow plans.

The government also provides all lashing gear, while lumber is furnished through the shipwright carpentry contractor.

Import cargo is discharged from vessels and processed basically in reverse of the export procedures. Inbound cargo is comprised largely of items returning from overseas, destined for inland CONUS facilities.

The port has berthing capabilities for two ships at Wharf 7 and one ship at Wharf 6½. Ships are normally worked by longshoremen in one shift per day, from 0800 to 1700.

The stevedore contractor provides all cargo-handling equipment except for heavy-lift equipment, and that used to discharge or load commercial trucks. The government provides a truck-mounted crane and a rail-mounted gantry crane operated by a separate contractor (monitored by the OARB Garrison) to supplement cargo-handling equipment used by the stevedore contractor. The government also owns various MHE operated by civil servants who load or unload commercial trucks. An average of five shifts are worked for export cargo on a vessel and four shifts for import cargo.

Container Freight Branch

The Chief, Container Freight Branch is located in Building 808, and freight operations are conducted in Buildings 808 and 806. Each warehouse contains approximately 234,000 square feet of covered storage and is serviced by both truck and rail.

The Container Freight Branch is responsible for expediting the movement of DOD containerizable freight through the port, for monitoring operations performed by contractors within government-owned and commercial facilities, and to plan and manage freight and container shipments.

The branch controls and provides escort services for all sensitive cargo transiting this port and commercial terminals in the San Francisco Bay area. The contract operation in the Container Freight Branch relies on the private sector for the stuffing and movement of containers. Civil servants perform quality-assurance evaluations, and monitor contractor operations in order to maintain a visible audit trail of government assets.

The export operation uses two contractors. The warehouse contractor performs dry-cargo container stuffing operations on the Oakland Army Base in Building 808. The second contractor performs chill and freeze container-stuffing operations at its own cold-storage facility in South San Francisco. Operations include cargo destined for all ports except Hawaii, which is handled under a tariff with another cold-storage contractor.

The Container Freight Branch monitors contractor activities which include receiving, staging, loading, and documenting. Both the dry and reefer contractors are supported in the cargo offering and bookings by civil servants. All container bookings from the Container Freight Branch are moved through HQ MTMCWA. Container movements from origin to carrier facilities are monitored via a continuous audit trail. Surveillance of cargo transiting the Container Freight Branch is accomplished primarily by continuously monitoring the automated inventory reports. These reports are used to verify the status of cargo on hand. Items which are not located and were not manifested are investigated. If they are not located, claims action is initiated.

All cargo arriving at the Container Freight Branch must be prelodged 48 hours in advance. Prelodging involves both receipt of advance documentation and the preparation of receipt documentation.

The import container operation in Building 806 is run by civil servants. (A commercial-activities study determined that the government could operate this function at lower cost than a contractor.) It handles household goods (HHG) and baggage and a small amount of freight being returned to depots and vendors. The largest portion of incoming cargo is devanned at Building 806. The other material arrives by truck either from commercial facilities or from our wharves.

The Military Standard Transportation and Movement Procedures (MILSTAMP), using the seven-part Transportation Control and Movement Document (TCMD), provides the basis for all documentation in the Container Freight Branch including the container documentation for loading, manifesting, and movement to carriers' facilities. The TCMD provides the basis for the audit trail and total automated documentation system to include billing for all cargo-handling services.

The Container Freight Branch maintains intensive management of personal property to include coordination of movement and lift of HHG and unaccompanied baggage.

Inspection Branch

This branch inspects cargo at our wharves and warehouses for damage, insufficient markings, and/or packaging. Reporting of damaged cargo is completed and arrangements are provided for repair. Freight inspectors visit carrier terminals and commercial piers in the San Francisco Bay area for unidentified, frustrated, or astray government cargo, and initiate necessary action for onward movement of this cargo.

Vehicle Processing Center

The VPC is operated by a contractor monitored by a civil servant, and is responsible for providing all services for the authorized movement of privately owned vehicles, amounting to approximately 7,000 yearly. Both military and certain government civilian personnel are provided the services of the facility for shipment or handling of their POVs. Operations performed include receiving, counseling, documenting, inspecting, processing, delivery, vanning, devanning, booking, and explaining entitlements in accordance with existing regulations. This is a highly visible operation which requires close coordination and personal contact with customers.

Members delivering vehicles to the export receiving section are counseled on requirements for shipping their vehicles and given an estimated time for arrival at destination. Following the documentation phase of POV turn-in, the vehicle is inspected in the presence of the owner or agent and then placed in the storage lot pending movement. All transactions relating to a POV's receipt are put into an automated system to establish an on-hand inventory.

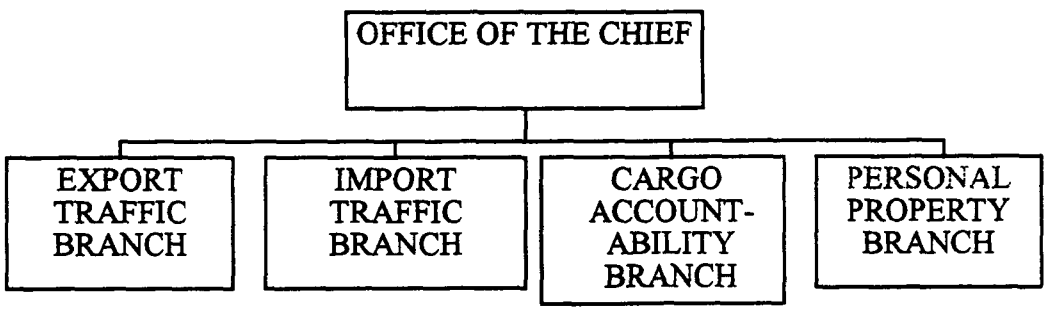
Import POVs arrive by ship, truck, or rail and are processed and stored in the lot until released to the owner or agent. The status of these POVs is tracked by use of various automated reports. Each import vehicle is visually inspected and serviced when received or devanned. Servicing includes reconnecting battery terminals and providing two gallons of gasoline. Each vehicle arriving from overseas requires customs and agricultural clearance prior to release.

Approximately one-third of the export POVs that are received are loaded onto car carriers for subsequent movement through east coast ship-loading ports. About one-third are delivered loose to the commercial shipping lines and the other third are containerized by the POV contractor to go to ports in the Far East.

TRAFFIC MANAGEMENT DIVISION

Mission: To provide traffic management services; control and expedite movement of freight into and out of the port by rail and truck; and coordinate intraport movement of rail cars and trucks. Provide transportation data and documentation for control and port clearance of export and import cargo. Process cargo documents in accordance with MILSTAMP and other applicable regulations. Provide movement and nontemporary storage of personal property shipments. Prepare Transportation Discrepancy Reports (TDRs) and process claims. Conduct the command's cargo data analysis and cargo accountability programs.

Organization:



Export Traffic Branch

The branch accomplishes all documentation transactions prior to the actual receipt of export cargo, to include obtaining prelodge documents, scheduling deliveries, and entering transceived advance data into the Terminal Management System (TERMS). This branch also codes export manifests, controls truck passes, directs the spotting of rail cars, and monitors rail-car free time. It enters data through computer terminals to reflect receipts, transfers, diversions, consolidations, and lifts of cargo transiting northern California ports. It prepares manifest adjustments and supplements when required and ensures input for generation of ocean cargo manifests. It prepares cargo traffic messages and maintains files for export ocean shipments.

Prelodge system: All cargo arriving at the port for export must be prelodged 48 hours in advance. Prelodging involves both the receipt of advance documentation from the carrier and scheduling a delivery appointment. This system allows for more preparation of cargo receipt documents, the planned disposition of a truck or rail car to the Container Freight Branch for vanning or to the wharf for breakbulk cargo, and advance workload notification for the contractor's labor force.

TCMDs: The basic document used by the port to control cargo is the TCMD, in seven parts. Following prelodge, TCMDs are produced and provided to the receiving contractors prior to actual delivery of cargo. The TCMD serves as a record of receipt, contractor file copy, consolidation documentation, transfer action (when required), contractor billing to the government, and operating unit's file copy. The TCMD is computer printed and provides a basis for the audit trail.

Manifests: Manifesting provides overseas ports with the necessary information to clear customs and move the cargo to the receiving activity. The manifest is also used as a basis of billing for the ocean carrier.

Import Traffic Branch

The Import Traffic Branch provides management of berth-term shipments of general cargo, personal property, and POVs, to include movement of import, export, and intercoastal cargo through commercial terminals to CONUS and worldwide destinations.

The branch receives overseas manifests, assembles the documents required for processing import cargo, and secures disposition instructions. The branch receives cargo traffic messages for ports of embarkation, maintains import vessel files, and corrects import manifests when required.

This branch also provides proper consular documentation and Government Bills of Lading (GBLs) for berth-term export shipments and ensures that correct ocean bills of lading and commercial invoices meet the standards of the particular destination foreign country.

Customs clearance: Military customs brokers arrange for customs clearance for import cargo by securing and furnishing necessary documents. Daily liaison is maintained with steamship, airline, and railroad companies on movements of military cargo. Effective coordination is also maintained with U.S. Customs and the Department of Agriculture to ensure expedited movement of DOD cargo through commercial and military ports in northern California.

Special action requests: The Import Traffic Branch frequently answers requests for air and surface diversions, expediting, remarking, or repacking of shipments, as well as requests to analyze the required action and obtain computer updates for status of frustrated shipments.

Rating and routing: The branch classifies, rates, and routes imported freight weighing less than 10,000 pounds when it is shipped to inland destinations. The branch uses rates and routes obtained from HQ MTMCWA when shipping imported freight weighing 10,000 pounds or more. The branch issues GBLs for inland moves.

Cargo Accountability Branch

This branch develops and maintains quality-assurance procedures for analysis of documentation performance and computer output. Through the use of data-systems analysis, aged cargo shipments are identified and causes of aging are determined.

The branch is responsible for administering the Cargo Outturn Reporting System (CORS), as outlined in Army Regulation 55-38. This branch controls all CORS messages and processes all Transportation Discrepancy Report requirements.

The branch also implements our Terminal Inventory Discrepancy (TID) Program. The TID program is designed to trace shipments whose accountability has been lost, and generate claims to recover the cost of the loss. The program also serves as a management tool revealing recurring operational problems which need correction. Branch personnel also research shipments and generate tracer action for DOD customer and shipper service representatives.

Personal Property Branch

Branch personnel coordinate the receipt and shipment of personal property, and assist transient military and civilian personnel and dependents with their personal property shipments. The branch directs the receipt and transfer of personal property into commercial warehouses in the Bay area for nontemporary storage and initiates the pick up of personal property upon completion of storage requirements. The branch also processes import household goods shipments received with instructions to hold for storage in transit, intensively manages those shipments, informs the service member, and obtains shipping instructions to expedite delivery to destination.

IV. KEY TERMINAL FACTS

Breakbulk wharf area:

Wharf 7 will accommodate two vessels, one at Berth 7 East and one at Berth 7 West. Wharf 6½ can accommodate one vessel. Water depth at these wharves is maintained at 35 feet. This depth extends to the Federal Project Channel line. Tidal range of mean lower low water: 0.00 feet; mean higher high water: 6.10 feet. A removable bullrail is installed at Wharf 7 East to accommodate stern-loading roll-on/roll-off (RORO) vessels with a starboard slewing ramp. Side-ramp loading is also available, depending on tide changes and ramp heights.

Port Berth Characteristics

Berth	*Length (Feet)*	*Width (Feet)*	*Hotel Facilities*
7East	729	43.5	Fresh water, sewage, & 4 phone jacks
7West	729	210.5	Fresh water, sewage, & 3 phone jacks
6 ½	945	83 (max.)	Fresh water

Transit Shed, Wharf 7: 79,152 square feet, built in 1993. Outside storage area: 575,410 square feet (13.3 acres). Overflow storage is available in the spit area for wheeled or tracked vehicles: 450,000 square feet (10.4 acres).

A gantry crane is mounted on tracks at the Wharf 7 apron. Its capacity is 100 tons. Two rail tracks are available on the Wharf 7 apron including a switch. We can load or unload 44 rail cars at 2 spurs at this wharf. Six sidings are available in adjacent marginal yards.

Warehouse area:

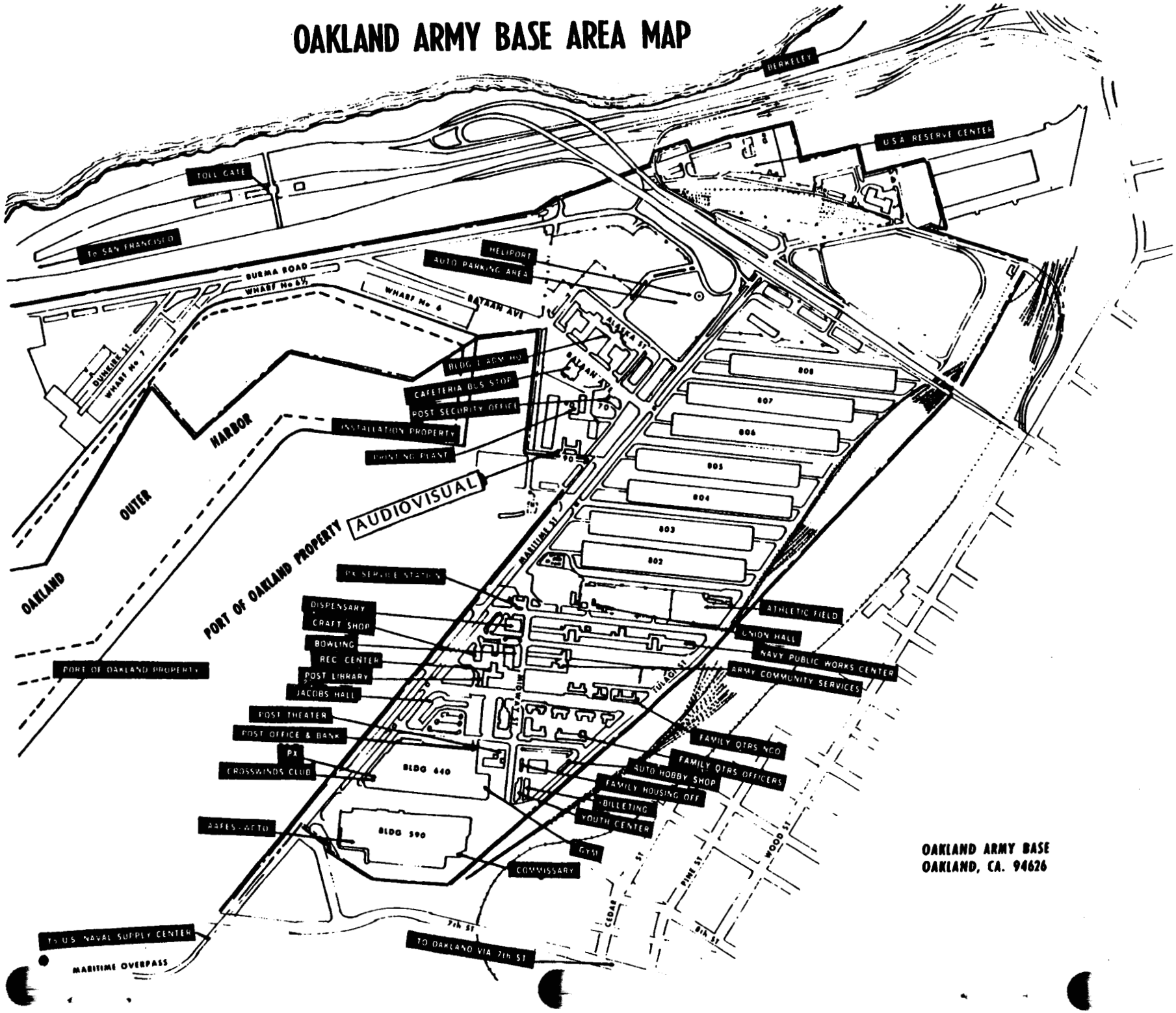
Building 808: 235,040 square feet of semipermanent hard surface, which also includes office areas for the Chief, Container Freight Branch and the warehouse contractor.

Building 806: 233,640 square feet, hard surface, semipermanent.

Rail trackage for the base is 26.43 miles long, and is available at all warehouses. These warehouses have a total of 3 rail loading sites, with a total capacity of 23 cars. Our operations feature intermodal capability. Loading and discharge docks are available at all warehouses, including drive through.

VPC: Building S-4 is a 4,600-square-foot semipermanent structure where administrative processing of POVs occurs. Vehicle storage consists of 7.2 improved acres capable of holding 560 vehicles; a 1,360-square-foot metal building for storage of motorcycles or open-top automobiles; and a 130,525-square-foot overflow area. A wash rack is present, and a container loading ramp accommodates three vans for simultaneous loading and unloading.

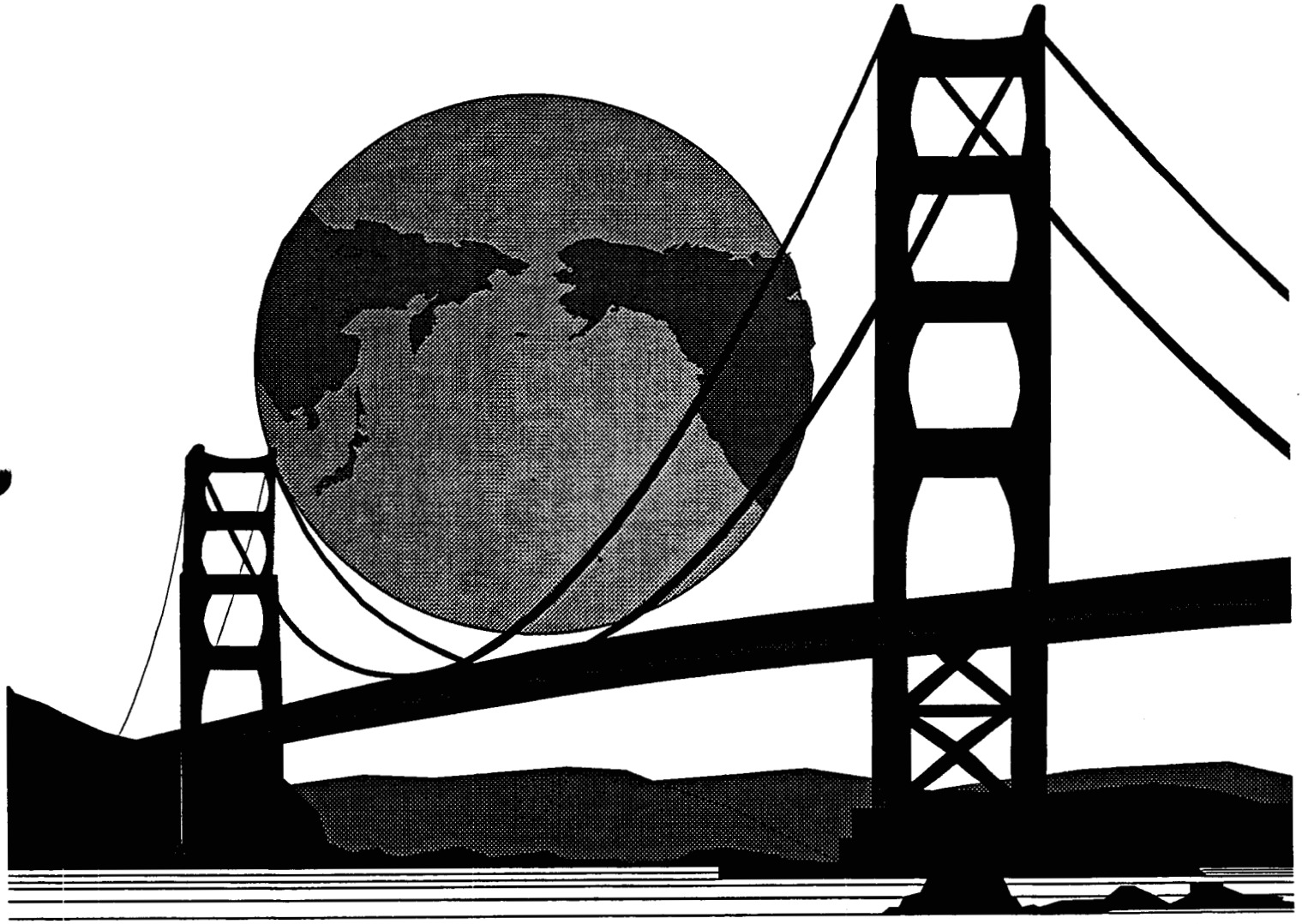
OAKLAND ARMY BASE AREA MAP



OAKLAND ARMY BASE
OAKLAND, CA. 94626

Document Separator

1302nd Major Port Command



WE SPAN THE GLOBE

PREFACE

October 1, 1994

This brochure provides a basic understanding of the 1302nd Major Port Command, Oakland Army Base, Oakland, California, in carrying out the mission of the Military Traffic Management Command in northern California.

The mission of the 1302nd Major Port Command (hereafter called the port) is to plan for and accomplish the expeditious movement of cargo sponsored by the Department of Defense (DOD) which moves through northern California terminals within the movement programs assigned by the Military Traffic Management Command Western Area (MTMCWA).

The 1302nd serves as a power-projection platform, allowing units of the armed forces based in the continental United States (CONUS) to be rapidly deployed overseas during a contingency. This capability becomes more essential as an ever-increasing proportion of the armed forces are stationed in the CONUS in peacetime. The 1302nd is a vital segment in the transportation system which ensures that combat power gets to its place of business in the Pacific Ocean basin.

J. Douglas Foye
Colonel, U.S. Army
Commanding Officer

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I. A BRIEF HISTORY OF THE 1302ND MAJOR PORT COMMAND

The 1302nd Major Port Command can trace its lineage in the San Francisco Bay Area to the late 1890s, when the Army Transport Service began loading supplies for military outposts overseas at a single San Francisco pier along the historic Embarcadero waterfront. In the succeeding years there has been an uninterrupted military ocean terminal presence in the San Francisco-Oakland Area and, although this organization has changed its name, structure, and even its location many times over the years, we still accomplish the same mission as did our military ancestors when they loaded and discharged the stately clipper ships that sailed to and from the far ends of the globe.

In 1911 the Army recognized the need to have its own pier facilities and decided to take advantage of its waterfront location at Fort Mason, an installation which had previously been used as a coastal artillery battery site supplementing the Presidio of San Francisco. Between 1911 and the end of 1912, three finger piers were completed accommodating four vessels; and for the next 30 years, troop transports and supply ships sailed to and from this terminal installation known as the San Francisco Port of Embarkation. The First World War had little impact on the expansion of West Coast military facilities, but by the late 1930s, with the clouds of war again gathering in Europe and the deterioration of diplomatic relations with Japan, it became apparent that Fort Mason, with its three small piers, would be grossly insufficient to feed a transoceanic supply line, particularly in time of hostilities.

The outbreak of war in Europe and the strengthening of our installations in the Pacific quickly confirmed the inadequacy of the Fort Mason facility, and a crash program was initiated to find and develop additional waterfront acreage. Because the San Francisco waterfront was already congested with commercial shipping, it was decided to seek an area across the Bay in the then still-underdeveloped Oakland Outer Harbor. The first land was acquired by the War Department in January 1941, but it was not until June 1941 that actual construction began on the installation and pier facilities now known as the Oakland Army Base. Although June 1942 was the original target date for completion of this massive project, the attack on Pearl Harbor on December 7th, 1941 greatly accelerated construction efforts and by early 1942 Piers 4 and 5 were finished and in operation. By the end of the war, the Army Base had berthing facilities for 16 vessels and was able to handle up to 100 rail cars of cargo at one time.

During the years following World War II, the Oakland Army Base experienced a large post-war reduction in personnel and mission requirements. This was followed by a rapid buildup in 1950 in support of the Korean War. During this same period (1955) our name changed from Oakland Army Base to Oakland Army Terminal, under the command of the U.S. Army Transportation Terminal Command, Pacific. Shortly thereafter, this Headquarters was renamed again as the U.S. Army Transportation Terminal Command, Bay Area, with the Oakland Army Terminal as a subordinate command.

From the end of the Korean War until early 1964, the Oakland Army Base and its terminal activity underwent repeated changes in names. On July 1, 1964, a new organizational concept was adopted merging all cargo operations in the San Francisco Bay Area into a jointly staffed unit commanded by the Commanding General of the U.S. Army Terminal Command, Pacific. This organization was known as the Joint Army-Navy Ocean Terminal, or JANOT. The transformation was continued on July 1, 1965, when JANOT was redesignated as MOTBA, the Military Ocean Terminal, Bay Area. This designation remained until January 1, 1993, when the name was changed to the 1302nd Major Port Command.

From 1965 until 1975 the port's strength reacted to our country's support of the conflict in Southeast Asia. During the peak of this operation, in fiscal year 1968, over 12 million measurement tons of cargo were handled by MOTBA, and 2,904 civilian employees were assigned to the Oakland Army Base and MOTBA combined. The Persian Gulf War caused a smaller increase in cargo moved to and returned from Southwest Asia from late 1990 to 1992.

Today our tonnage throughput and the number of personnel assigned to the port are a far cry from the peak years of World War II. We can, however, look back with pride not only to our personal performance, but also to the outstanding and lasting accomplishments of our organization since we were founded in the late 1800s. Few, if any, military ports have our long and honorable history; fewer still have served with such distinction. We can look forward to the future knowing that today we accomplish a continuing and vital DOD mission, and stand ready as a highly professional cadre to serve tomorrow's mission with distinction.

PAST COMMANDERS

COL Terry A. Yon, USA	27 Jun 91 - 31 May 93
COL John E. Sims, USA	21 Jul 89 - 26 Jun 91
COL Juan R. Lopez, USA	7 Jul 88 - 30 Jun 89
COL John R. Manley, USA	11 Jul 86 - 6 Jul 88
COL Walter J. Jankowski, USA	13 Jul 84 - 10 Jul 86
COL Edward I. Hickey, Jr., USA	14 Jul 82 - 12 Jul 84
COL Richard W. Bergson, USA	19 Oct 79 - 14 Jul 82
COL George E. Pitts, USA	15 Mar 78 - 18 Oct 79
COL Jimmy D. Ross, USA	1 Apr 76 - 14 Mar 78
COL Bernard J. Conroy, USA	9 Jul 74 - 31 Mar 76
COL Clinton M. Hanks, USA	23 Jun 73 - 8 Jul 74
CAPT Elton A. Geneste, Jr., USN	1 Nov 72 - 22 Jun 73
CAPT Jack M. Park, USN	29 Apr 71 - 31 Oct 72
LTC Francis E. Scanlan, USA	28 Mar 71 - 28 Apr 71
CAPT Jackson L. Schultz, USN	23 Jul 70 - 27 Mar 71
COL Jack S. Tabb, USA	1 Aug 69 - 23 Jul 70
COL Herbert B. Erb, USA	1 Jul 68 - 31 Jul 69
CAPT John Vinn, Jr., USN	1 Jun 65 - 30 Jun 68
BG Raymond C. Conroy, USA	1 Jul 64 - 31 May 65

II. PORT OVERVIEW

MISSION INFORMATION

Mission:

The 1302nd Major Port Command is responsible for the expeditious movement of DOD-sponsored cargo moving through northern California commercial and government ocean terminals. The port must meet military needs in peace and war with emphasis on service and economy. The 1302nd is an important segment in the transportation system which enables military forces stationed in the CONUS to rapidly move to regions overseas during a war or other crisis. It is referred to as a "power-projection platform," enabling the United States to meet commitments swiftly and with force adequate to the varied needs of a global power. The 1302nd also commands and controls the 1312th Medium Port Command in Compton, California, and the 1313th Medium Port Command in Seattle, Washington, including its Alaska Detachment.

General:

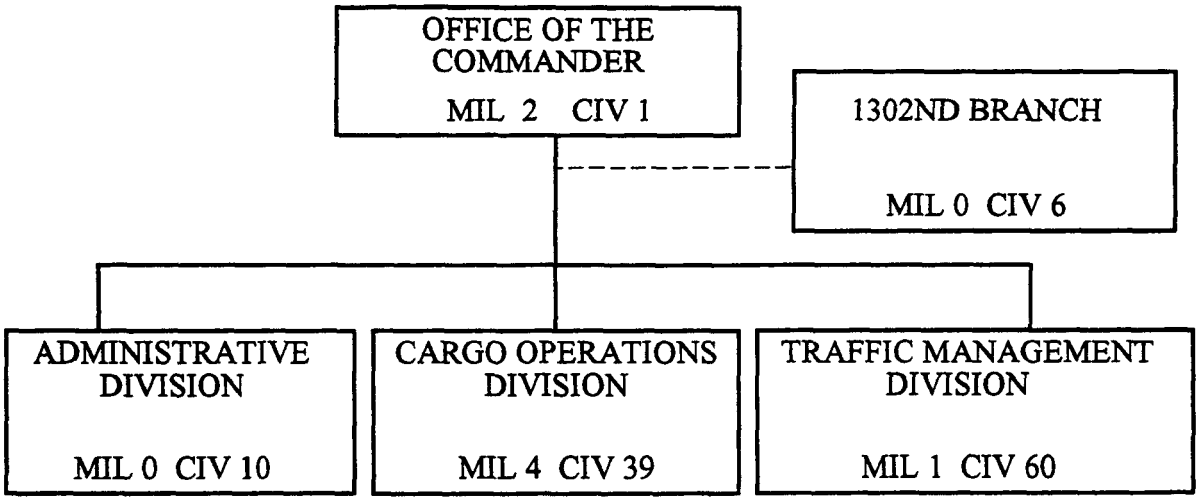
The port is the largest of three port commands on the West Coast under the Headquarters, MTMCWA. Its mission is accomplished on government-owned real estate, with government-owned fixed property and cargo-handling equipment. The two other port commands on the West Coast, the 1312th and 1313th Medium Port Commands, are located on facilities leased from commercial sources.

GEOGRAPHICAL AREA OF OPERATIONS

Each of the three West Coast port commands under MTMCWA has its geographical area of operation. The 1302nd Major Port Command, which is located at Oakland, California, handles DOD cargo moving through northern California, its area extending from the California-Oregon border in the north to just below Monterey in the south. Oregon and Washington belong to the 1313th Medium Port Command; and the southern California area from south of Monterey to the Mexican border belongs to the 1312th Medium Port Command.

There is no single rule governing which of the three port areas should be used for any given shipment. The determination is usually based on economy and other traffic management considerations such as user priority, proximity to the port, pier storage area, materials-handling equipment (MHE), required delivery date, and vessel availability. In some cases, fragility of cargo might be a consideration where over-the-road movement must be minimized, such as for delicate electronics equipment. Also, because of the large-volume vanning capability and frequency of service at the 1302nd Major Port Command, less-than-van-load shipments can often be sent here for consolidation with other cargo, resulting in greater economy and faster service. Our port is involved in processing over half of all the DOD cargo that exits from the West Coast.

ORGANIZATION



Effective 1 November 1994, the port was assigned the required strength shown above.

As a preview to the more detailed descriptions of our organizational elements which will follow, we can summarize the duties of each division. The 1302nd Branch is under the operational control of the port commander, but is organizationally on the Table of Distribution and Allowances of HQ MTMCWA; it manages our relations with contractors. The Administrative Division fills both an administrative and a budgetary role, which includes the handling of the Defense Business Operations Fund expense budget. The Cargo Operations Division has the responsibility for physically handling our cargo; and while one of its functions (import container receiving) is performed by a civil-service work force, its major role involves directing and monitoring the activities of our five contractors. The Traffic Management Division performs the traffic management function and handles our documentation, maintaining in-transit visibility of cargo moving through the port.

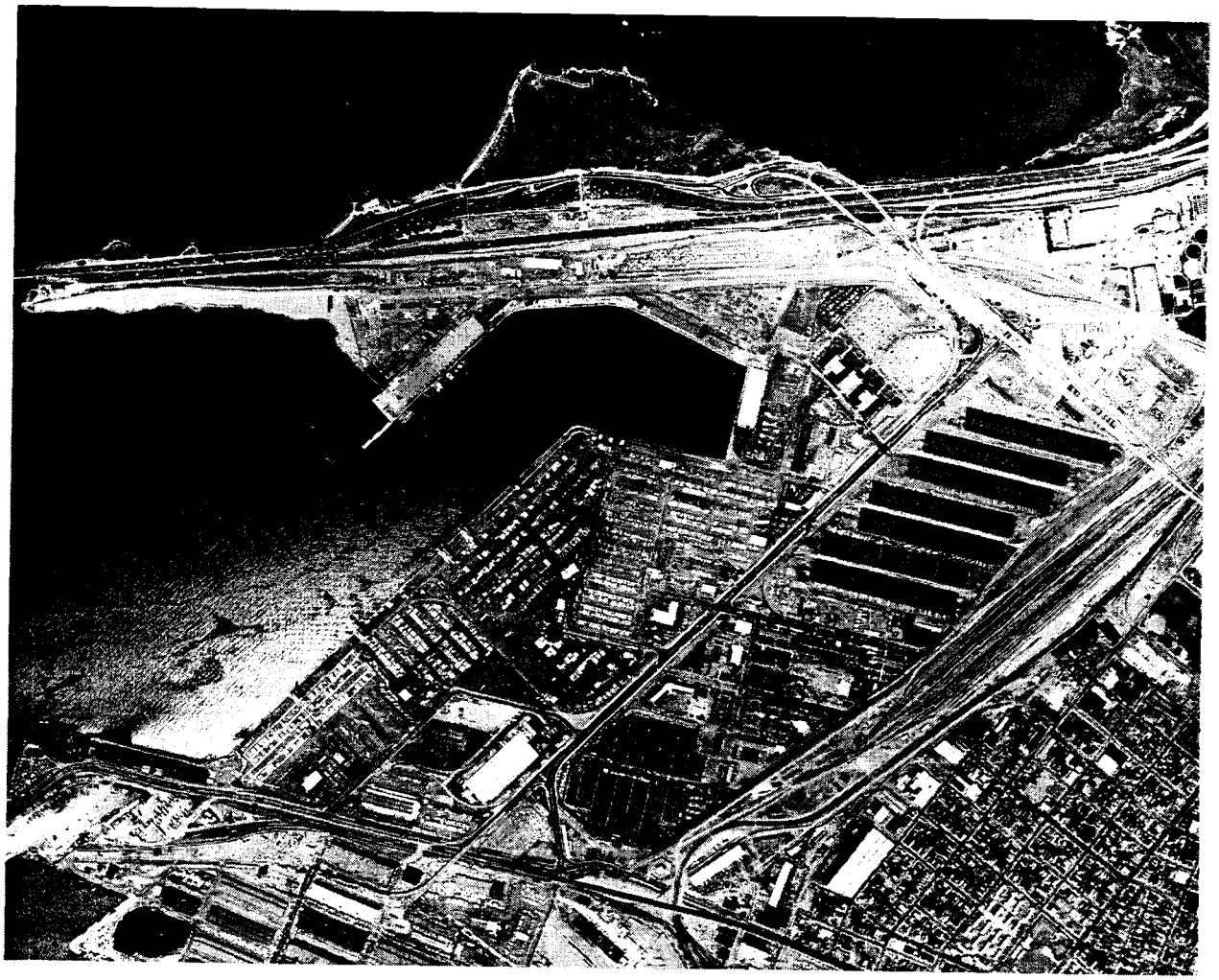
PERSONNEL

The port is a jointly staffed, business-funded activity, and currently requires 7 military personnel and 110 civil servants. Civilian personnel support is obtained from HQ MTMCWA on such matters as recruitment, position and pay management, training and development, and management-employee relations. An average of 140 contractor personnel are used monthly, of which the majority are engaged in stevedore activities and in container stuffing.

MANNING

The port is organized under Table of Distribution and Allowances MTW1M4AA and is staffed based on manpower surveys, using appropriate historical workloads.

FACILITIES



AERIAL VIEW OF THE OAKLAND ARMY BASE

This aerial view of the Oakland Army Base (OARB) and its surrounding area is a fitting preliminary for a description of the facilities, for it quickly reveals the logistical potential of our port located on San Francisco Bay, site of one of the world's largest transportation centers. Interstate highways come in from all directions, making the port highly accessible to the trucks that visit it daily. Three major rail lines also have ready access to the Oakland Army Base: the Atchison, Topeka and Santa Fe, the Union Pacific, and the Southern Pacific Railroads. The port has two rail classification yards; these are the Baldwin Yard and the Knight Yard. The port has a total of 26.43 miles of trackage which includes rail service to the wharves and warehouses.

The preceding history of the port notes that the Oakland Army Base was built largely from 1941 to 1943. Most of our fixed property dates from that period, except for the transit building at Wharf 7, which was completed in 1993.

Administrative Offices

Gilbreath Hall is a permanent two-story administrative building of 161,983 square feet. The Office of the Commander and division offices of the port occupy approximately 24,000 square feet on the lower floor of Wing 3 in the west end of the building. The building houses the offices of our parent command, the Headquarters, MTMCWA. Offices of the port's operating elements and on-base contractors are located in their respective work areas at Wharf 7 and in the warehouses.

Warehouses

There are 7 primary warehouses at the OARB (Buildings 802 through 808), located on the east side of Maritime Street. These are very similar semipermanent structures, each being almost one-fourth mile in length and having 233,640 square feet (except for Building 808 which has 235,040 square feet) of usable hard-surface storage space. The port's Container Freight Branch uses two of these warehouses, Buildings 806 and 808.

Wharves

At present the port has access to Wharves 6½ and 7, located on the Oakland Outer Harbor, devoted solely to breakbulk operations. Wharf 6½ is 945 feet long and consists of 1 berth. Wharf 7 is 1,459 feet long and consists of 2 berths, which are able to accommodate 2 vessels simultaneously. The intransit building at Wharf 7 was built in 1993, and has 79,152 square feet. Outside storage space is provided for approximately 25,000 measurement tons of cargo. An additional storage area for about 10,000 measurement tons is available in the "spit area" for wheeled and tracked vehicles. Entrance to the wharves from the deep water (up to 216 feet) of San Francisco Bay is by means of a ship channel, approximately 800 feet wide, which crosses a shoal southeast of Yerba Buena Island and narrows to 600 feet at the 7th Street Marine Terminal, where a turning basin 35 feet deep is available. The channel widens to 950 feet in the Outer Harbor to the Oakland Army Base. A vessel turning circle 1,030 feet in diameter and 35 feet deep is available opposite Wharf 6½.

Vehicle Processing Center (VPC)

The VPC includes a building of 4,600 square feet where records of privately owned vehicles (POVs) are processed, and a building for motorcycle storage. A substantial POV receiving area is available, which includes a ramp for vanning and devanning vehicles and a transit parking area for 560 POVs.

III. ORGANIZATIONAL ELEMENTS AND FUNCTIONS

OFFICE OF THE COMMANDER

COMMANDER
DEPUTY COMMANDER

Mission: The commander commands the port; reports to the Commander, MTMCWA in carrying out the assigned mission; recommends policy; implements the policies of higher headquarters; and exercises command and control over the 1312th and 1313th Medium Port Commands.

The deputy commander advises and assists the commander in the accomplishment of the assigned mission; acts for the commander in his absence; effects liaison with Headquarters, MTMCWA regarding emergency and mobilization planning; and exercises general supervision over the port under the direction of the commander.

The position of commander requires an Army colonel (O6), and the position of deputy commander requires a Navy commander (O5).

1302ND BRANCH

Mission: To function as the focal point and responsible staff element for administering assigned contracts. This branch is an element of the Contract Administration Division of the Assistant Chief of Staff for Logistics, HQ MTMCWA. The branch is under the daily operational control of the Commander, 1302nd, and is located in the port's office space.

Functions: The Administrative Contracting Officer (ACO) provides advice and assistance to the port commander on procurement and contractual matters, including expertise in contract administration for contracts used in support of the port's mission.

The contracts administered by this officer are firm fixed-price indefinite-delivery type contracts ranging in duration from one to three years. The contracts for stevedoring operations at Bay Area commercial piers, when required, are also in effect for placement of orders and administration by this branch. The portions of port operational requirements performed by contract are (1) stevedoring and allied services for the loading, unloading, and handling of breakbulk cargo; (2) shipwright carpentry services in support of stevedore cargo handling; (3) van stuffing services; (4) refrigerated cargo storage, van stuffing, and draying services; and (5) POV processing.

Contract administration functions are accomplished by the nucleus staff of the branch and responsible personnel assigned to the Cargo Operations Division. The latter personnel are appointed in writing to act as assistants to the Administrative Contracting Officer. These personnel, who perform their duty at the various work sites, are principally involved in monitoring and authenticating contract financial-management documents which are used for contract payment. These functions require personnel to have a detailed working knowledge of contract terms and specifications, a working knowledge of procedural requirements of the Financial Management System criteria and programs, and a working knowledge of inventory control. These functions provide the ACO with the day-to-day input necessary to ensure strict compliance to the expressed terms and conditions of the contract by both the contractor and the government.

ADMINISTRATIVE DIVISION

Mission: To provide administrative services, financial management, planning, and program support to the port.

Functions:

Plans and Programs: Implements programs directed by higher headquarters. Develops and coordinates supporting plans to MTMCWA contingency plans. Operates a Top-Secret communications site. Ensures support for computer programs and equipment. Prepares for and develops responses to audits, inspections, and surveys. Writes, revises, and updates terminal regulations. Prepares review and analysis briefings. Maintains statistics on operations. Presents briefings on port operations to visitors.

Personnel: Coordinates port personnel actions. Maintains manpower records and monitors strength status.

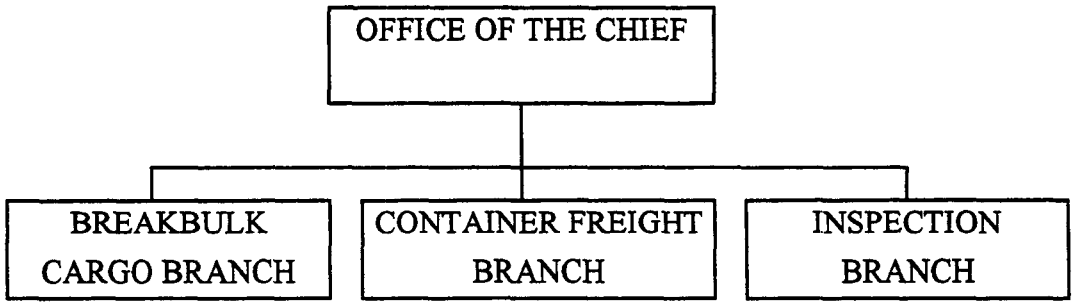
Administrative Support: Maintains a suspense system for the port's correspondence. Controls forms production and distribution. Acts as custodian for classified documents.

Budget Management: Prepares the budget for the port and monitors spending of that budget.

CARGO OPERATIONS DIVISION

Mission: To plan, expedite, and control the flow of DOD-sponsored cargo through the port. Monitor operations performed by contractors within government-owned and commercial facilities. Inspect freight for damage and for compliance with packaging instructions.

Organization:



The chief of the division reports to the port commander and directs operation of the division primarily through the Chiefs of the Breakbulk Cargo Branch, Container Freight Branch, and Inspection Branch. The branches are responsible for the processing and physical handling of all cargo moving through the port. The office of the division chief also monitors the POV contractor.

Breakbulk Cargo Branch

Located at Wharf 7, the branch is responsible for handling DOD cargo that is not containerizable. The stevedore and related terminal functions are performed by a combination of stevedore, shipwright carpentry, and equipment contractors, augmented by civil service MHE operators, in accordance with provisions delineated in the contracts and union agreements. Cargoes handled include various heavy-lift and oversized commodities, plus general miscellaneous cargo, such as steel, lumber, and hazardous materials. The stevedore contractor assumes control of all cargo received at the terminal and is responsible for its movement and documentation. Export cargo is received, documented, and staged according to destination and classification. Cargo arrives by several transportation modes: ship, truck, barge, and rail car.

Cargo destined for mid-Pacific ports comprises the major tonnage handled at the breakbulk wharves. This cargo is generally booked to government-chartered MSC-controlled ships. The government provides all documentation necessary for movement of cargo, which includes manifests, stow plans, consists, and cargo-release information. The contractor is then responsible for preparing load lists, hazardous-cargo lists, cargo-status reports, and final stow plans.

The government also provides all lashing gear, while lumber is furnished through the shipwright carpentry contractor.

Import cargo is discharged from vessels and processed basically in reverse of the export procedures. Inbound cargo is comprised largely of items returning from overseas, destined for inland CONUS facilities.

The port has berthing capabilities for two ships at Wharf 7 and one ship at Wharf 6½. Ships are normally worked by longshoremen in one shift per day, from 0800 to 1700.

The stevedore contractor provides all cargo-handling equipment except for heavy-lift equipment, and that used to discharge or load commercial trucks. The government provides a truck-mounted crane and a rail-mounted gantry crane operated by a separate contractor (monitored by the OARB Garrison) to supplement cargo-handling equipment used by the stevedore contractor. The government also owns various MHE operated by civil servants who load or unload commercial trucks. An average of five shifts are worked for export cargo on a vessel and four shifts for import cargo.

Container Freight Branch

The Chief, Container Freight Branch is located in Building 808, and freight operations are conducted in Buildings 808 and 806. Each warehouse contains approximately 234,000 square feet of covered storage and is serviced by both truck and rail.

The Container Freight Branch is responsible for expediting the movement of DOD containerizable freight through the port, for monitoring operations performed by contractors within government-owned and commercial facilities, and to plan and manage freight and container shipments.

The branch controls and provides escort services for all sensitive cargo transiting this port and commercial terminals in the San Francisco Bay area. The contract operation in the Container Freight Branch relies on the private sector for the stuffing and movement of containers. Civil servants perform quality-assurance evaluations, and monitor contractor operations in order to maintain a visible audit trail of government assets.

The export operation uses two contractors. The warehouse contractor performs dry-cargo container stuffing operations on the Oakland Army Base in Building 808. The second contractor performs chill and freeze container-stuffing operations at its own cold-storage facility in South San Francisco. Operations include cargo destined for all ports except Hawaii, which is handled under a tariff with another cold-storage contractor.

The Container Freight Branch monitors contractor activities which include receiving, staging, loading, and documenting. Both the dry and reefer contractors are supported in the cargo offering and bookings by civil servants. All container bookings from the Container Freight Branch are moved through HQ MTMCWA. Container movements from origin to carrier facilities are monitored via a continuous audit trail. Surveillance of cargo transiting the Container Freight Branch is accomplished primarily by continuously monitoring the automated inventory reports. These reports are used to verify the status of cargo on hand. Items which are not located and were not manifested are investigated. If they are not located, claims action is initiated.

All cargo arriving at the Container Freight Branch must be prelodged 48 hours in advance. Prelodging involves both receipt of advance documentation and the preparation of receipt documentation.

The import container operation in Building 806 is run by civil servants. (A commercial-activities study determined that the government could operate this function at lower cost than a contractor.) It handles household goods (HHG) and baggage and a small amount of freight being returned to depots and vendors. The largest portion of incoming cargo is devanned at Building 806. The other material arrives by truck either from commercial facilities or from our wharves.

The Military Standard Transportation and Movement Procedures (MILSTAMP), using the seven-part Transportation Control and Movement Document (TCMD), provides the basis for all documentation in the Container Freight Branch including the container documentation for loading, manifesting, and movement to carriers' facilities. The TCMD provides the basis for the audit trail and total automated documentation system to include billing for all cargo-handling services.

The Container Freight Branch maintains intensive management of personal property to include coordination of movement and lift of HHG and unaccompanied baggage.

Inspection Branch

This branch inspects cargo at our wharves and warehouses for damage, insufficient markings, and/or packaging. Reporting of damaged cargo is completed and arrangements are provided for repair. Freight inspectors visit carrier terminals and commercial piers in the San Francisco Bay area for unidentified, frustrated, or astray government cargo, and initiate necessary action for onward movement of this cargo.

Vehicle Processing Center

The VPC is operated by a contractor monitored by a civil servant, and is responsible for providing all services for the authorized movement of privately owned vehicles, amounting to approximately 7,000 yearly. Both military and certain government civilian personnel are provided the services of the facility for shipment or handling of their POVs. Operations performed include receiving, counseling, documenting, inspecting, processing, delivery, vanning, devanning, booking, and explaining entitlements in accordance with existing regulations. This is a highly visible operation which requires close coordination and personal contact with customers.

Members delivering vehicles to the export receiving section are counseled on requirements for shipping their vehicles and given an estimated time for arrival at destination. Following the documentation phase of POV turn-in, the vehicle is inspected in the presence of the owner or agent and then placed in the storage lot pending movement. All transactions relating to a POV's receipt are put into an automated system to establish an on-hand inventory.

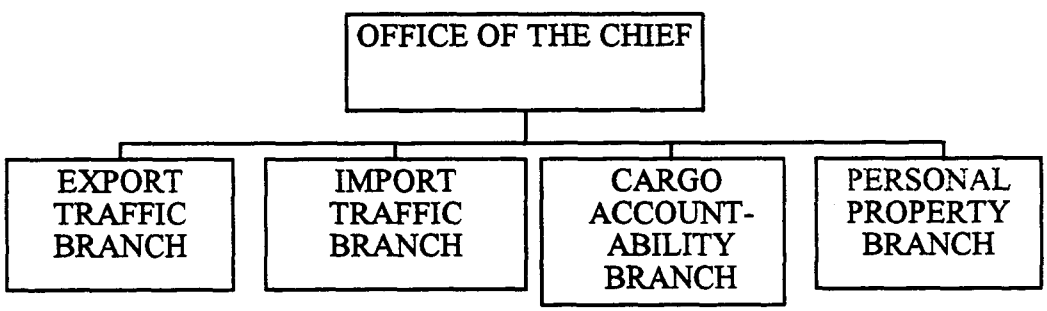
Import POVs arrive by ship, truck, or rail and are processed and stored in the lot until released to the owner or agent. The status of these POVs is tracked by use of various automated reports. Each import vehicle is visually inspected and serviced when received or devanned. Servicing includes reconnecting battery terminals and providing two gallons of gasoline. Each vehicle arriving from overseas requires customs and agricultural clearance prior to release.

Approximately one-third of the export POVs that are received are loaded onto car carriers for subsequent movement through east coast ship-loading ports. About one-third are delivered loose to the commercial shipping lines and the other third are containerized by the POV contractor to go to ports in the Far East.

TRAFFIC MANAGEMENT DIVISION

Mission: To provide traffic management services; control and expedite movement of freight into and out of the port by rail and truck; and coordinate intraport movement of rail cars and trucks. Provide transportation data and documentation for control and port clearance of export and import cargo. Process cargo documents in accordance with MILSTAMP and other applicable regulations. Provide movement and nontemporary storage of personal property shipments. Prepare Transportation Discrepancy Reports (TDRs) and process claims. Conduct the command's cargo data analysis and cargo accountability programs.

Organization:



Export Traffic Branch

The branch accomplishes all documentation transactions prior to the actual receipt of export cargo, to include obtaining prelodge documents, scheduling deliveries, and entering transceived advance data into the Terminal Management System (TERMS). This branch also codes export manifests, controls truck passes, directs the spotting of rail cars, and monitors rail-car free time. It enters data through computer terminals to reflect receipts, transfers, diversions, consolidations, and lifts of cargo transiting northern California ports. It prepares manifest adjustments and supplements when required and ensures input for generation of ocean cargo manifests. It prepares cargo traffic messages and maintains files for export ocean shipments.

Prelodge system: All cargo arriving at the port for export must be prelodged 48 hours in advance. Prelodging involves both the receipt of advance documentation from the carrier and scheduling a delivery appointment. This system allows for more preparation of cargo receipt documents, the planned disposition of a truck or rail car to the Container Freight Branch for vanning or to the wharf for breakbulk cargo, and advance workload notification for the contractor's labor force.

TCMDs: The basic document used by the port to control cargo is the TCMD, in seven parts. Following prelodge, TCMDs are produced and provided to the receiving contractors prior to actual delivery of cargo. The TCMD serves as a record of receipt, contractor file copy, consolidation documentation, transfer action (when required), contractor billing to the government, and operating unit's file copy. The TCMD is computer printed and provides a basis for the audit trail.

Manifests: Manifesting provides overseas ports with the necessary information to clear customs and move the cargo to the receiving activity. The manifest is also used as a basis of billing for the ocean carrier.

Import Traffic Branch

The Import Traffic Branch provides management of berth-term shipments of general cargo, personal property, and POVs, to include movement of import, export, and intercoastal cargo through commercial terminals to CONUS and worldwide destinations.

The branch receives overseas manifests, assembles the documents required for processing import cargo, and secures disposition instructions. The branch receives cargo traffic messages for ports of embarkation, maintains import vessel files, and corrects import manifests when required.

This branch also provides proper consular documentation and Government Bills of Lading (GBLs) for berth-term export shipments and ensures that correct ocean bills of lading and commercial invoices meet the standards of the particular destination foreign country.

Customs clearance: Military customs brokers arrange for customs clearance for import cargo by securing and furnishing necessary documents. Daily liaison is maintained with steamship, airline, and railroad companies on movements of military cargo. Effective coordination is also maintained with U.S. Customs and the Department of Agriculture to ensure expedited movement of DOD cargo through commercial and military ports in northern California.

Special action requests: The Import Traffic Branch frequently answers requests for air and surface diversions, expediting, remarking, or repacking of shipments, as well as requests to analyze the required action and obtain computer updates for status of frustrated shipments.

Rating and routing: The branch classifies, rates, and routes imported freight weighing less than 10,000 pounds when it is shipped to inland destinations. The branch uses rates and routes obtained from HQ MTMCWA when shipping imported freight weighing 10,000 pounds or more. The branch issues GBLs for inland moves.

Cargo Accountability Branch

This branch develops and maintains quality-assurance procedures for analysis of documentation performance and computer output. Through the use of data-systems analysis, aged cargo shipments are identified and causes of aging are determined.

The branch is responsible for administering the Cargo Outturn Reporting System (CORS), as outlined in Army Regulation 55-38. This branch controls all CORS messages and processes all Transportation Discrepancy Report requirements.

The branch also implements our Terminal Inventory Discrepancy (TID) Program. The TID program is designed to trace shipments whose accountability has been lost, and generate claims to recover the cost of the loss. The program also serves as a management tool revealing recurring operational problems which need correction. Branch personnel also research shipments and generate tracer action for DOD customer and shipper service representatives.

Personal Property Branch

Branch personnel coordinate the receipt and shipment of personal property, and assist transient military and civilian personnel and dependents with their personal property shipments. The branch directs the receipt and transfer of personal property into commercial warehouses in the Bay area for nontemporary storage and initiates the pick up of personal property upon completion of storage requirements. The branch also processes import household goods shipments received with instructions to hold for storage in transit, intensively manages those shipments, informs the service member, and obtains shipping instructions to expedite delivery to destination.

IV. KEY TERMINAL FACTS

Breakbulk wharf area:

Wharf 7 will accommodate two vessels, one at Berth 7 East and one at Berth 7 West. Wharf 6½ can accommodate one vessel. Water depth at these wharves is maintained at 35 feet. This depth extends to the Federal Project Channel line. Tidal range of mean lower low water: 0.00 feet; mean higher high water: 6.10 feet. A removable bullrail is installed at Wharf 7 East to accommodate stern-loading roll-on/roll-off (RORO) vessels with a starboard slewing ramp. Side-ramp loading is also available, depending on tide changes and ramp heights.

Port Berth Characteristics

Berth	*Length (Feet)*	*Width (Feet)*	*Hotel Facilities*
7East	729	43.5	Fresh water, sewage, & 4 phone jacks
7West	729	210.5	Fresh water, sewage, & 3 phone jacks
6 ½	945	83 (max.)	Fresh water

Transit Shed, Wharf 7: 79,152 square feet, built in 1993. Outside storage area: 575,410 square feet (13.3 acres). Overflow storage is available in the spit area for wheeled or tracked vehicles: 450,000 square feet (10.4 acres).

A gantry crane is mounted on tracks at the Wharf 7 apron. Its capacity is 100 tons. Two rail tracks are available on the Wharf 7 apron including a switch. We can load or unload 44 rail cars at 2 spurs at this wharf. Six sidings are available in adjacent marginal yards.

Warehouse area:

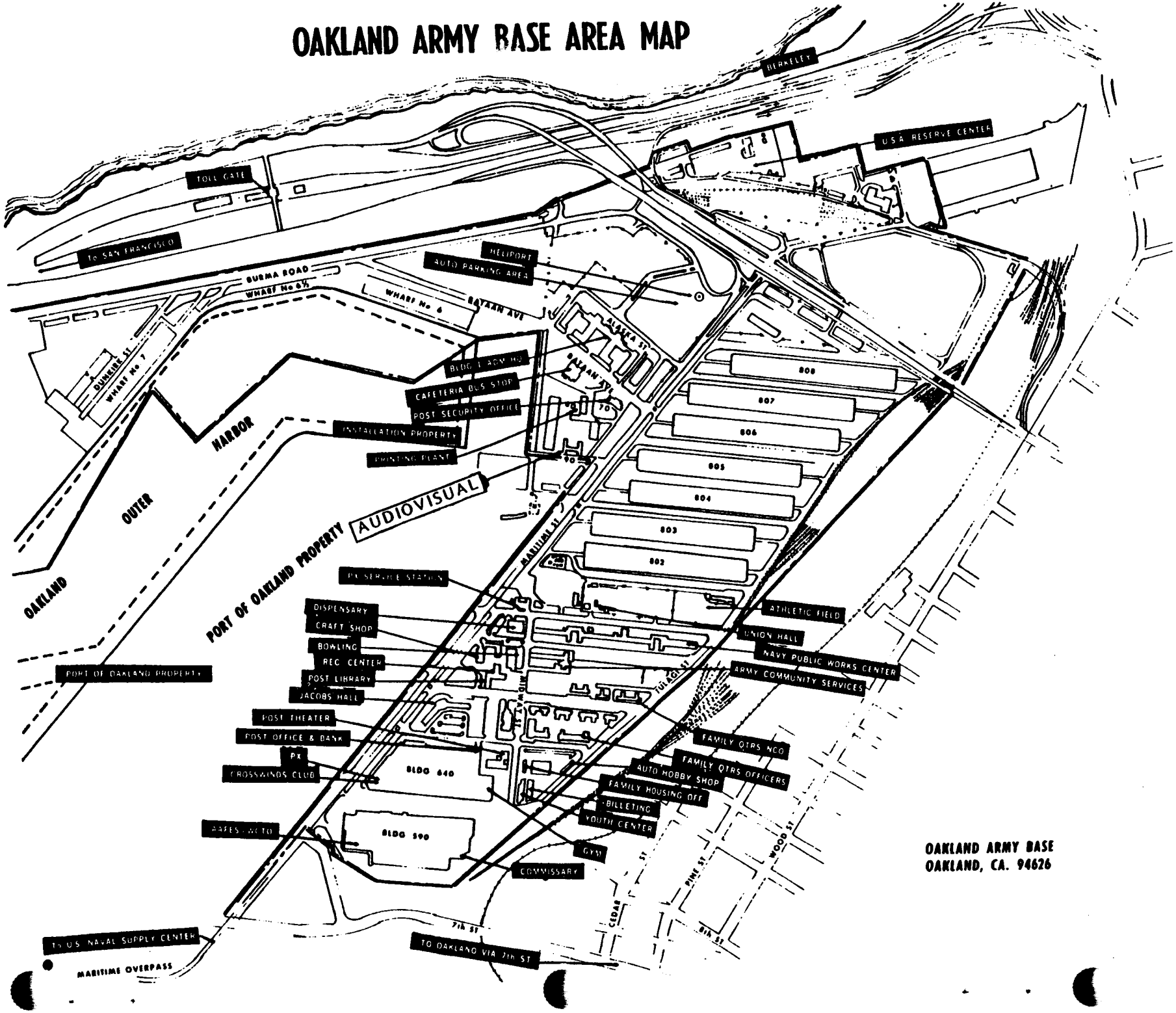
Building 808: 235,040 square feet of semipermanent hard surface, which also includes office areas for the Chief, Container Freight Branch and the warehouse contractor.

Building 806: 233,640 square feet, hard surface, semipermanent.

Rail trackage for the base is 26.43 miles long, and is available at all warehouses. These warehouses have a total of 3 rail loading sites, with a total capacity of 23 cars. Our operations feature intermodal capability. Loading and discharge docks are available at all warehouses, including drive through.

VPC: Building S-4 is a 4,600-square-foot semipermanent structure where administrative processing of POVs occurs. Vehicle storage consists of 7.2 improved acres capable of holding 560 vehicles; a 1,360-square-foot metal building for storage of motorcycles or open-top automobiles; and a 130,525-square-foot overflow area. A wash rack is present, and a container loading ramp accommodates three vans for simultaneous loading and unloading.

OAKLAND ARMY BASE AREA MAP



Document Separator

Port of Oakland – Guide to Marine Facilities. This map was too large to be scanned in for electronic viewing.

Document Separator

103-06 a.
BRAC 1995 – Defense Base Closure and Realignment Commission
COFF: Dec 31, 1995 Disposition: Permanent

BASING OF ATLANTIC FLEET FA-18 SQUADRONS

* * * * *

VIRGINIA BEACH, VA COMMUNITY RESPONSE

TO

TESTIMONY OF THE STATE OF NORTH CAROLINA BEFORE THE 1995 BASE CLOSURE AND REALIGNMENT COMMISSION

DURING THE BALTIMORE, MARYLAND REGIONAL HEARING MAY 4, 1995

Compiled by the
Hampton Roads Planning District Commission Staff
June 8, 1995

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INTRODUCTION

BRAC '93 directed the closure of NAS Cecil Field, Florida and movement of its fleet FA-18 Hornet community to MCAS Cherry Point, North Carolina. Cecil Field's two FA-18 Naval Reserve squadrons were directed to MCAS Beaufort, South Carolina, while the S-3 community was slated for transfer to NAS Oceana, Virginia. During BRAC '95, the Navy and DoD reconsidered the distribution of Cecil Field squadrons and recommended placing the bulk of the FA-18 community at NAS Oceana, two fleet FA-18 squadrons at MCAS Beaufort, the S-3 community at NAS Jacksonville, and the two Reserve FA-18 squadrons at NAS Atlanta.

North Carolina officials vigorously oppose the redirect of Navy FA-18 squadrons to NAS Oceana and argue that the BRAC Commission should hold the Navy to its 1993 recommendation. Asking "what has changed?" since 1993, North Carolinians question the "flip flop" in cost estimates that favor Oceana by a wide margin and contend the Navy arbitrarily rigged its analysis process to exclude Cherry Point as an FA-18 site. North Carolina also argues that Cherry Point is a superior FA-18 site due to operational, environmental and "quality of life" considerations. So why should the Navy ignore such compelling logic and choose Oceana? The answer, according to Cherry Point advocates, is that the Navy "refuses to implement joint-servicing" and has decided to "save Oceana at all costs."

Of the diverse points raised by North Carolina, one central issue deserves special emphasis: the question of "what has changed" since 1993? The obvious answer, which North Carolinians choose to ignore, is **force structure**. The Navy did not seriously consider NAS Oceana as an FA-18 site in 1993 because force planning assumptions at the time indicated little reduction in Ocean's base load of A-6 and F-14 squadrons for the next decade. The subsequent decisions to retire the A-6 and reduce F-14 squadrons by half opened up enough capacity at Oceana to accommodate the FA-18 community at a fraction of the cost required to build what amounts to a new air station at Cherry Point. While North Carolinians understandably press their desires for new growth and economic windfalls from the BRAC process, it must be emphasized that the net result of BRAC '95 recommendations will still leave NAS Oceana with fewer aircraft and personnel than it had during the late 1980's.

Elected officials of North Carolina presented their case during testimony before the Commission in Baltimore on May 4, 1995. This presentation was marked by misleading statements, out of context quotations, creative accounting and unsubstantiated conclusions. The following pages offer a point by point rebuttal based on North Carolina's briefing slides and recorded testimony during the Baltimore hearing.

1993 Rationale

- "...dovetail with the recent *determination for joint military operation of Navy and Marine Corps aircraft...*"
- "...Alleviated concerns with regard to future environmental and land use problems..."
- Oceana considered as receiver but *rejected*:
  - "...Movement of NAS Cecil Field F/A-18 aircraft and personnel to NAS Oceana defeats the increase in military value achieved by the integration of Navy carrier-based aviation with the Marine Corps carrier aviation at MCAS's Cherry Point and Beaufort..."
- 1993 COBRA analysis found that movement of Cecil Field:
  - F/A-18 and S-3 aircraft to Oceana would cost $228,084,877
  - F/A-18 aircraft to Cherry Point would cost $147,453,000
  - S-3 aircraft to Oceana would cost $42,871,751
- Navy rationale made sense

1993 RATIONALE (NC Slide 4)

- *"...DOVETAIL WITH THE RECENT DETERMINATION FOR JOINT MILITARY OPERATION OF NAVY AND MARINE CORPS AIRCRAFT..."*

Comment: This quote of the Navy's rationale for choosing Cherry Point and Beaufort as receivers of Navy FA-18 squadrons is incomplete and misleading. The quoted sentence from the Navy's recommendation actually reads "...dovetail with the recent determination for joint military operation of Navy and Marine Corps aircraft <u>from carrier decks</u>." (underline added.)[1] The Navy's BRAC '95 recommendation accomplishes this joint integration goal more fully by pairing two fleet carrier-based (vice Reserve) FA-18 squadrons with Marine carrier-based FA-18 squadrons at MCAS Beaufort. The Navy's cross-service basing rationale makes little sense at Cherry Point, which has only AV-8 Harrier, EA-6B and C-130 squadrons. Except for one EA-6B unit, these Marine squadrons are not routinely carrier-based and have little maintenance or mission commonality with Navy FA-18 squadrons. No significant cost, training or operational advantage would be achieved by co-basing these diverse aircraft types.

- *"...ALLEVIATED CONCERNS WITH REGARD TO FUTURE ENVIRONMENTAL AND LAND USE PROBLEMS..."*

Comment: This out of context quote from the 1993 Navy recommendation was presented to imply Navy concerns about NAS Oceana when, in fact, the comment refers to NAS Cecil Field.

- *"OCEANA CONSIDERED AS RECEIVER BUT REJECTED:"*

  - *"...Movement of NAS Cecil Field FA-18 aircraft and personnel to NAS Oceana defeats the increase in military value achieved by the integration of Navy carrier-based aviation with the Marine Corps carrier aviation at MCAS's Cherry Point and Beaufort..."*

Comment: As noted above, the Navy's 1993 rationale for collocating Navy and Marine *carrier-based* squadrons has little application to Cherry Point. Moreover, the Navy did not seriously consider Oceana as an FA-18 site during BRAC '93 because Oceana's F-14 and A-6 squadrons were projected to remain at or near 1993 levels well into the next decade. It was the Navy's subsequent decision to retire the A-6 and reduce the total number of F-14 squadrons by half that created excess capacity at Oceana and the opportunity to accommodate Cecil Field's FA-18's at greatly reduced cost.

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[1] DoD Base Closure and Realignment Report to the Commission, DoN Analysis and Recommendations (Vol. IV), March 1993. p. I-7.

1995 Navy Rationale totally changed!

- "The rules built into the configuration model are:
  - Rule 1: that average military value of air stations left open must be at least equal to the average military value of all air stations considered and that *the introduction of aircraft types not currently aboard a station is not allowed"*
- This rule:
  - Eliminates Cherry Point as an F/A-18 base
  - Qualifies Oceana for active component F/A-18s by virtue of its ONE F/A-18s Reserve squadron
  - Destroys the inter-Service synergy sought in the BRAC '93 recommendations and confirmed by the BRAC '93 decision
  - Violated by redirecting S-3s from NAS Oceana to NAS Jacksonville

Substantial Deviation

1995 NAVY RATIONALE TOTALLY CHANGED! (NC Slide 6)

North Carolina officials claim the Navy changed the "rules" in their configuration analysis process to arbitrarily eliminate Cherry Point as a potential FA-18 base while qualifying Oceana by virtue of its existing FA-18 Reserve squadron.

Comments: THIS ALLEGATION IS SIMPLY UNTRUE. Moreover, North Carolina's argument reflects a serious misunderstanding--or misrepresentation--of the Navy's decision process and the true basis for the BSEC's recommendations on aircraft squadron redirects.

- The Navy's configuration analysis process is described in Volume IV of the DoD Base Closure and Realignment Report to the Commission (DoN Analyses and Recommendations, March 1995).[2] The configuration model combines results of capacity and military value analyses to yield optimum sets of bases that minimize excess capacity while achieving an average military value equal to or greater than the average military value of all bases in the subcategory. "Rules" applicable to each base subcategory were applied "so that the configuration model would not select an operationally infeasible solution."[3] In the case of Air Stations, analyses were based on FY 2001 force structure requirements and assumptions, including the BRAC '93 decision that FA-18's would go to Cherry Point. In short, the **analysis "rules" did not eliminate or in any way prejudice Cherry Point as an FA-18 receiving site.**

- It is also important to note that **the Navy's final recommendations for FA-18 basing were *not* based on the results of configuration modeling,** which is only an intermediate step in the Navy's overall process. Configuration model output is limited to "optimum" combinations of bases to retain or close based solely on physical capacity and military value considerations. Cost and operational priorities do not come into full play until the scenario development and analysis phase of the evaluation process. The Navy's configuration analyses suggested closing four air stations including the jet bases at Key West and Beaufort. The BSEC rejected these choices for operational reasons and turned to an alternative capacity reduction approach that focused on redirecting BRAC '93 laydowns rather than closing additional bases. Subsequent data call and COBRA analyses proved it was far more cost effective and operationally sound to take advantage of existing capacity at Oceana rather than build new capacity to accommodate Navy FA-18 squadrons at Cherry Point. Combined with F-14 community single

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[2] DoD Base Closure and Realignment Report to the Commission, DoN Analyses and Recommendations (Vol. IV), March 1995, p. 25 and pp. C3-C5.

[3] ibid., p. 25.

siting, the total cost avoidance associated with aircraft squadron redirects to Oceana was judged to be "equivalent to the infrastructure cost of a major new tactical aviation base."[4]

To summarize:

- Navy "rules" did *NOT* prejudice consideration of Cherry Point as a potential FA-18 receiving site during configuration analyses.

- Even if allegations of rigged configuration analyses were factual, there would have been no ill-effect on Cherry Point because the Navy did not base its 1995 FA-18 recommendation on configuration model results.

- The Navy's FA-18 recommendation is based on thorough analyses including comprehensive data calls, operational commander inputs, alternative scenario development and extensive COBRA runs.[5] This recommendation fully satisfies the letter and spirit of BRAC selection criteria.

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[4] DoD Base Closure and Realignment Report to the Commission, DoN Analyses and Recommendations (Vol. IV), March 1995, pp. C4-C5.

[5] Ibid., p. C-4.

Return on Investment - COBRA Analysis

Rule 2: The application of "significant cost avoidance...through cancellation of budgeted military construction (MILCON) and fuller utilization of existing capacity at other receiving sites..."

- Cherry Point Costs Overstated:
  - Cost avoidance for Cherry Point calculated at $332,342,000
  - Including:
    - $42,800,000 for 447 *MORE* family housing units at Cherry Point that are NOT required
    - $39,500,000 for 6 additional BEQs which are NOT required
    - $25,000,000 for unnecessary and counterproductive parallel taxiway
  - Unlike Oceana costs, Cherry Point savings are based on original plan to house 204 aircraft
  - *SHOULD be consistent based on eight operational squadrons plus an FRS of 48 aircraft (as was Oceana Cobra)*

Return on Investment - COBRA Analysis

- Oceana Costs Understated:
  - Move of F/A-18s to Oceana costed at $28,370,000, rather than the 1993 figure of $228,084,877
  - No calculation for additional family / bachelor housing

Personnel	8713	8730
Housing	2840 units	1225 units
BEQ	3750 beds	2640 beds

RETURN ON INVESTMENT- COBRA Analysis (NC Slides 7 & 8)

- *North Carolina briefing contends cost avoidance of $332,342,000 for Cherry Point MILCON is overstated.*

Comments: In fact, $332M may *understate* the cost involved in BRAC '93-related expansion at Cherry Point. Marine Corps certified data specifies ten numbered MILCON projects totaling **$419,880,000** that are planned or programmed for 1995-1999 in order to accommodate Navy FA-18 squadrons at Cherry Point[6]. This USMC estimate does not include the one time local impact remediation cost of $36,560,000 for public school classroom additions in Carteret and Craven Counties included in the Navy's BRAC '93 COBRA cost estimates.[7] Whether or not these classroom additions are federally funded, they would be sorely needed judging from the crowded classroom conditions described in MCAS Cherry Point's data calls.[8] The Navy's current cost avoidance estimate of $332M eliminates several MILCON projects requested by the Marine Corps and represents the bare minimum requirements for accommodating Cecil Field aircraft at Cherry Point.

- *North Carolina argues Cherry Point needs no new family housing and BEQ since it already has more units than Oceana.*

Comment: This argument ignores three vital facts about Oceana. First, military personnel based at Oceana are not restricted to the 1225 units of on-base housing, but enjoy a choice of **5309** family housing units in various off base Navy housing complexes in Virginia Beach and Norfolk. Assignment of these 5309 units is coordinated by a centralized housing office with branches at major South Hampton Roads bases.

Second, Virginia Beach and adjacent cities offer a wide variety of affordable civilian housing capable of absorbing surges in housing demand. By contrast, military personnel at Cherry Point face a rural, small town environment and are far more dependent on government housing which is already fully utilized and includes

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[6] MCAS Cherry Point BRAC '95 Military Value Analysis Data Call, question 20.b, Table 20.b, p. 27.

[7] DoN Analyses and Recommendations (Vol. IV), March 1993, pp. I-8 & I-9.

[8] Craven County schools are within 300 students of maximum capacity and have a pupil-to-teacher ratio of **26:1** (Cherry Point BRAC '95 Data Call 65, p. 20.). By Contrast, Virginia Beach schools enjoy a pupil-to-teacher ratio of only **20:1** (Oceana BRAC '95 Data Call 65, p. 20.)

significant percentages of units classified as "substandard" or "inadequate."[9] Contrary to North Carolina's current allegations, the Navy's BRAC '95 estimated requirement of 447 new family housing units is far below previous Marine Corps and Naval Facilities Command (NAVFAC) recommendations which ranged from 670 units to 1383 units.[10]

Finally, the housing resources and public service infrastructures of NAS Oceana and Virginia Beach successfully supported a larger base population in the late 1980's than will exist following full implementation of BRAC '95 recommendations.

- *North Carolina says building parallel taxiways for Cherry Point runways is "unnecessary and counterproductive."*

Comment: Taxiways paralleling the full length of primary runways are an important operational factor given high weight in military value calculations (weighted value 1.78 in BRAC '95 military value matrix). While Cherry Point's unique runway configuration is adequate for its current base loading and aircraft mix, it is not compatible with the high intensity operations required at a Master Jet Base. Without parallel taxiways, Cherry Point's four runways are essentially reduced to only two since for any given pair of runways, e.g., runways 32 Left and 32 Right, only 32 Right is available for takeoffs and 32 Left for landings. Parallel taxiways would allow either runway to be used for both takeoffs and landings when necessary. Parallel taxiways will not, however, solve other operational problems such as the necessity to use a "non standard," right hand landing pattern on the primary landing runway (32 Left) to avoid overflying two elementary schools, a middle school, a high school, Annunciation Catholic School and most of the City of Havelock. This restriction precludes the use the Cherry Point's primary landing runway for carrier landing practice (FCLP), a critical training requirement for FA-18 pilots.

The cumulative effect of Cherry Point's airport configuration significantly reduces the maximum "operations per hour" at Cherry Point in comparison to other major air stations.

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[9] Cherry Point's BRAC '95 Military Value Data Call cites the following occupancy rates: Family housing units -- 97.9% (Question 41.a.[8]); Adequate BEQ units -- 95%; Substandard BEQ units -- 100%; Inadequate BEQ units -- 63% (Question 41.b.[1]).

[10] BRAC '93 Scenario Development Data Calls included three "housing scenarios" for Cherry Point. Scenario 1, the "Marine Position," recommended 1383 housing units. Scenario 2, NAVFAC's estimate of consolidated "Cherry Point/Lejuene Average" requirements, recommended 1005 units. Scenario 3, based on the "Navy-wide Average" for housing units given Cherry Point's projected population recommended 670 additional units.

Return on Investment - COBRA Analysis

	1993	1995 ?
Oceana	$228,084,877	$28,370,000
Cherry Point	$147,453,000	$332,342,000

RETURN ON INVESTMENT -- COBRA ANALYSIS (Slide 9)

Slide 9 questions the apparent disparity between the Navy's 1993 and 1995 cost estimates for basing Cecil Field FA-18 squadrons at Cherry Point and Oceana.

Comments:

- **The cost figures displayed on this slide blatantly misrepresent the Navy's analysis and cannot be directly compared.** The quoted 1993 cost of $147.453M for Cherry Point is, in fact, only the "MILCON without Avoidances" line item from a "Base One-Time Cost Report," whereas Oceana costs for both years and the Cherry Point cost for 1995 are the bottom line "Total Net One-Time Cost." **The correct 1993 "Total Net One-Time Cost" for Cherry Point was $201.031M.**

- While misrepresenting the 1993 "total net one-time cost" for Cherry Point FA-18 basing as $147M rather than $201M, this slide erroneously compares it with a $228M total cost for Oceana--a figure which North Carolina quotes on Slide 4 as being the cumulative cost for both FA-18 ***and S-3*** squadron movements to Oceana. Subtracting out the $43M cost attributed to S-3 squadrons (also quoted by North Carolina on Slide 4), the **correct cost for FA-18 laydown at Ocean in 1993--using North Carolina's own data--was only $185M, or $16M less than the $201M estimate for Cherry Point.**

- Contrary to North Carolina's allegations, the Navy did not seriously consider NAS Oceana as an FA-18 receiving site during BRAC '93--primarily because the force structure assumptions for BRAC '93 included only minor reductions in the A-6 Intruder and F-14 Tomcat communities at Oceana well into the next Century. The quoted 1993 cost of $228M for basing Cecil Field FA-18 and S-3 squadrons at Oceana assumed little excess capacity existed and that virtually all the added squadrons and support organizations would be accommodated in new MILCON -- not unlike the situation which still exists at Cherry Point.

- **BOTTOM LINE**: While Cherry Point was a slightly more expensive option for FA-18 basing than Oceana in 1993--today, it is *no contest*. The early retirement of the A-6 community and downsizing of the Navy's F-14 force open up capacity at Oceana which will allow F-14 single-siting and laydown of Cecil Field FA-18's at minimal cost.

Cherry Point - Overview

Infrastructure

- $400M MILCON expenditure in last decade
  - 16 ***New*** BEQ's with additional capacity
  - ***New*** Full Service Naval Hospital
  - ***New*** Water Treatment Facility with additional capacity
  - ***New*** Sewage Treatment Facility with additional capacity

CHERRY POINT -- OVERVIEW (Slide 11)

Infrastructure

Slide 11 cites Cherry Point's $400M MILCON expenditure in last decade, including new BEQs, hospital, water treatment facility and sewage treatment facility. North Carolina briefers implied these projects were associated with the BRAC '93 decision to base FA-18's at Cherry Point.

Comments:

- **All cited MILCON projects predate BRAC '93 and were designed to correct long standing deficiencies in supporting Cherry Point's current base load of tenant commands and AV-8, EA-6 and C-130 squadrons.** Cognizant Navy and Marine Corps officials attest that no funds have been or will be committed for FA-18 facilities at Cherry Point pending the outcome of BRAC '95.

- The *16 new BEQs* are already fully utilized by existing personnel, leaving no room for personnel from the Navy FA-18 community.

- The *new full service hospital* is a **22 bed facility** that replaces an inadequate structure built in 1942.

- The *new water treatment facility* was completed in 1993. This facility was designed to meet the projected needs of NADEP and existing squadrons, but did not consider the impact of an additional 5000 or more personnel associated with the BRAC '93 FA-18 basing decision.

- The *new sewage treatment facility with additional capacity* at MCAS Cherry Point replaces an outmoded facility plagued by operating permit violations and unable to meet current State of North Carolina operating standards. The Marine Corps also obtained a permit to move its waste water discharge line to the Neuse River from Slocum Creek, which the State of North Carolina describes as a "nutrient-sensitive swamp"[11]

  A Neuse River discharge helps solve MCAS Cherry Point's immediate waste water problem, but does nothing for the town of Havelock which is limited to its current 1.9MGD waste water discharge volume into Slocum Creek . In rejecting Havelock's recent requests for expanding discharge volume to the maximum treatment plant capacity of 2.25 MGD, the State cites serious water

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[11] Environmental Assessment for North Carolina Dept. of Environment, Health and Natural Resources 201 Facilities Plan, Havelock Project No. CS370429-04.

quality problems in Slocum Creek including "low dissolved oxygen, stratification, algae blooms and metals accumulation in fish... including fish kills...(These) problems are exacerbated by the tidal nature of Slocum Creek, which receives zero fresh water inflow and limited tidal exchange with the Neuse River."[12] **At present, State permit restrictions on discharges to Slocum Creek severely impair Havelock's ability to accommodate residential and industrial growth--even at the modest levels projected prior to BRAC '93. The programmed expansion of NADEP Cherry Point will place additional pressure on Havelock's limited waste water disposal capabilities.** (See additional comments in discussion of Slide 20.)

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[12] North Carolina Dept. of Environment, Health and Natural Resources (Rob Brown) ltr of September 8, 1994 to Mayor of Havelock revised 201 Facilities Plan.

Cherry Point - Overview

Proximity to Training Areas

- Marine Corps Base Camp Lejeune
- Electronic Warfare Range, Cherry Point
- Air-to-Air ranges off coast of North Carolina

Note:

Overwhelming *majority* of Air-to-ground training done in North Carolina

Greater productivity for each hour of flying time

CHERRY POINT -- OVERVIEW (Slide 12)

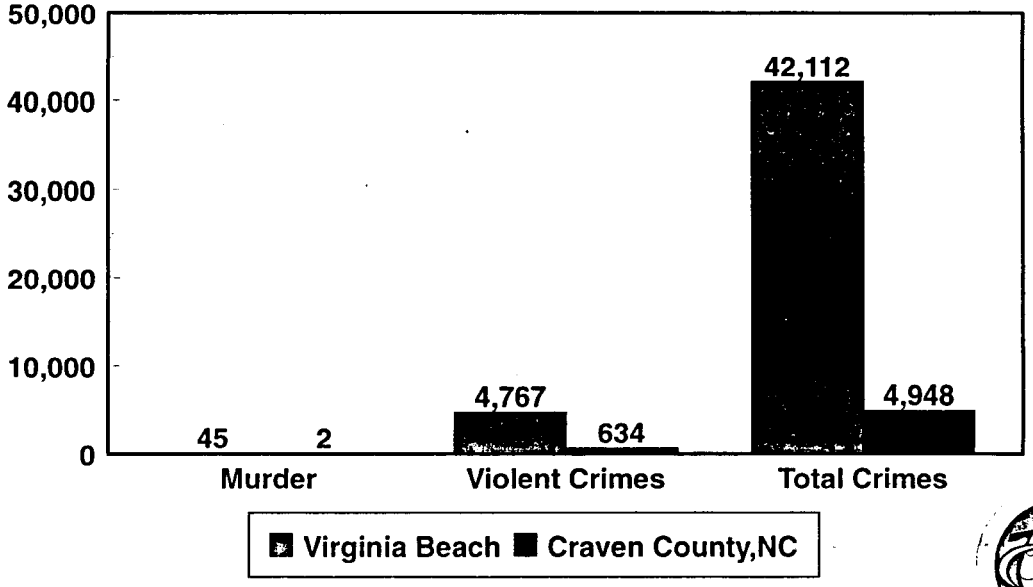
Proximity to Training Areas

Comments:

- When comparing Oceana and Cherry Point, access to training areas is essentially a draw. Cherry Point is somewhat closer to the Dare County bombing targets and electronics warfare range, while Oceana has the advantage of direct, Navy controlled access to offshore operating areas where the majority of FA-18 training will occur. These adjacent training areas off the Virginia and North Carolina coasts are controlled by the Fleet Area Control and Surveillance Facility (FACSFAC VACAPES) located at Oceana.

- Cherry Point acknowledged a problem with inshore training and coastal transition areas several years ago by petitioning the FAA for two new operating areas: the Cherry One MOA and the Core MOA, both in the immediate vicinity of the MCAS. These MOA proposals are still pending.

Community Crime Rates 1992-1994



COMMUNITY CRIME RATES 1992-1994 (Slide 13)

Comment: This slide is mislabeled and misleading.

- The bar graph and numbers shown are *not* the crime rate, but the total number of crimes reported in Virginia Beach and Craven County, NC with no regard for the seriousness of the offense or huge difference in population. Not surprisingly, Virginia Beach with a population of over 419,000 reports a higher number of crimes than Craven County with a population of only 82,000.

- Nationwide, the most commonly used measure of criminal activity is the Uniform Crime Report (UCR) crime rate, which is the number of Class I felonies[13] per 100,000 population. The 1993 crime rate in Virginia Beach was 5013 and is on the decline.[14]

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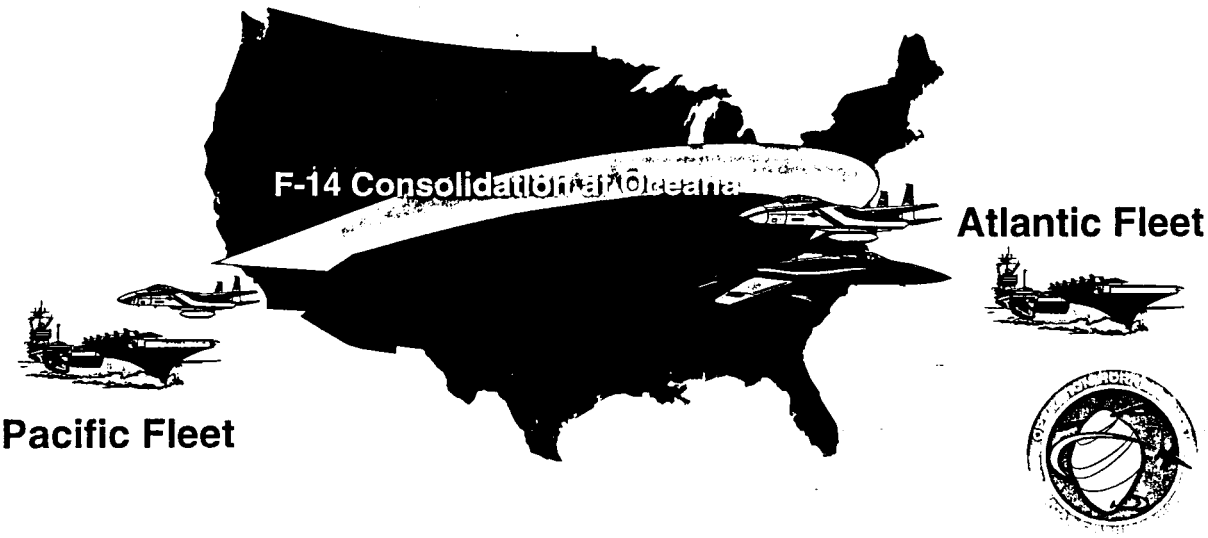
[13] Under the UCR standard, Class I crimes include murder, non-negligent manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny, motor vehicle theft and arson.

[14] Dept. of State Police, Uniform Crime Reporting Section, Crime in Virginia--1993, p. 102.

How is proximity to the fleet an issue?



HOW IS PROXIMITY TO THE FLEET AN ISSUE? (Slide 16)

Slide 16 depicts transfer of West Coast F-14's to single-site with East Coast F-14's at Oceana, implying that basing Navy fleet aircraft in close proximity to their host aircraft carriers is not a valid concern.

Comments:

- The rationale for single-siting all Navy F-14 squadrons and for locating fleet squadrons near their carrier home port is based on the same key factor: COST.

- Basing fleet squadrons in close proximity to carrier ports reduces the cost of moving personnel and squadron equipment off and on the ship several times each year. Single-siting creates even larger savings by reducing the number of intermediate level maintenance sites, FRS training squadrons and other support activities unique to a given aircraft. Single-siting has long been the practice for Navy EA-6B aircraft, and became a logical cost cutting option for the F-14 once the Navy decided to reduce the number of F-14 squadrons by half. The resulting savings more than offset the added cost of moving squadrons between Oceana and their West Coast aircraft carriers.

Environmental Issues

- 1980-81:SE Virginia drought - Oceana builds emergency wells. "Efforts to curtail consumption were successful, but these measures were at the expense of operational readiness." [1]
- 1985-88:Variety of voluntary and mandatory water use restrictions imposed.
- 1991-92:Virginia Beach imposes mandatory, long-term water use restrictions and places a moratorium on all new water system connections. These restrictions remain in place.
- 1994:Corps of Engineers concludes the area is very vulnerable to drought and, without an additional water supply, faces water problems of extreme proportions.[2]
- 1995:In comments to FERC regarding the January 1995 DEIS, Virginia Beach comments that "the Lake Gaston Project will not eliminate the need for Virginia Beach or Chesapeake to restrict water use..." [3]

* 1 December 1980 Navy Oceana Environmental Assessment, page 1.
2 Quoted in January 1995 Federal Energy Regulatory Commission (FERC) Draft Environmental Impact Statement (DEIS) at page 1-5.
3 January 1995 FERC DEIS, pages 1-8 to 1-10

ENVIRONMENTAL ISSUES (Slide 19)

Slide 19 displays an array of out of context quotes concerning alleged water supply problems in Virginia Beach, implying these issues pose a operational readiness problem for NAS Oceana.

Comments:

- For many years, the State of North Carolina has attempted to dictate how the Hampton Roads area should manage its potable water supply. It is obvious North Carolina officials still do not understand our area's source of supply and distribution system and how these factors relate to Navy installations.

- **NAS Oceana's potable water is supplied by Norfolk, not Virginia Beach.** The City of Norfolk has a master contract with the U.S. Government to provide water to 43 separate military activities in the Hampton Roads area including all Navy bases and off base Navy housing areas. This contract includes provisions to guarantee that Navy activities are provided with enough water to maintain full operational readiness.

- The "emergency wells" cited in the first bullet on Slide 19 were not built by or specifically for NAS Oceana. Oceana does have on-base wells, but Virginia Department of Environmental Quality Records show no new wells have been constructed since 1966.

- During the unprecedented drought of 1980-81, the U.S. Government paid the City of Norfolk to augment its water supply with two 1000 foot-deep wells on federal property near Driver, Virginia, some 32 miles west of NAS Oceana. These wells were intended to assure adequate water supplies to all military installations in South Hampton Roads in the event of future droughts or other natural disasters. The purpose and operation of these wells is contractually specified as follows:[15]

> *1. The Government will pursue all possible water conservation measures short of impacting adversely on the operational readiness of the Government, and the Contractor (i.e., City of Norfolk) shall continue water service to the Government, endeavoring to make available such quantity of water as will meet the Government's operational readiness needs.*
>
> *2. Water from the Driver wells shall be pumped only during water emergencies when the Government in good faith determines that, despite the use of all*

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[15] City of Norfolk--U.S. Government Contract N62470-80-C-3918 dated July 1, 1947 as amended. Para. 28, p. 23.

reasonable voluntary water conservation measures and the use of all water available to the Government from the Contractor without surcharge under consumption averaging or otherwise, such mandatory water conservation measures would adversely impact on the operational readiness of the Government.

The Government shall determine when and how much water shall be pumped from the wells and agrees the Driver wells will be pumped only for the difference between the allocation...available without surcharge...and the amount of water the Government in good faith determines it needs to meet the operational readiness of the Government.

- No locale in the U.S. is totally assured of an adequate water supply under all environmental conditions. Any city, county , state or federal government that is not practicing strict water conservation is not operating in a responsible manner.

- The City of Virginia Beach and the State of North Carolina recently signed an agreement that will clear the way for the timely construction of the Lake Gaston Water Supply Project. This project will bring 60M gallons/day into South Hampton Roads. Final federal approval is expected by mid-July, 1995.

Environmental Issues

Installation Quality of Life

- Safety
  - Oceana aircraft approaches are over dense population
  - Oceana aircraft approaches are over dense commercial development
- Underground contamination
  - Plume of fuel under Oceana
    - 10 gal / day
  - Reports of hospitalizations due to fuel in water system ("We don't drink the water" - Navy Families report - Navy Times - 7/4/94)

ENVIRONMENTAL ISSUES --QUALITY OF LIFE (Slide 20)

- *Oceana aircraft landing approaches over "dense population" and "dense commercial development."*

Comments:

- **In fact, ground encroachment at NAS Oceana imposes no operational impediments on NAS Oceana approach, departure or landing patterns. By contrast, aircraft landing on Cherry Point's primary runway (32 Left) must use a non-standard, right hand landing pattern to avoid overflying the City of Havelock**[16]--including one Catholic school, two elementary schools, a middle school and a high school which would lie under a left hand landing pattern. This runway is used for 60% of Cherry Point's annual operations. **The required right hand pattern precludes use of Runway 32 for field carrier landing practice (FCLP).**

- The City of Virginia Beach and NAS Oceana have actively addressed the problems of ground encroachment through a comprehensive and cooperative program of property and AICUZ easement acquisition and zoning restrictions. The most recent airport zoning ordinance was addressed by Mayor Oberndorf in her testimony to the Commission on May 4, 1995. Moreover, the City has already funded the relocation of two elementary schools currently sited within APZ 2.

- North Carolina officials repeatedly characterize Virginia Beach as a densely populated urban area and Havelock, NC as a sparsely populated rural area. In fact, population densities of the two communities are not significantly different. Virginia Beach has a population density of 2.47 persons per acre, while Havelock has a population density of 2.13 persons per acre.

- *Underground fuel contamination at Oceana*

  - Localized ground water contamination from fuel storage tank leaks has occurred at one time or another on virtually all military air bases, including Oceana and Cherry Point. Both bases have taken proper remedial action and neither has reported any ground water contamination beyond base boundaries. Ground water contamination is a more serious potential threat at Cherry Point because all water comes from local wells, whereas Oceana's potable water comes from reservoirs located several

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[16] BRAC '95 Operational Air Station Capacity Analysis, Question 1.e.

miles from the base. Neither Oceana nor the City of Virginia Beach use ground water as a primary supply source.

- The cited "reports of hospitalizations due to fuel in the water system" at Oceana are largely attributed to a single family. Thorough investigation of these reports and subsequent water quality monitoring by the Navy, the City of Virginia Beach and the Commonwealth of Virginia found no contamination of the water supply.

- Cherry Point's BRAC environmental data calls report on-base ground water contamination not only from fuel lines, but also from barrow pits and landfills, the old incinerator area, fly ash ponds, old sanitary landfill, the Industrial Waste Treatment Plant (IWTP), Industrial Drainage System, and a ditch behind NADEP.

- In 1989-90, the U.S. Geological Survey monitored several unlined hazardous waste sites located near MCAS Cherry Point's potable water supply wells. The USGS notes that "Differences in hydraulic head indicate a potential for migration of contaminates downward" creating a potential threat to Cherry Point's water supply.[17]

- ***Growth limitations imposed by Havelock's infrastructure***

  - The water and sewage limitations of Havelock are well documented in the *CAMA Land Use Plan Update 1993 for the City of Havelock, NC*, which is included in Cherry Point's BRAC '95 Military Value Analysis Data Call as attachment (4). The Land Use Plan states that:

    > *"The current (water treatment) system has sufficient capacity to accept the projected modest growth of 500 housing units during the next ten years plus 136 new customers from projected annexations, approximately 650,000 gallons per day total increase."*

    The Environmental Assessment for the BRAC '93 Cherry Point NADEP realignment forecast a housing unit demand by 1996 of 536 units in Craven County and a population increase of 2,950 persons. NADEP growth alone represents 83% of the total population increased assumed by the CAMA Land Use Plan for the period 1990-2000. **The additional**

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[17] U.S. Geological Survey, *Water-Resources Investigation Report 89-4200 (1990)--Hydrogeologic, Water-Level, and Water Quality Data form Monitoring Wells at the USMC Air Station, Cherry Point, North Carolina.* pp 1-2.

8000+ service personal and family members associated with the Cecil Field FA-18 community would place a severe strain on Havelock's water treatment capacity.

- The future capabilities of Havelock's Waste Water Treatment Plant are somewhat in doubt. Plant capacity is reportedly 2.25 MGD,[18] but operation is limited to 1.9 MGD due to State-imposed limitations on discharges to Slocum Creek.[19] Prior to June 30, 1993, Havelock was limited to a discharge of 1.5 MGD and was granted an increase only after the City was unsuccessful in its repeated efforts to reach an agreement with the Marine Corps allowing the City to share the Cherry Point's waste water discharge line to the Neuse River. Without discharge access to the Neuse, it is doubtful Havelock's system will ever be permitted to discharge more than the current 1.9 MGD regardless of the capacity of the treatment plant.

- **BOTTOM LINE:** The City of Havelock's ability to accommodate even modest growth is severely limited.

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[18] CAMA Land Use Plan for the City of Havelock, NC. p. 6-1.

[19] CAMA Land Use Plan for the City of Havelock, NC. p. 7-1 and North Carolina Department of Environmental Health and Natural Resources letter of August 27, 1994 to State Senator Beverly N. Perdue.

Conclusions

Substantial Deviation

- The 1995 Navy recommendation is inconsistent with its 1993 recommendation --- without any material justification.
- The 1995 Navy return on investment analysis calculates grossly inaccurate costs and savings
- With its 1995 recommendation, the Navy refuses to implement joint-servicing

CONCLUSIONS (Slide 22)

- *"The 1995 Navy recommendation is inconsistent with its 1993 recommendation -- without any material justification."*

Comment: To the contrary, the Navy's 1993 and 1995 recommendations are entirely consistent given the major changes in force structure occurring since BRAC '93. In 1993, force structure assumptions indicated that any potential East Coast FA-18 site would require major MILCON investment to accommodate Cecil Field's squadrons. Given no low cost solution, Cherry Point was a reasonable choice which also gave the appearance of furthering DoD joint-servicing objectives. Subsequent force structure reductions created significant excess capacity at Oceana, offering a golden opportunity to avoid the cost of building the equivalent of an entirely new air station at Cherry Point. This sounds like compelling "material justification" to us!

- *"The 1995 Navy return on investment analysis calculates grossly inaccurate costs and savings."*

Comment: North Carolina's solution to correct the Navy's alleged inaccuracies is to ignore P-80 standards and eliminate much of a MILCON package already trimmed far below requirements requested by the Marine Corps.[20] For the sake of anticipated economic gains, North Carolina politicians would shoehorn Navy and Marine squadrons into inadequate hanger space, choke air operations by eliminating parallel taxiways, and create hardships for Marines and sailors by failing to provide adequate housing and BEQ capacity. This "solution" would be highly detrimental to military operations and personnel at Cherry Point--and, in the long run, is not in the best interests of the local community and its citizens.

- *"With its 1995 recommendation, the Navy refuses to implement joint-servicing."*

Comment: The rationale behind joint-servicing is two-fold: (1) it can save money, and (2) it can enhance interoperability and coordination between the services. Neither goal is well served by the 1993 decision to base Navy FA-18's at Cherry Point. No operational or training synergies would result--and the cost is prohibitive. In consideration of these facts, the Navy wisely reconsidered its 1993 recommendation and found a better way to implement joint-servicing by stationing two FA-18 fleet squadrons with their Marine sister squadrons in Beaufort. This action provides a productive interface between Marine and Navy carrier-based FA-18 squadrons while saving money through use of existing capacity at MCAS Beaufort.

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[20] For example, see Senator Lauch Faircloth letter to BRAC Commission dated April 21, 1995 (ECTS # 950425-10)

Recommendations

- Perform competent and careful COBRA analysis using consistent numbers for Oceana and Cherry Point
- Question the application of rules that were deliberately designed to inhibit the integration of Navy and Marine aviation assets

RECOMMENDATIONS (Slide 24)

- *"Perform competent and careful COBRA analysis using consistent numbers for Oceana and Cherry Point."*

Comment: Use any input numbers within reason and the conclusion will be the same. It doesn't require a sophisticated analysis to determine that it is much less expensive to move squadrons to a Master Jet Base that is half empty than to an air station with an infrastructure essentially saturated by its existing base load--particularly when that air station is poorly designed to support tactical aircraft requiring high intensity flight operations and frequent day/night carrier landing practice.

- *"Question the application of rules that were deliberately designed to inhibit the integration of Navy and Marine aviation assets."*

Comment: As previously stated, this allegation is totally unfounded and indicates a serious misunderstanding--or misrepresentation--of the BSEC/BSAT evaluation process.

Document Separator

June 9, 1995

MEMORANDUM

For: Alex Yellin, Navy Team Leader, DBCRC Staff

By: David Gist, HRPDC Military Planner

Re: AIR QUALITY CONFORMITY AND NAS OCEANA REDIRECTS

During our office call Tuesday you mentioned the "conformity determination" requirement cited in the Navy/DoD recommendation for NAS Oceana. I am enclosing some recent documentation to describe the transportation/air quality conformity requirements applicable to Virginia Beach and Greater Hampton Roads along with a recent memorandum attesting to "no impact" on our conformity status as a result of proposed realignments at NAS Oceana.

As described in the enclosed information, the issue involves requirements of the 1990 Clean Air Act (CAA, 1990) and EPA Conformity Final Rule of December 27, 1993 regarding the occurrence of ozone--primarily the ozone resulting from motor vehicle emissions. The EPA classified Hampton Roads as a "marginal ozone nonattainment area" in November, 1991. Responsibility for demonstrating progress toward attainment and reviewing transportation plans and other relevant programs for possible impact begins with the Hampton Roads Metropolitan Planning Organization (MPO). In Hampton Roads, the MPO and my organization, the Planning District Commission, are essentially the same group aside from a few differences in executive board composition. Our Transportation Planning Department maintains an extensive data base containing demographic and traffic information which provides inputs for an annual Air Quality Conformity Analysis required by law. This data is submitted to the Virginia Department of Transportation (VDOT), which contracts with an environmental consultant group (ICF Kaiser) to "crunch" the data and produce the required reports for Hampton Roads and other areas in the state. These reports are submitted to the Federal Highway Administration, Federal Transit Administration and the federal EPA for final approval. The enclosed "Conformity Documentation..." is part of our recently submitted FY95 report, and it explains the system a lot better than I can!

More to the point is the enclosed ICF Kaiser memo dated June 7, 1995, which comments on the potential impact of additional F-14 and FA-18 squadrons at Oceana. Back in March we submitted Oceana gain/loss data to VDOT asking for an analysis of what the conformity impact would be assuming the DoD recommendations for BRAC 95 were approved. As you can see, our consultants foresee "no impacts on the results of the recently completed transportation conformity determinations for the Hampton Roads nonattainment area." It is important to note that ICF Kaiser considered the

"worst case" in looking only at population changes within the Oceana transportation sector. If you consider the larger picture of the entire Hampton Roads nonattainment area, we have a sizable "cushion" in our population projections largely because defense downsizing has taken a far higher toll on our regional population growth rates than anticipated in the original 1990 baseline and subsequent updates. Along with improved fuels and more efficient automobiles, one might say we are depopulating our way to air quality conformity.

To my knowledge, there is nothing more we can do until officially informed of future plans for NAS Oceana. Just as an EIS is not performed for a "what if" basis, we would not expect the cognizant federal agencies to act on a hypothetical growth scenario at NAS Oceana. Once we have the BRAC '95 decision in hand, the HRPDC/MPO will take immediate action to update our population projections and initiate the appropriate actions to obtain a conformity determination. Based on the information at hand, HRPDC and VDOT officials are extremely confident that air quality conformity is a *nonissue* in the case of aircraft squadron redirects to Oceana.

If you or your staff have further questions concerning the conformity determination process or specifics of our local situation, please contact our Head of Transportation Planning, Mr. Dwight Farmer at (804) 420-8300. Dwight can also give you points of contact at VDOT in Richmond if desired.

DMG/dmg

ICF KAISER
CONSULTING GROUP

ICF Incorporated
9300 Lee Highway
Fairfax, VA 22031-1207
703/934-3000 Fax 703-934-9740

June 7, 1995

MEMORANDUM

TO: Ahmet Anday, VDOT

FROM: Marsha Kaiser,

SUBJECT: Impact of BRAC on Transportation Conformity

This is in response to your request for a review of the impacts on the transportation conformity determinations for the TIP and RTP for the Hampton Roads nonattainment area as a result of the BRAC 95 recommended realignment of the FA-14 and FA-18 squadrons from other locations to the NAS Oceana in Virginia Beach.

The BRAC 95 recommendations include provisions for redirecting F-14 and F-18 squadrons from other locations to NAS Oceana over the years 1997-1998. The BRAC 95 recommendations, if approved, would ultimately result in an employment population of 12,390 at Ocena in the year 2015. While this would exceed the original population forecast in the *Hampton Roads 2015 Economic Forecast of 10,850* by 1,540, it exceeds the 1990 baseline population in the *Forecast* by only 60. This is important to note since the 1990 population figures were used in developing the transportation conformity baseline data for determination analysis.

Although the population at NAS Oceana is now projected to increase rather than decrease relative to the baseline level, this increase is highly insignificant (less than 1 percent). Thus, the BRAC 95 recommendation essentially represents a realignment of existing trips along the Hampton Roads transportation network. It will have no significant impact on VMT nor vehicle emissions overall in the region and, therefore, will have no impacts on the results of the recently completed transportation conformity determinations for the Hampton Roads nonattainment area.

CR

SYSAPP-95/024

Final Report

CONFORMITY DOCUMENTATION FOR THE HAMPTON ROADS, VIRGINIA OZONE NONATTAINMENT AREA

ICF KAISER

Systems Applications International

COMSIS

April 1995

Final Report

CONFORMITY DOCUMENTATION FOR THE HAMPTON ROADS, VIRGINIA OZONE NONATTAINMENT AREA

SYSAPP-95/024

April 17, 1995

Prepared for

Virginia Department of Transportation
Richmond, Virginia

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1 CONFORMITY METHODOLOGY

This chapter describes the transportation/air quality conformity methodology for the Hampton Roads, Virginia 2015 Financially Constrained Transportation Plan (RTP) and 1994/1995 Transportation Improvement Program (TIP). The RTP presents long-range and short-range strategies, actions, and proposed projects that lead to the development of an integrated intermodal transportation system. The TIP is a staged, multiyear program of transportation projects in the Hampton Roads area for which federal-aid highway and transit funds are proposed (FY 1994/95) and scheduled (FY 1995/96 to FY 1996/97) for allocation. Briefly, the methodology consists of developing regionwide (nonattainment area) estimates of emissions of volatile organic compounds (VOCs) and nitrogen oxides (NO_x), the two primary ozone precursor pollutants, under the build and no-build scenarios for each required analysis year (2000, 2005, and 2015). These estimates are made using detailed transportation modeling techniques, the EPA-developed MOBILE5a emission factor model, and techniques for calculating hourly grid-scale emissions.

HISTORY OF CONFORMITY

Section 176(c) of the Clean Air Act (CAA, 1990) requires that Federal agencies and Metropolitan Planning Organizations (MPOs) not approve any transportation project, program, or plan which does not conform with the approved State Implementation Plan (SIP). In the 1990 amendments to the Clean Air Act, Section 176(c) more explicitly defines conformity to an implementation plan to mean

> Conformity to the plan's purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards and achieving expeditious attainment of such standards; and that such activities will not (i) cause or contribute to any new violation of any standards in any area; (ii) increase the frequency or severity of any existing violation of any standard in any area; or (iii) delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

Section 176(c) also provides conditions for approval of transportation plans, programs, and projects; requirements that the EPA promulgate conformity determination criteria and procedures no later than November 15, 1991; and a requirement that states submit conformity procedures to the EPA by November 15, 1992.

The EPA promulgated the Conformity Final Rule (hereafter, "Final Rule") in the November 24, 1993 *Federal Register*, specifying that it would become effective on December 27, 1993. The Final Rule supersedes all previous conformity requirements

discussed above, therefore all conformity procedures used in this analysis are in compliance with these criteria.

NONATTAINMENT STATUS

The Hampton Roads, Virginia region was classified as a marginal ozone nonattainment area by the Environmental Protection Agency (EPA) on November 6, 1991 (56 FR 56694). This nonattainment area includes the counties of James City and York and the cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg. Figure 1-1 presents a map of the nonattainment area. In a notice published in the January 17, 1995 Federal Register, EPA recommended that the Hampton Roads area be redesignated as a moderate ozone nonattainment area. This redesignation has not yet been made official and does not effect this conformity determination.

The Hampton Roads Metropolitan Planning Organization is the MPO with responsibility for developing conformity demonstrations for transportation plans and programs within the nonattainment area. As an ozone nonattainment area, Hampton Roads must meet emission tests for VOCs and NO_x. Hampton Roads is currently in Phase II of the Interim conformity period for NO_x and for VOCs. The specific tests for conformity specified for this period, as well as general conformity requirements for all nonattainment areas, are discussed below.

CONFORMITY REQUIREMENTS FOR THE HAMPTON ROADS NONATTAINMENT AREA

General Conformity Requirements

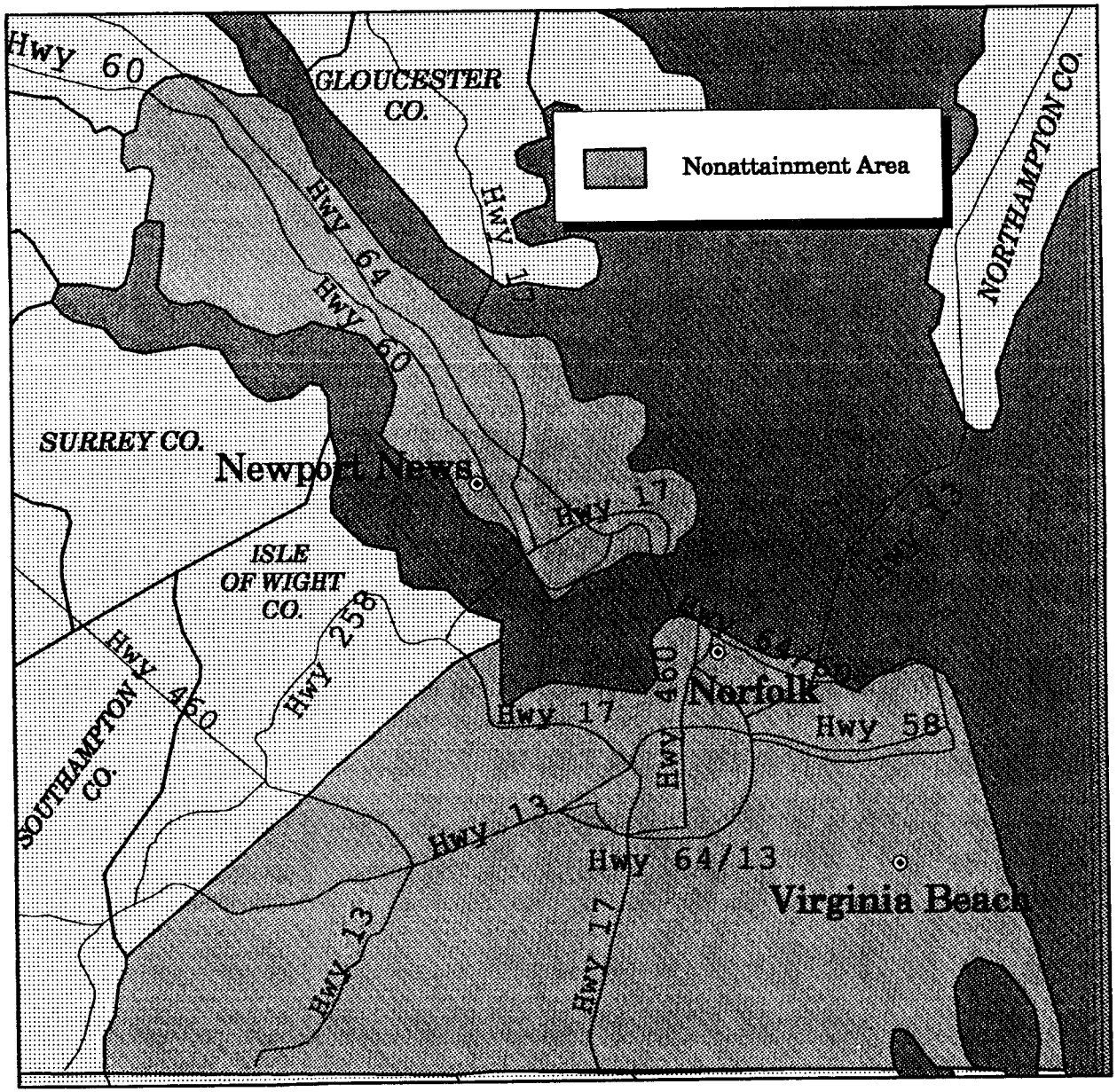
The Final Rule identifies general criteria and procedures that apply to all conformity determinations, regardless of pollutant and implementation plan status. These include:

1. *Latest Planning Assumptions* — Section 51.412 of the Final Rule specifies that conformity determinations must be based upon the most recent planning assumptions in force at the time of the determination. This section also requires that Hampton Roads make reasonable assumptions with regard to transit service and increases in fares, as well as road and bridge tolls over time. Hampton Roads must also document how transit operating policies and assumed ridership have changed since the last conformity determination.

2. *Latest Emissions Model* — Section 51.414 specifies that the latest emission estimation model available must be used for the conformity analysis. For the Hampton Roads region, the appropriate emission factor model is the EPA MOBILE5a model.

3. *Consultation* — Section 51.416 requires that the conformity determination be made in accordance with the consultation procedures outlined in the Final Rule. These include:

Figure 1-1. Hampton Roads Nonattainment Area



- Provide reasonable opportunity for consultation with State air agencies, local air quality and transportation agencies, the Department of Transportation (DOT), and the EPA (Section 51.402(a)(1)).

- Establish a proactive public involvement process which provides an opportunity for public review and comment prior to taking formal action on a conformity determination (Section 51.402(e)).

Detailed consultation procedures developed in accordance with the Final Rule are under review and will be included in the control strategy SIP revision. This conformity assessment has been performed in accordance with the consultation requirements in the Final Rule and in a manner consistent with the rule and the consultation procedures developed for the conformity SIP. The consultation process is documented in Chapter 4 of this report.

4. *Timely Implementation of TCMs* — Section 51.418 details the steps necessary to demonstrate that the new plan and program are providing for the timely implementation of implemented TCMs and to demonstrate that the plan and/or program is not interfering with this implementation. No TCMs requiring implementation by the TIP have been included in a SIP for Hampton Roads.

Documentation of the models, planning assumptions, and methodology used for this conformity determination is provided later in this chapter under the heading "Procedures for Demonstrating Conformity."

Other Conformity Requirements

As mentioned above, the Hampton Roads nonattainment area is in Phase II of the Interim Period for NO_x and for VOCs. The specific requirements associated with these designations include:

1. Emissions from the proposed plan (or Build case) are less than those for the base scenario (or No-Build case).

2. Emissions from the proposed plan are less than 1990 emission levels.

If Hampton Roads is redesignated as "moderate," the area will eventually be required to submit a SIP revision which includes specific NO_x and VOC emission budgets. Submission of this revision would move the area into the "Transitional" portion of the Interim period and would require that emissions from the Build case not exceed the emissions budgets defined in the SIP.

Table 1-1 summarizes all Final Rule conformity requirements that currently apply to the Hampton Roads region.

TABLE 1-1. Conformity requirements from the Final Rule.

Applicable Period	Plan Type	Section Number	Section Requirement
All Periods	Transp. Plan and TIP	51.412	Latest planning assumptions
		51.414	Latest emission estimation model
		51.416	Consultation procedures
		51.418(b)	Timely implementation of TCMS
Phase II[1]	Transp. Plan	51.436	Interim reductions of VOC and NO_x in O_3 areas (< 1990 & B/NB comparison)
	TIP	51.438	Interim reductions of VOC and NO_x in O_3 areas (< 1990 & B/NB comparison)

[1] Requirements apply to NO_x and VOC emissions for the Hampton Roads region until emission budgets are approved by EPA.

PROCEDURES FOR DEMONSTRATING CONFORMITY

The following discusses the methodology, scenario years, transportation, and emission models used to estimate regional emissions of VOCs and NO_x, the primary precursors of ozone. Put simply, link-level travel activity estimates generated using a network travel-demand model (MINUTP) are combined with motor vehicle emission factors (generated using MOBILE5a) to estimate hourly, grid-scale (2 km cells) emissions with the Direct Travel Impact Model (DTIM). Daily emissions totals are then used to conduct the emissions tests required for a demonstration of conformity. The results of these tests and the documentation of the conformity finding for the Hampton Roads area are presented in Chapter 3. Figure 1-2 summarizes the steps in the regional emissions analysis.

Models Used in Conformity Analysis

MINUTP

MINUTP is a library of programs that provides the capability to perform the traditional four-step transportation planning process that includes trip generation, trip distribution, mode choice, and network assignment. Link data input by the user (e.g., node coordinates, link length, link capacity, number of lanes, free-flow speeds by facility type) are used to create a representation of the regional transportation network. Following this initial step, the minimum impedance paths from each traffic analysis zone centroid node to the other zone centroid node are determined, based upon each link's time and distance. Trip generation is then performed based on the land-use information, trip rates, and equations for computing production and attraction variables provided by the user. Based on these production/attraction variables, impedances, and friction factors, trip distribution is performed using the standard gravity model distribution equation. The production/attraction trips are converted to origin-destination trips to form an origin-destination trip matrix. Finally, network assignment is performed based on

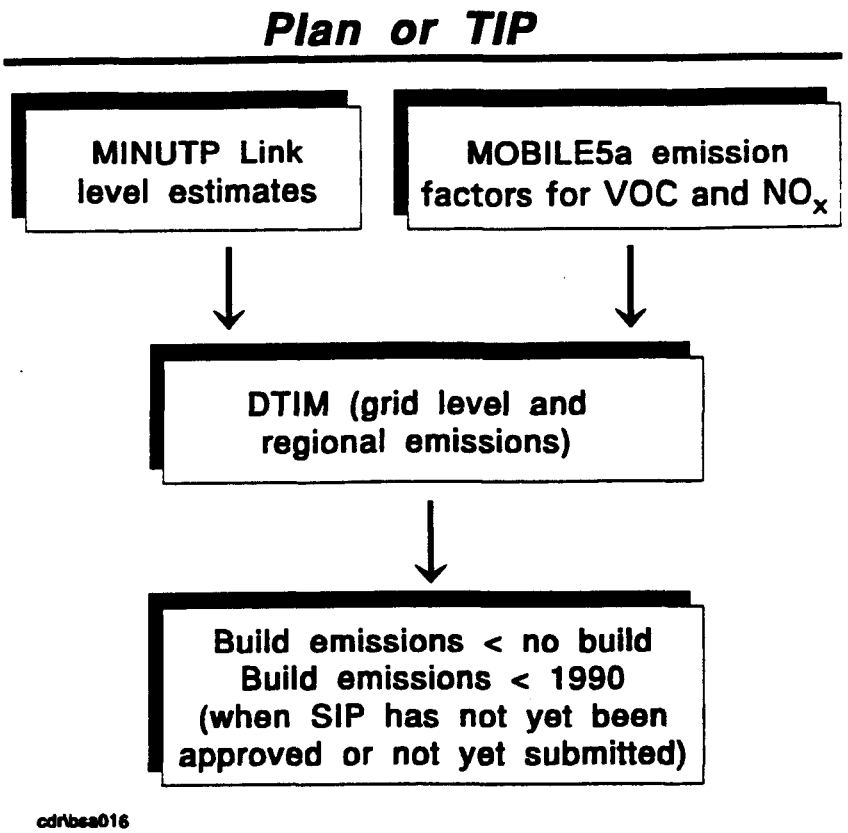


FIGURE 1-2. Regional emissions analysis.

total number of trips and their travel paths. A new network file is created that includes the assigned volumes, V/C ratios, and congested speed/impedances for each link. The use of the travel activity data to estimate emissions is discussed below under "Emission Calculation Methodology."

MOBILE5a

MOBILE5a is the latest version of a model developed by the EPA for estimating motor vehicle emission factors by speed and model year. Inputs used by MOBILE5a include vehicle fleet mix, registration distributions, maximum and minimum temperatures, and details of control measures such as inspection and maintenance (I/M) and antitampering programs (ATP), reformulated gasoline, and Stage II vapor recovery programs. The MOBILE5a inputs specific to the Hampton Roads nonattainment area are summarized below in the section entitled "Emission Calculation Methodology."

Output from the MOBILE5a model includes emission factors by speed, ambient temperature, and hot/cold operating modes. These emission factors are utilized by DTIM in estimating motor vehicle emissions for the Hampton Roads region.

DTIM

DTIM was created in the 1980s by the California Department of Transportation for the development of regional motor vehicle emissions inventories. ICF Kaiser, under contract to Caltrans and the Sacramento Area Council of Governments (SACOG), has updated and further developed this model. DTIM combines travel demand model output (link geometries, travel volumes, speeds) and additional information regarding spatial and temporal distribution of motor vehicle activity with motor vehicle emission factors and episode- (or season-) specific temperatures to produce a gridded hourly motor vehicle emissions file that can be used as input to the Urban Airshed Model (UAM). DTIM also produces various summary information regarding emissions and traffic data for the region in table form.

The specific inputs used for the Hampton Roads nonattainment area are summarized in the following section.

Emission Calculation Methodology

Emission Factor Development

The emission factors used in the Hampton Roads conformity analysis were generated using MOBILE5a with inputs based on county-specific files supplied by the Virginia Department of Environmental Quality (VDEQ). All registration distributions and parameter settings (e.g., I/M or Stage II Vapor Recovery Program attributes) as well as maximum and minimum temperature values remained consistent between these files and those developed for the conformity analysis[1]. However, the facility type-specific fleet mixes used by VDEQ were not sufficient to produce the necessary emission factor inputs to DTIM, so alternative county-specific fleet mixes were calculated using the on-road motor vehicle activity and related data used for the 1990 base year ozone SIP emission inventory (VDEQ, 1994). Documentation of this inventory includes estimates of county-level VMT by facility type and assigns specific fleet mixes to each separate facility. The VMT distribution was used to create a weighted average fleet mix applicable to all facility types. This information was also used to determine the percentage of total regional travel occurring in each county, which was used to produce a weighted average emissions file from the multiple MOBILE output files. The VDEQ MOBILE input files also contained a single average speed for each facility type, which would not supply an adequate range of emission factors for use with DTIM. For the purposes of the conformity analysis, ranges of speed (5 to 65 mph) and temperatures (67° to 95° F) were used to generate the necessary factors for input to DTIM.

As a marginal nonattainment area, Hampton Roads is not required to implement an I/M, anti-tampering, or Stage II vapor recovery program. However, the effects of reformulated gasoline were modeled for all years after 1990. A fuel Reid Vapor Pressure (RVP) of 8.4 pounds per square inch (psi) was assumed for the 1990 base year.

[1] The minimum and maximum daily temperatures are used to calculate the diurnal portion of evaporative HC emissions, and in estimating the temperature of dispensed fuel for use in calculating refueling emissions.

All other years (following the 1992 start year) assume an RVP of 7.8 psi. Examples of base and future year MOBILE5a input files are provided in Appendix A.

MOBILE output files generated for each county were averaged together using the preprocessors for DTIM. Each county's emission factor output was weighted using the VMT distribution data contained in the VDEQ documentation (VDEQ, 1994).

DTIM Inputs

Vehicle Activity Estimates

The transportation activity estimates for the emissions analysis were forecasted through the MINUTP model. The highway network representing the transportation conditions for each analysis year, including all facilities forecasted by the transportation plan, forms the basis for the estimation of travel characteristics. Development of this network requires the coding of all significant projects which can be modeled through the planning process into the highway network. The project screening process is documented in Chapter 2 of this report. Appendix B provides a detailed listing of projects included in the conformity analysis.

The coded highway network was combined with estimated land-use variables such as employment and population to generate the forecasted volumes on each of the roadway links, using the conventional transportation planning methods. The forecasted volumes are then multiplied by the respective link lengths to create VMT estimates. Link-level speeds are calculated by using each link's volume-to-capacity (V/C) ratio as estimated by the MINUTP model. The estimated link-level speeds and VMT estimates are used as inputs to DTIM and MOBILE5a to calculate the total emissions.

Speed

The speeds used in the conformity analysis were assigned to each link based upon that link's volume-to-capacity (V/C) ratio. DTIM calculates a congested speed for each link using values for volume and capacity contained in the MINUTP output combined with facility-specific free-flow speeds in the Bureau of Public Roads equation

$$S_2 = \frac{S_1}{1 + A \times (V/C)^B}$$

where

S_1	=	Free-flow speed
S_2	=	Congested speed
V/C	=	Volume/capacity ratio
A	=	0.20 for $S_1 \geq 60$ mph and 0.15 for $S_1 < 60$ mph
B	=	8 for $S_1 \geq 60$ mph and 10 for $S_1 < 60$ mph.

In this case, the free-flow speeds used to create the values in the lookup table are from the latest draft (1994) of Chapter 3 of 1985 Highway Capacity Manual (HCM, 1985), as

no local speed data were available. This equation is included in the 1994 update to the HCM.

Temperature

Using the meteorological database from the National Climatic Data Center, a representative summer temperature profile for the Hampton Roads region was developed. This was adjusted to be consistent with VDEQ's minimum and maximum temperature assumptions used in preparation of the SIP. The adjusted profile was inputted into DTIM as average hourly temperature values.

Temporal Distribution of Emissions

In order to represent variations in travel activity and congestion throughout a "typical" summer day, values for percent total travel occurring in each hour for each facility type are input into DTIM. Using the facility- and county-specific fleet mixes from VDEQ MOBILE5a input files, the vehicle fleet was divided into two parts: vehicles other than heavy duty diesel vehicles (HDDVs) and HDDVs. Temporal distributions were developed for vehicle classes other than HDDVs by MCV Associates based on a review of available local data. Temporal distributions for HDDVs were developed using hourly distributions of truck travel by facility class from HPMS data.

Three hourly distributions representing Freeway, Arterial, and Collector facility types were provided for vehicles other than HDDVs and three additional distributions representing different speed assumptions (Fast Trucks, Medium Trucks, and Slow Trucks) were provided for HDDVs. Facility classes for modeled in MINUTP for non-HDDVs were assigned to one of the first three categories, and HDDV facility classes were assigned to one of the latter three categories for the purpose of hourly VMT distribution estimation. Table 1-2 contains the distributions used for the Hampton Roads nonattainment area.

HOV Lane Offline Analysis

As noted above, the emissions benefits related to HOV lane construction programs in the Hampton Roads region were evaluated using a methodology designed for this study and assumptions included as part of the TIP. The results of the emissions analysis are summarized in Chapter 3. Details regarding methodology development and assumptions are provided in Appendix C.

Emissions from Off-Network VMT

Off-network VMT accounts for slightly more than 1 percent of total VMT and was addressed but not at the same level of detail. Totals for 1990 off-network VMT, supplied by VDEQ, were developed based on modeled VMT growth for region, multiplied by fleet emission factors representative of average speeds (by facility type) and temperature in the Hampton Roads nonattainment area.

TABLE 1-2. Percent VMT distribution by hour of day.

Hour	Freeway	Arterial	Collector	Fast Trucks	Medium Trucks	Slow Trucks
1	1.74	1.25	1.17	5.94	3.20	4.67
2	0.99	0.66	0.61	7.34	3.91	6.42
3	0.69	0.40	0.41	8.50	4.98	8.47
4	0.57	0.28	0.34	8.93	6.05	8.47
5	0.75	0.36	0.70	5.89	6.05	6.42
6	1.86	0.98	2.77	3.24	5.34	4.38
7	4.79	3.25	5.10	2.94	5.34	4.38
8	6.35	5.08	5.15	3.98	6.41	4.96
9	5.54	5.60	4.72	4.17	6.41	4.96
10	4.63	5.32	4.86	4.11	6.41	4.67
11	4.61	5.40	5.20	3.81	5.69	4.67
12	4.91	5.74	5.63	3.81	5.69	4.38
13	5.17	6.24	6.10	3.50	5.34	3.80
14	5.37	6.28	6.02	3.44	5.34	3.80
15	5.88	6.41	6.32	2.84	4.63	3.21
16	6.91	7.06	7.24	2.29	3.20	2.34
17	8.22	7.68	8.12	2.04	2.49	2.04
18	7.72	7.45	7.75	2.46	2.14	2.04
19	6.30	6.79	6.17	2.64	2.14	2.04
20	5.02	5.49	4.59	3.00	1.78	2.63
21	3.91	4.32	3.73	3.09	1.78	2.63
22	3.38	3.53	3.19	3.57	1.78	2.48
23	2.97	2.59	2.41	3.93	1.78	2.77
24	2.43	1.84	1.68	4.53	2.14	3.36

SUMMARY

The Hampton Roads ozone nonattainment area is subject to the Phase II Interim conformity requirements for NO_x and VOCs specified in the Final Rule. In brief, these require the demonstration that implementation of the RTP and TIP does not result in reduced air quality or delay timely attainment of any standard or required emission reduction or other milestone. Specifically, Hampton Roads must demonstrate that:

1. Emissions from the proposed plan (or Build scenario) are less than those for the base (or No-Build) scenario.

2. Emissions from the proposed plan are less than 1990 emission levels.

Hourly, gridded emissions from the No-Build and Build scenarios were calculated by combining motor vehicle activity estimates from MINUTP and emission factors from MOBILE5a using DTIM. The emissions from other transportation projects that were potentially significant but were not suitable for analysis with the travel demand model were analyzed using sketch planning techniques. Documentation of socioeconomic and transportation projections are provided in Chapter 2; results of the emissions analysis and documentation of the RTP and TIP conformity determinations are included in Chapter 3; documentation of conformity consultation is provided in Chapter 4.

2 DOCUMENTATION OF SOCIOECONOMIC AND TRANSPORTATION PROJECTIONS

This chapter documents the socioeconomic and transportation projections used for the transportation conformity analysis of the RTP and TIP for the Hampton Roads nonattainment area. This fulfills a number of requirements from the Final Rule:

Section 51.404—Content of transportation plans
Section 51.412—Latest planning assumptions
Section 51.418—Timely implementation of TCMs

Fulfillment of other Final Rule documentation requirements is addressed in Chapter 3.

SOCIOECONOMIC PROJECTIONS

The travel demand estimates that were used in the conformity analysis are the end result of a model chain that begins by forecasting and distributing population and employment within the Hampton Roads area, which is under the Hampton Roads Planning District Commission. The socioeconomic characteristics for the Hampton Roads region were provided by the Hampton Roads Planning District Commission (HRPDC). Projections for the years 1990 and 2015 were estimated through the conventional forecasting process as described below. All the estimates for the other target years were derived by assuming a linear growth factor between the forecast years of 1990 and 2015.

The socioeconomic data used in the travel demand model were developed through the combined efforts of the Hampton Roads Planning District Commission (HRPDC) and the Hampton Roads MPO member governments of City of Chesapeake, Gloucester County, City of Hampton, Isle of Wight County, James City County, City of Newport News, City of Norfolk, City of Poquoson, City of Portsmouth, City of Suffolk, City of Williamsburg, City of Virginia Beach and York County. The 1990 estimates of population, dwelling units, number of autos and employment were developed by HRPDC for all the traffic zones falling under their jurisdiction. The 1990 and 2015 economic forecast, prepared by the economic analysts of the HRPDC were published in February 1993. This document established the regional and jurisdictional control totals for all inputs to the trip generation program of the regional travel demand model. These elements include total employment, households, and automobiles that are termed residential productions. Other elements include total employment, retail, non-retail, military, major shopping center and airport employment which are termed as attractions. The number of dwelling units and autos were derived from the population projections

3 TIP/RTP CONFORMITY DEMONSTRATION

This chapter documents the transportation conformity finding for the 1994 TIP and Financially Constrained RTP under the requirements in the Final Rule. In brief, regional emissions resulting from the Build scenarios for the 2000, 2005, and 2015 future years are found to be lower than those for the No-Build and 1990 base scenarios, indicating that the TIP and RTP fulfill the Phase II Interim conformity requirements.

Documentation of socioeconomic data, travel activity estimates, TIP/RTP projects, and TCM implementation required under the Final Rule conformity criteria are presented in Chapter 2; conformity consultation procedures are documented in Chapter 4. Detailed documentation of projects included in the TIP and RTP is included in Appendix A.

CONFORMITY DEMONSTRATION

Summary of Requirements

This chapter assesses and documents the conformity status of the 1994 TIP/RTP under the requirements of the November 24, 1993, EPA/DOT Final Rule (40 CFR Part 51). As previously discussed, this assessment was made for volatile organic compounds (VOC) and oxides of nitrogen (NO_x), as ozone O_3 precursors, using estimates of regional-scale emissions made by DTIM and emission factors calculated by MOBILE5a.

Figure 3-1 summarizes the applicable requirements for a conformity finding for ozone. The Final Rule requires that VOC and NO_x emissions in the Build scenario are lower than emissions in the baseline or No Build scenario (Sections 51.436, 51.438). Since the Hampton Roads area is currently in Phase II of the Interim Period, an estimate of regional VOC and NO_x emissions for the year 1990 is also required under the Final Rule. Motor vehicle regional VOC and NO_x emissions must be below 1990 levels for the Build case to show conformity under the Final Rule.

Emissions Analysis Results

Tables 3-1 through 3-3 summarize motor vehicle emissions estimates for the Southeast and Peninsula networks and results of the off-network emissions analysis. Emissions from the Southeast portion of the nonattainment area comprise approximately 60 percent of the total regional emissions, Peninsula emissions make up 32 percent, and off-network emissions (emissions calculated from VMT occurring outside the transportation modeling network) account for 8 percent of the total VOCs and NO_x. The regional emissions

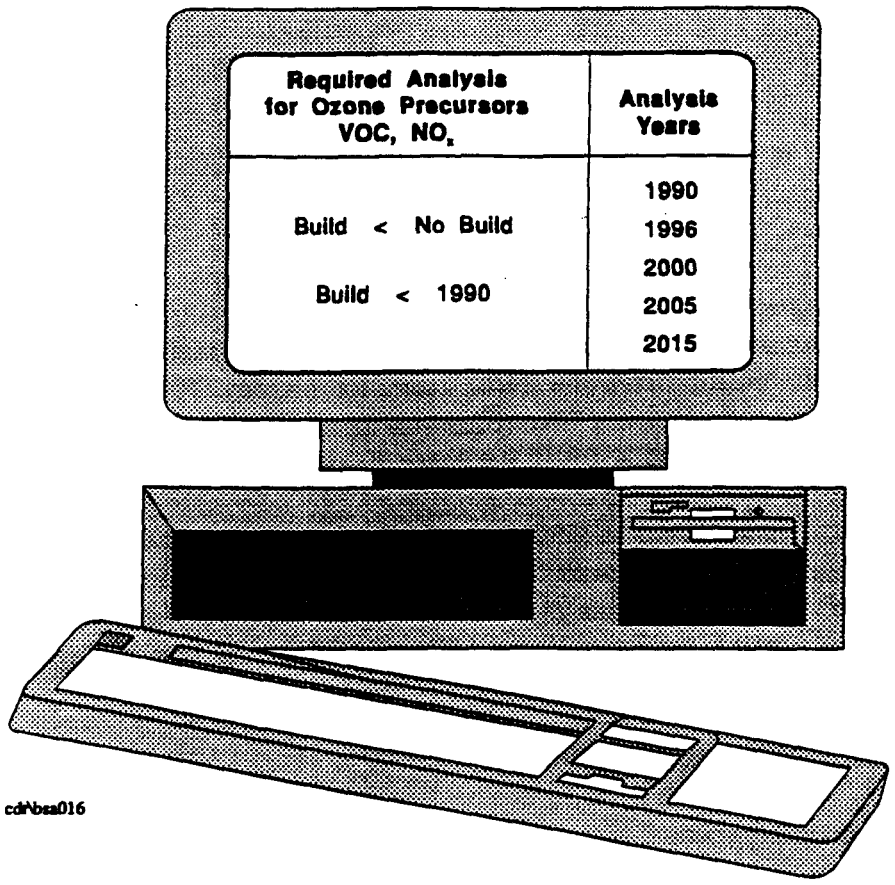


FIGURE 3-1. Conformity requirements for Hampton Roads.

totals (discussed in the next section) reflect reductions resulting from the analysis of the High Occupancy Vehicle (HOV) lane program, described in Chapter 1. Table 3-4 summarizes these reductions. Appendix B details the analysis methodology.

In addition to HOV lanes, other "traditional" TCMs were evaluated for potential emissions reductions using sketch planning techniques. Measures evaluated included ridesharing, increased transit service, compressed work weeks, and telecommuting. The results of the analysis indicated that reductions would be regionally insignificant; consequently, these measures are not included in the conformity analysis.

Conformity Finding Documentation

Ozone Conformity Findings Under Phase II Conformity Requirements

As noted in Chapter 1, estimates of emissions from motor vehicles for the TIP/RTP were made using the latest planning assumptions and emissions model (MOBILE5a), in

TABLE 3-1. Emissions totals (tons/day) for the Southeast portion of the Hampton Roads nonattainment area.

Scenario	VOC	NO_x
1990 Base	48.29	41.63
1996 Base	29.86	41.83
2000 No-Build	24.22	39.16
2000 Build	24.18	39.30
2005 No-Build	21.96	38.12
2005 Build	21.46	37.46
2015 No-Build	23.96	40.95
2015 Build	22.83	41.09

TABLE 3-2. Emissions totals (tons/day) for the Peninsula portion of the Hampton Roads nonattainment area.

Scenario	VOC	NO_x
1990 Base	27.14	22.96
1996 Base	16.89	22.89
2000 No-Build	13.19	20.66
2000 Build	13.01	20.68
2005 No-Build	12.52	21.11
2005 Build	12.09	21.22
2015 No-Build	13.59	21.84
2015 Build	12.87	21.83

TABLE 3-3. Off-network emissions totals (tons/day) for Hampton Roads nonattainment area.

Scenario	VOC	NO_x
1990 Base	4.77	7.11
1996 Base	3.09	6.29
2000 No-Build	2.39	5.68
2000 Build	2.39	6.68
2005 No-Build	2.10	5.37
2005 Build	2.07	5.30
2015 No-Build	2.23	5.68
2015 Build	2.20	5.62

TABLE 3-4. Summary of emissions reductions (tons/day) from HOV lanes.

	1996 Base	2000 No-Build	2000 Build	2005 No-Build	2005 Build	2015 No-Build	2015 Build
VOC	0.48	0.37	0.53	0.32	0.49	0.31	0.57
NO_x	0.67	0.59	0.86	0.56	0.85	0.51	0.99

accordance with the requirements in sections 51.412 and 51.414 of the Final Rule. Table 3-5 presents regional emission totals resulting from this analysis. As can be seen, estimates of NO_x and VOC emissions from the Build scenario for 2000, 2005, and 2015 are lower than emissions estimated for the No-Build scenario, fulfilling the requirements for conformity specified in sections 51.436 and 51.438 of the Final Rule. "Build" scenario emissions are also lower than calculated 1990 emissions levels, satisfying the Phase II Interim Period conformity requirements. Figures 3-2 and 3-3 compare the results of the Build/No-Build comparison.

TABLE 3-5. Emissions for Hampton Roads nonattainment area (tons/day).

Scenario	VOC	NO_x
1990 Base	80.19	71.69
1996 Base	49.36	70.34
2000 No-Build	39.42	64.91
2000 Build	39.04	64.80
2005 No-Build	36.26	64.04
2005 Build	35.13	63.13
2015 No-Build	39.48	67.96
2015 Build	37.33	67.54

CONCLUSIONS

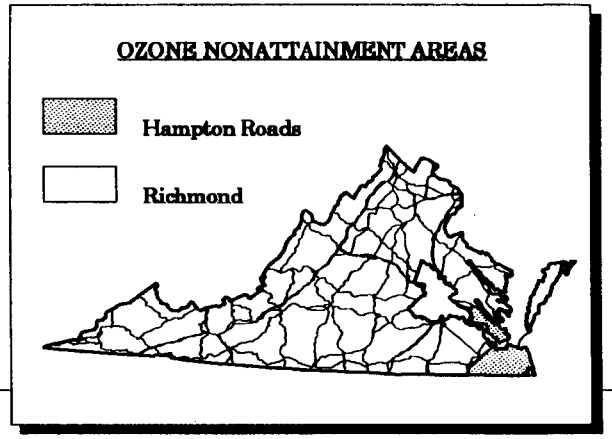
The transportation conformity evaluation for the Hampton Roads nonattainment area show that the TIP and RTP fulfill the following criteria:

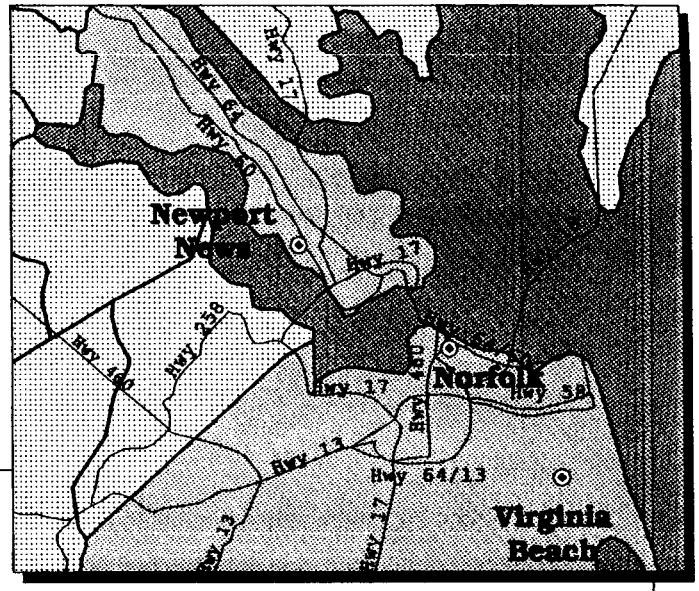
1. Emissions from the proposed plan (or Build case) are less than those for the base scenario (or No-Build case).

2. Emissions from the proposed plan are less than 1990 emission levels.

In addition, all documentation and other conformity requirements specified in the Final Rule have been fulfilled. From this it can be concluded that the TIP and RTP are in conformance and may be approved by the local MPOs, VDOT, and FHWA.

Figure 3-2. Comparison for NOx





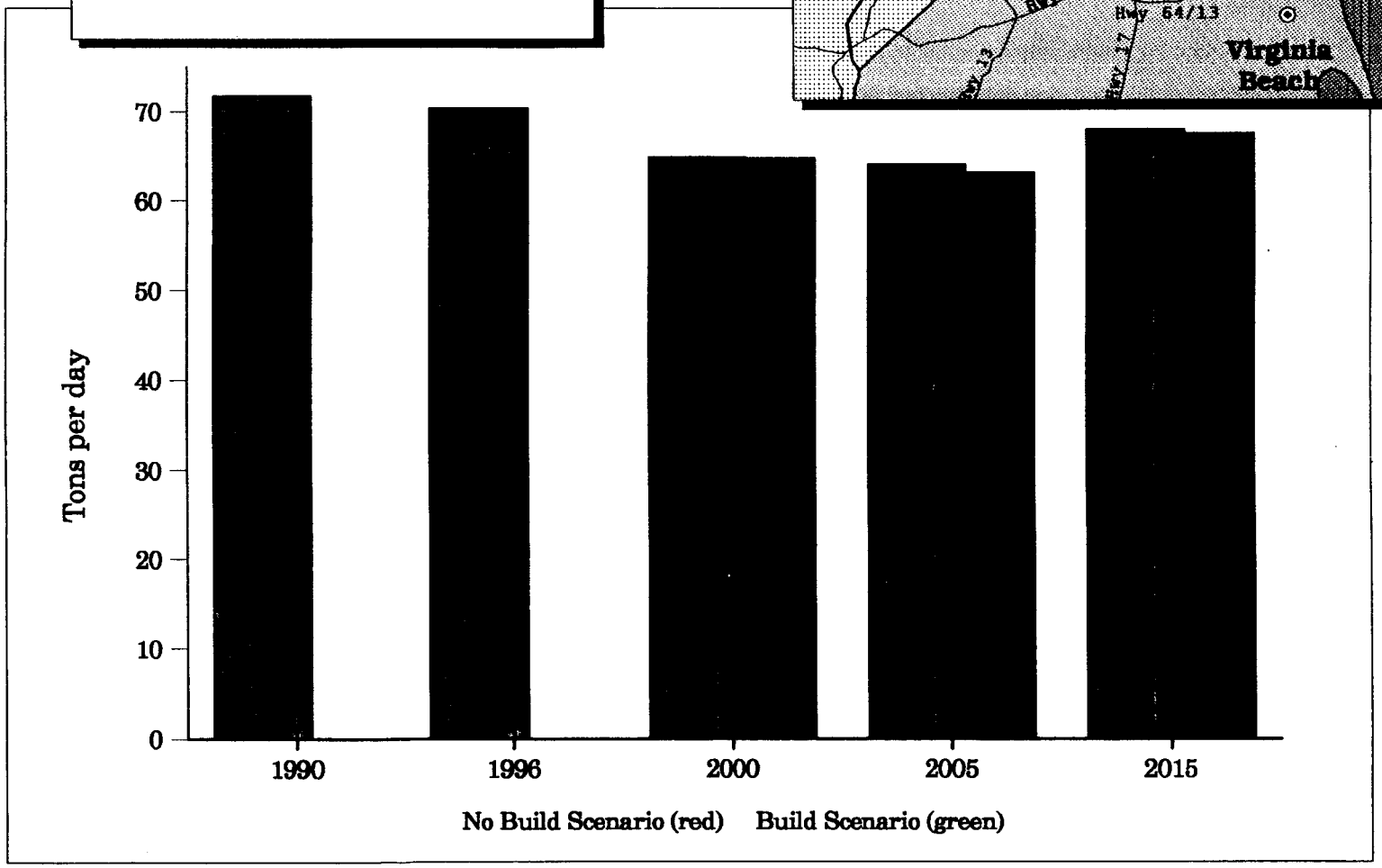
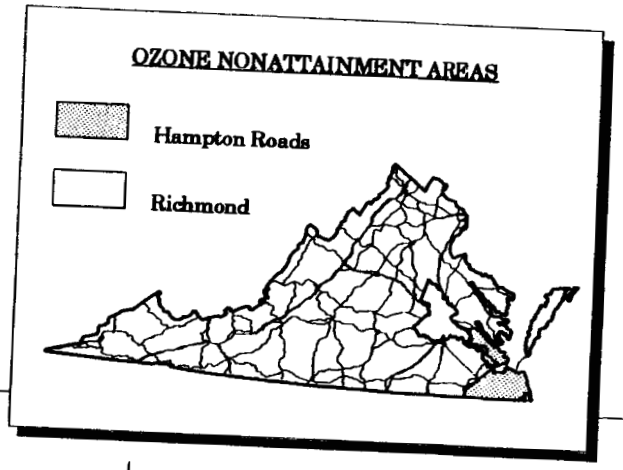
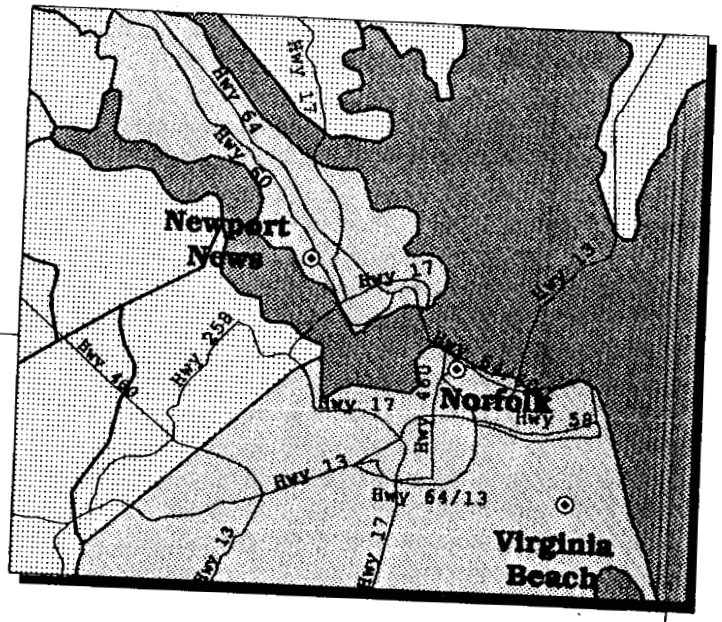
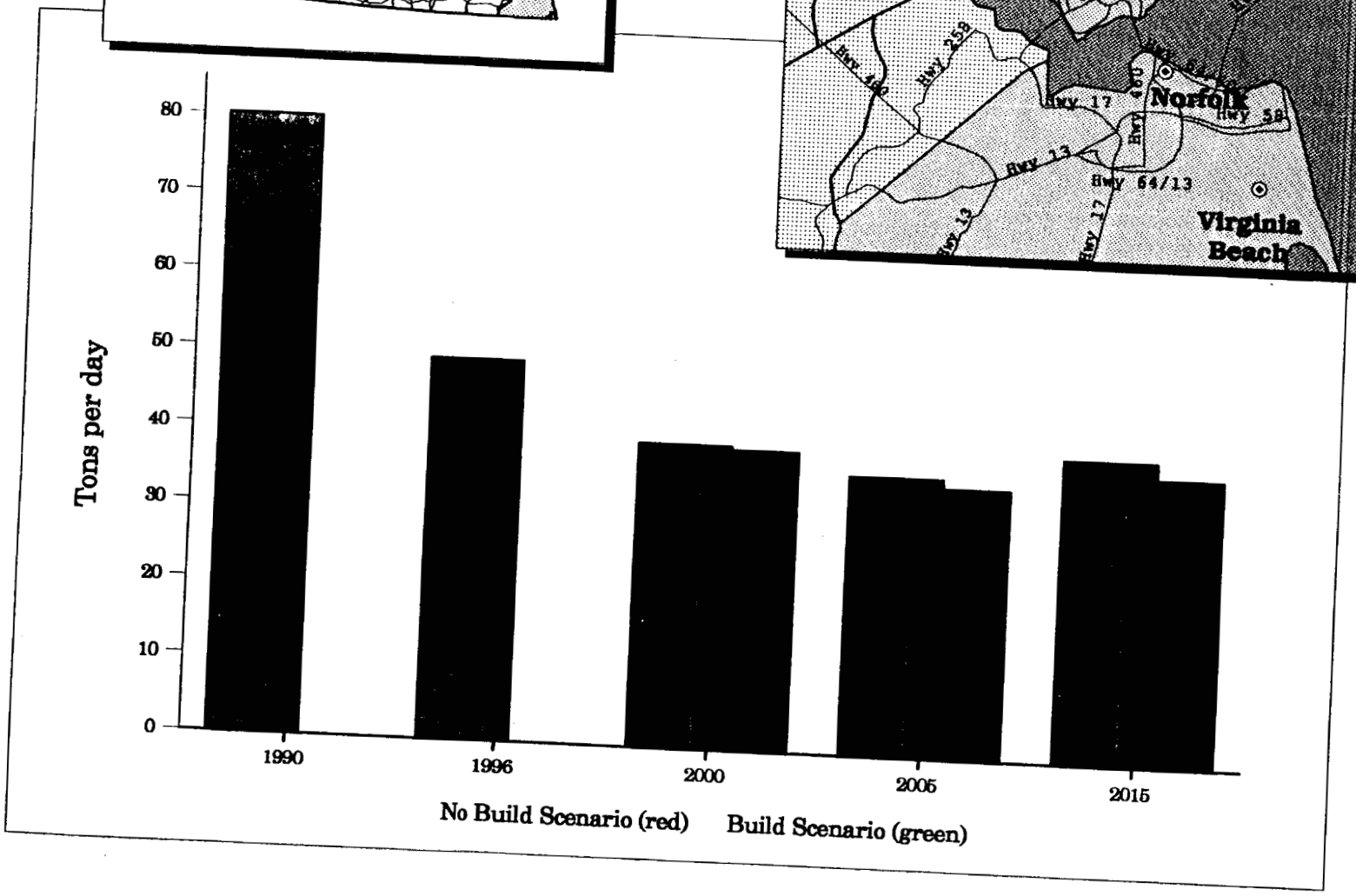


Figure 3-3. Comparison for VOC







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Kenneth Leventhal & Company

CITY OF LONG BEACH

Rental Housing and Medical Facilities Analysis

April 25, 1995

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The accompanying report, containing an analysis of the availability of suitable rental housing and medical facilities that would be available to the crew of U.S. Navy aircraft carriers based at the Port of Long Beach Naval Shipyard (LBNSY), has been prepared in accordance with the terms of our engagement letter dated March 22, 1995.

The analysis is based on certain estimates, assumptions, and other information developed from our research of the market, knowledge of the industry, and discussions with you and other representatives of the City of Long Beach and LBNSY, during which we were provided with certain information. The sources of information and bases of the estimates and assumptions are stated herein. While we believe that the sources of information are reasonably reliable, Kenneth Leventhal & Company does not express an opinion or any form of assurance on the accuracy of such information.

Our report is intended for your use in assisting the U.S. Navy and the Government Accounting Office to evaluate the availability of suitable rental housing and medical facilities in and around the Long Beach area and should not be used for any other purpose. The terms of our engagement did not provide for reporting on events and transactions that occur subsequent to the date of this report. However, we are available to discuss additional research and analysis as necessary.

Kenneth Leventhal & Company

April 25, 1995

CITY OF LONG BEACH
RENTAL HOUSING AND MEDICAL FACILITIES ANALYSIS

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I. EXECUTIVE SUMMARY

The City of Long Beach has retained Kenneth Leventhal & Company to conduct an analysis of the availability of suitable rental housing and medical facilities in and around the Long Beach area that could serve the personnel and families associated with up to three nuclear aircraft carriers that could be based at the Long Beach U.S. Naval Shipyard (LBNSY). The results of our study are outlined in this Executive Summary. Details of our methodology, findings, and conclusions are presented in subsequent sections of this report.

A. Availability of Suitable Rental Housing

Within the 20-mile radius of LBNSY, representing an approximately 45-minute to one-hour commuting distance, there are approximately 880,000 rental housing units. Net of approximately 330,000 units that are located in an area excluded from our analysis, the estimated rental inventory in the market area totals 550,000 units in 1995 and is

projected to increase to 600,000 by 2005. The excluded area is generally bounded by the Long Beach Freeway, the San Diego and Harbor Freeways, the Santa Monica Freeway, and the Pacific Ocean. (The area within the 20-mile radius, less the excluded area, is referred to in this report as the Market Area.)

Market vacancy rates vary by neighborhood and currently average approximately 5.5 percent for central Orange County and approximately 11.1 percent for the South Bay region of Los Angeles County. Based on an average vacancy rate of 8.6 percent, there are approximately 47,400 vacant rental units within the Market Area.

Recent surveys of the South Bay and central Orange County rental markets indicate that approximately 57 percent, or 27,000, of the available units feature two or more bedrooms, with monthly rental rates falling within the monthly housing allowance range for Navy carrier personnel. Accordingly, there is sufficient rental housing to accommodate the estimated 2,500 to 7,500 housing units required per carrier.

Based on the above analysis, the 2,500 units of required Navy housing for one carrier represent a less than 10 percent capture of the currently available rental housing. The capture rate would be less if some Navy personnel choose to purchase rather than rent. In addition, the supply of rental housing could be increased if new multifamily development is encouraged with the announcement of increased local employment and increased demand for housing as a result of Navy carriers being home-ported at LBNSY. Our analysis also indicates a surplus of rental housing in 2005, with three carriers home-ported at LBNSY. In 2005, the estimated required housing of 7,500 units for three carriers represents an approximately 25% capture of the projected 29,500 vacant units with two or more bedrooms.

B. Medical Facilities Capacity

Within the 20-mile radius area, we identified 24 general medical and surgical hospitals with over 7,500 total beds. These hospitals reported an average daily occupancy of 62 percent, reflecting significant excess capacity. The average daily occupancy suggests that there are approximately 2,850 beds unoccupied daily.

Navy personnel from LBNSY currently receive service primarily from four hospitals. These hospitals include the Long Beach Community Hospital, Long Beach Memorial Medical Center, St. Mary Medical Center, and the Veterans Affairs Medical Center. With the exception of the Veterans Affairs Medical Center, these facilities report an average daily occupancy of 55 percent or less. The Veterans Affairs Medical Center reports an average daily occupancy of 88 percent.

C. Conclusion

Based on the above analysis, there is sufficient rental housing within a 45-minute to one-hour commuting distance of LBNSY to support the home-porting of up to three carriers. In addition, there are adequate resources and capacity among existing medical facilities to support carrier personnel and their families.

II. INTRODUCTION

A. Background

On April 28, 1995, the U.S. Navy will conduct Defense Base Realignment and Closure Commission hearings in San Francisco to evaluate the continued use of various naval facilities throughout California, including LBNSY. One issue expected to be raised at these hearings is the decision over where to base up to three active nuclear aircraft carriers (CVNs). The City of Long Beach has proposed that these carriers be based at LBNSY.

The primary function of a CVN home-port is to provide routine support and maintenance to the ship while it is not at sea. For a six-month period every two years, the ship is docked at the home-port for major repairs and overhaul. Three new CVNs

are in various stages of planning or construction, with the first scheduled for completion in 1998 and the remaining two carriers due to be completed between 1999 and 2005.

It is our understanding that measurable factors involved with the decision on home-port locations include the capability of existing shipyard infrastructure, the availability of affordable rental housing, and the resources and capacity of local medical facilities. The Navy has expressed doubt that an adequate supply of suitable rental housing and medical resources exists to accommodate the families of CVN personnel.

B. Objectives

The primary objective of the engagement was to analyze the availability of affordable rental housing, and the resources and capacity of local medical facilities to support up to three CVNs at LBNSY.

C. Scope of Work

With the above objective in mind, our research methodology included, but was not necessarily limited to, the following scope of work:

- Interviewed City of Long Beach and LBNSY representatives to gather information related to CVNs and issues related to home-porting.
- Interviewed representatives of the U.S. Navy to gather information on the demographics of aircraft carrier personnel and their housing and medical facility requirements.
- Collected and analyzed local rental housing information, including current and projected inventory, vacancy level, and rental rates.
- Collected and analyzed local medical and health care facilities to determine bed capacity, occupancy, available resources, location, and the extent of participation in the Civilian Health and Medical Program for the Uniformed Services (CHAMPUS).

The results of our research and analysis are summarized in this report.

III. RENTAL HOUSING

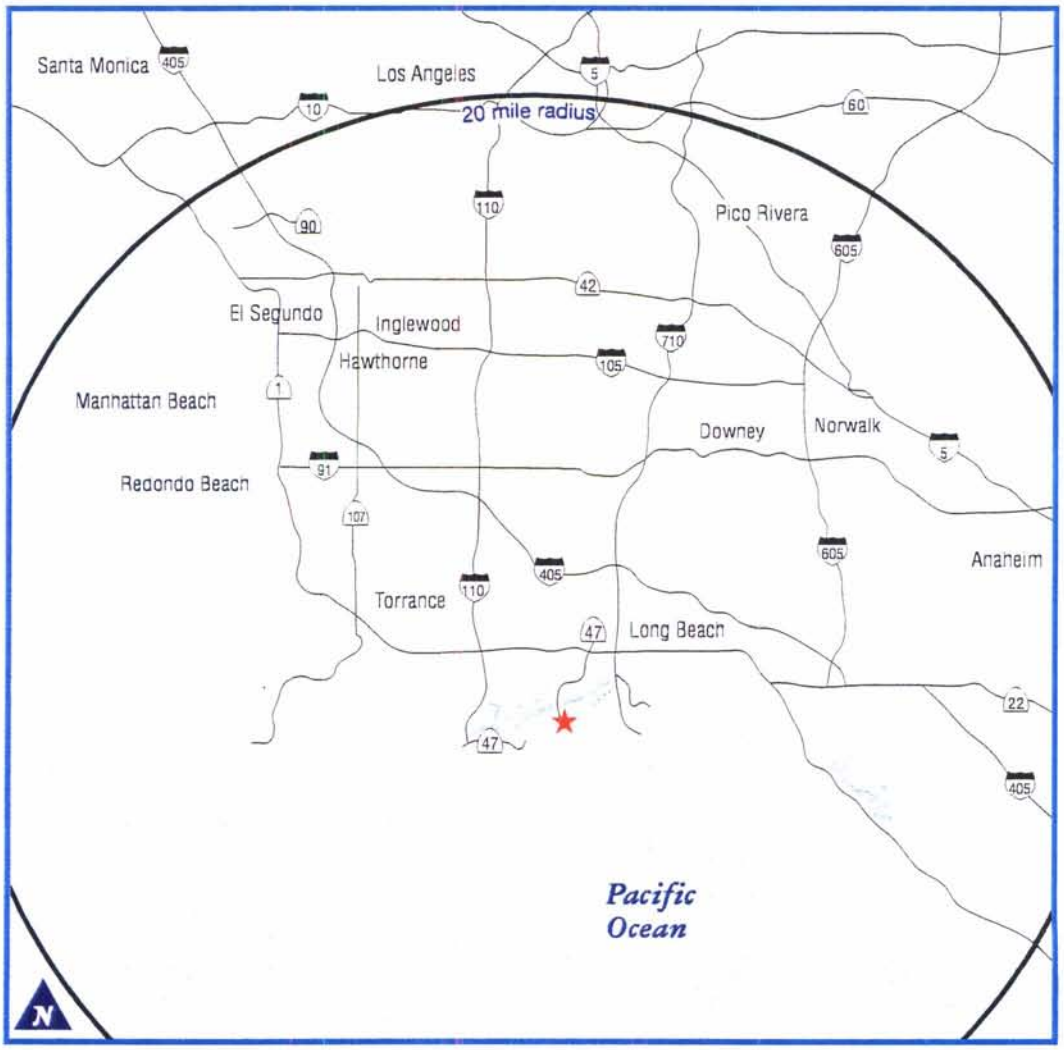
This section compares the estimated required rental housing units for three CVNs to the supply of rental housing available within the 20-mile radius of LBNSY.

A. Existing Rental Housing

Based on information provided by Urban Decision Systems (UDS), there are approximately 880,000 rental housing units within the 20-mile radius of LBNSY. The 20-mile radius represents an approximately 45-minute to one-hour commuting distance. Within the defined 20-mile radius, an area bounded by the Long Beach Freeway (east), the San Diego and Harbor Freeways (west), the Santa Monica Freeway (north), and the Pacific Ocean (south) was excluded. Neighborhoods within the excluded area may not be desired by Navy personnel and their families due to high rates of crime. Exhibit 1 is a map identifying the Market Area, defined to be the 20-mile radius area less the excluded area.

EXHIBIT 1

MARKET AREA



★ *Long Beach U.S. Naval Shipyard*

◯ *Shaded area indicates excluded markets*

There are currently approximately 330,000 rental units within the excluded area. Accordingly, the inventory of rental housing within the Market Area is estimated to be approximately 550,000 units in 1995 and 600,000 units by 2005 (see Exhibit 2 below).

EXHIBIT 2
ESTIMATED TOTAL HOUSING UNITS

Area	1995	2000	2005
20-mile radius of LBNSY	882,796	925,487	970,280
Less: excluded area [1]	333,700	352,555	372,474
Market area total	549,096	572,932	597,806

[1] Area bounded by Long Beach Freeway (east), San Diego and Harbor Freeways (west), Santa Monica Freeway (north), and Pacific Ocean (south).

Source: Urban Decision Systems

B. Distribution by Unit Type and Rental Rate

Based on two surveys of the Los Angeles and Orange County apartment markets conducted by the Southern California Apartment Owners Association (AOA) and the Research Network Ltd. (RNL), respectively, approximately 55 percent of the existing inventory consists of apartments with two or more bedrooms. Studios and one-bedroom units account for the remaining 45 percent. When applied to the total estimated rental housing stock of 549,096 units in the Market Area, there are approximately 301,454 apartment units with two or more bedrooms. While Navy families may rent studio or one-bedroom units, they were generally considered too small and were not included in our estimate of available rental units.

Utilizing the results of surveys completed by AOA and RNL, we estimated the distribution of units by monthly rental rate. Three categories of monthly rent were utilized, based on the range of monthly housing allowance provided to Navy personnel. (For purposes of this report, pay segment E7 to Officers includes ranks W1 to W5.) Exhibits 3 and 4 summarize the distribution of rental units by number of bedrooms and monthly rent.

EXHIBIT 3
ESTIMATED DISTRIBUTION OF RENTAL UNITS BY TYPE AND MONTHLY RENTAL RATE RANGE FOR THE MARKET AREA [1]
(PERCENT OF TOTAL - 1995)

Rank and Monthly Rental Rate Range	Studio and One-Bedroom	Two or More Bedrooms	Total
E1 - E3 (less than $630)	25.6%	9.0%	34.6%
E4 - E6 ($631 - $867)	19.3	31.2	50.5
E7 - officers ($868 - $1,470)	0.2	14.7	14.9
Total	45.1%	54.9%	100.0%

[1] Based on a sample of apartments included in the AOA and RNL surveys.

Source: Apartment Owners Association of Southern California; The Research Network Ltd.; U.S. Military Monthly Housing Allowances for Families with Dependents; Kenneth Leventhal & Company

EXHIBIT 4
ESTIMATED DISTRIBUTION OF RENTAL UNITS BY TYPE AND MONTHLY RENTAL RATE RANGE FOR THE MARKET AREA [1]
(TOTAL RENTAL UNITS - 1995)

Rank and Monthly Rental Rate Range	Studio and One-Bedroom	Two or More Bedrooms	Total
E1 - E3 (less than $630)	140,569	49,144	189,713
E4 - E6 ($631 - $867)	105,976	171,592	277,568
E7 - officers ($868 - $1,470)	1,098	80,717	81,815
Total	247,643	301,453	549,096

[1] Based on a sample of apartments included in the AOA and RNL surveys.

Source: Apartment Owners Association of Southern California; The Research Network Ltd.; U.S. Military Monthly Housing Allowances for Families with Dependents; Kenneth Leventhal & Company

C. Market Vacancy

Based on the same surveys, the average vacancy rate for the South Bay region of Los Angeles County, which includes Long Beach and other communities north of Long Beach, is estimated to be approximately 11.1 percent. Central Orange County, including those communities located within the 20-mile radius of LBNSY, has an average apartment vacancy of approximately 5.5 percent.

Based on an estimated average vacancy rate of 8.6 percent and an analysis of vacant units by number of bedrooms and monthly rental rate levels, it is estimated that approximately 27,000 of the total 47,400 vacant units are units with two or more bedrooms. Exhibits 5 and 6 are distributions of average market vacancy and vacant units by type and monthly rental rate range.

EXHIBIT 5
ESTIMATED DISTRIBUTION OF AVERAGE MARKET VACANCY BY TYPE AND MONTHLY RENTAL RATE RANGE FOR THE MARKET AREA [1]
(1995)

Rank and Monthly Rental Rate Range	Studio and One-Bedroom	Two or More Bedrooms	Total
E1 - E3 (less than $630)	2.74%	1.03%	3.77%
E4 - E6 ($631 - $867)	0.93	2.90	3.83
E7 - officers ($868 - $1,470)	0.02	1.01	1.03
Total	3.69%	4.94%	8.63%

[1] Based on a sample of apartments included in the AOA and RNL surveys.

Source: Apartment Owners Association of Southern California; The Research Network Ltd.; U.S. Military Monthly Housing Allowances for Families with Dependents; Kenneth Leventhal & Company

EXHIBIT 6
ESTIMATED DISTRIBUTION OF VACANT UNITS BY TYPE AND MONTHLY RENTAL RATE RANGE FOR THE MARKET AREA [1]
(1995)

Rank and Monthly Rental Rate Range	Studio and One-Bedroom	Two or More Bedrooms	Total
E1 - E3 (less than $630)	15,045	5,656	20,701
E4 - E6 ($631 - $867)	5,107	15,923	21,030
E7 - officers ($868 - $1,470)	110	5,546	5,656
Total	20,262	27,125	47,387

[1] Based on a sample of apartments included in the AOA and RNL surveys.

Source: Apartment Owners Association of Southern California; The Research Network Ltd.; U.S. Military Monthly Housing Allowances for Families with Dependents; Kenneth Leventhal & Company

These vacant units are located in a variety of project types (i.e., small, large, old, new, with and without recreational amenities) located throughout the Market Area. As part of this engagement, we did not attempt to identify specific projects where Navy personnel may choose to rent. However, within the 20-mile radius market area, there are two large-scale master-planned communities planned for development. New housing within these projects would also be available in the future for Navy personnel.

- Playa Vista in Marina del Rey, consisting of approximately 1,000 acres, is the largest urban residential development in the country. The first phase of development is expected to start in 1996 and is planned for 3,246 residential units, of which 487 units will be classified as moderate- to very low-income rental apartments. Monthly rental rates are expected to range from $441 to $1,200 for various unit types and bedroom configurations.

- Approximately 2,300 single-family detached units are planned for the Bolsa Chica development in Huntington Beach. Approximately 1,450, or 63 percent, of the total units are expected to be priced below $200,000. These homes may

be appropriate for officers or other Navy personnel choosing to purchase rather than rent. The first phase of development is expected to start in 1997.

D. Projected Rental Housing Supply

As previously stated, UDS estimates that the total supply of rental units in the Market Area will increase to approximately 600,000 units by 2005. The estimated total housing units in 2000 is approximately 573,000. Assuming similar vacancy rates and similar distributions of unit types and rental rate categories, the following table summarizes the estimated availability of rental housing in 2000 and 2005.

EXHIBIT 7
PROJECTED VACANT RENTAL UNITS WITH TWO OR MORE BEDROOMS

Rank and Monthly Rental Rate Range	2000	2005
E1 - E3 (Less than $630)	5,901	6,157
E4 - E6 ($631 - $867)	16,616	17,337
E7 - Officers ($868 - $1,470)	5,786	6,038
Total	28,303	29,532

Source: Urban Decision Systems; Kenneth Leventhal & Company

E. Housing Requirements

It is our understanding that a typical CVN has a crew of approximately 3,125 enlisted personnel and officers, approximately 2,500, or 80 percent, of whom receive a monthly housing allowance to support a residence for their dependents. Unmarried or childless crew members must either live on board the ship when it is home-ported or support a residence with their regular wages. Three CVNs would have a combined crew of approximately 9,400, including approximately 7,500 members that would require off-base housing for their dependents by the year 2005.

For purposes of our analysis, the estimated 2,500 required housing units per carrier were allocated by rank, based on a distribution of total personnel and an estimated

percentage of personnel with dependents by rank. Exhibit 8 summarizes the resulting distribution of estimated housing requirement by rank.

EXHIBIT 8
ESTIMATED HOUSING REQUIREMENT BY RANK PER CARRIER

Rank	Total Number of Carrier Personnel [1]	Percent of Total	Estimated % With Dependents	Estimated Off-Ship Housing Requirement
E1 - E3	1,261	40.3%	60%	756
E4 - E6	1,529	48.9	95	1,452
E7 - E9	181	5.8	95	172
Officers	155	5.0	75	116
Total/average	3,125	100.0%	80%	2,496

(1) For a typical nuclear aircraft carrier.

Source: U.S. Navy; Kenneth Leventhal & Company

The estimated off-ship housing requirement of 2,500 units per carrier assumes that no capacity exists in existing military-controlled housing and that no new housing is constructed for the use of potential CVN personnel. In addition, the estimate considers housing for direct carrier personnel only and does not consider housing for any new permanent LBNSY personnel as a result of the home-porting of CVNs.

F. Comparison of Available to Required Housing

A comparison of the estimated vacant rental units with two or more bedrooms and with monthly rental rates within the range of monthly military housing allowances indicates that there is a surplus of available rental housing at all ranks. A table summarizing the comparison is presented as Exhibit 9 on the following page.

EXHIBIT 9

COMPARISON OF HOUSING REQUIREMENT TO VACANT HOUSING (1)

Rank	Monthly Rent Low	Monthly Rent High	1995 Housing Required (1)	1995 Suitable 2 & 3 BR Units (2)	1995 Surplus/ (Deficit)	1995 Capture Rate	Est. 2000 Housing Required (1)	Est. 2000 Suitable 2 & 3 BR Units (2)	Est. 2000 Surplus/ (Deficit)	Est. 2000 Capture Rate	Est. 2005 Housing Required (1)	Est. 2005 Suitable 2 & 3 BR Units (2)	Est. 2005 Surplus/ (Deficit)	Est. 2005 Capture Rate
Housing for One Carrier														
E1 - E3	$0	- $630	756	5,656	4,899	13.4%	756	5,901	5,145	12.8%	756	6,157	5,401	12.3%
E4 - E6	$631	- $867	1,452	15,924	14,472	9.1%	1,452	16,615	15,163	8.7%	1,452	17,336	15,884	8.4%
E7 - Officers	$868	- $1,470	288	5,546	5,258	5.2%	288	5,787	5,499	5.0%	288	6,038	5,750	4.8%
Total			2,496	27,125	24,629	9.2%	2,496	28,303	25,807	8.8%	2,496	29,532	27,036	8.5%
Housing for Two Carriers (One in 1995, Second in 2000)														
E1 - E3	$0	- $630					1,513	5,901	4,389	25.6%	1,513	6,157	4,645	24.6%
E4 - E6	$631	- $867					2,904	16,615	13,711	17.5%	2,904	17,336	14,432	16.8%
E7 - Officer	$868	- $1,470					575	5,787	5,212	9.9%	575	6,038	5,463	9.5%
Total							4,992	28,303	23,311	17.6%	4,992	29,532	24,540	16.9%
Housing for Three Carriers (One in 1995, Second in 2000, Third in 2005)														
E1 - E3	$0	- $630									2,269	6,157	3,888	36.8%
E4 - E6	$631	- $867									4,356	17,336	12,980	25.1%
E7 - Officer	$868	- $1,470									863	6,038	5,175	14.3%
Total											7,488	29,532	22,044	25.4%

(1) Based on estimated housing requirement of 2,498 per carrier (see Exhibit 5).
(2) Based on total vacant two and three-bedroom units (see Exhibit 4).

IV. MEDICAL FACILITIES

A. Existing Medical Facilities

Within the 20-mile radius of LBNSY, we identified 24 hospitals classified by the American Hospital Association (AHA) as offering general medical and surgical services, with a minimum of 100 beds. Exhibit 10 is a list of these hospitals, along with a summary of key services available. Exhibit 11 is a map identifying the locations of the selected hospitals.

EXHIBIT 10

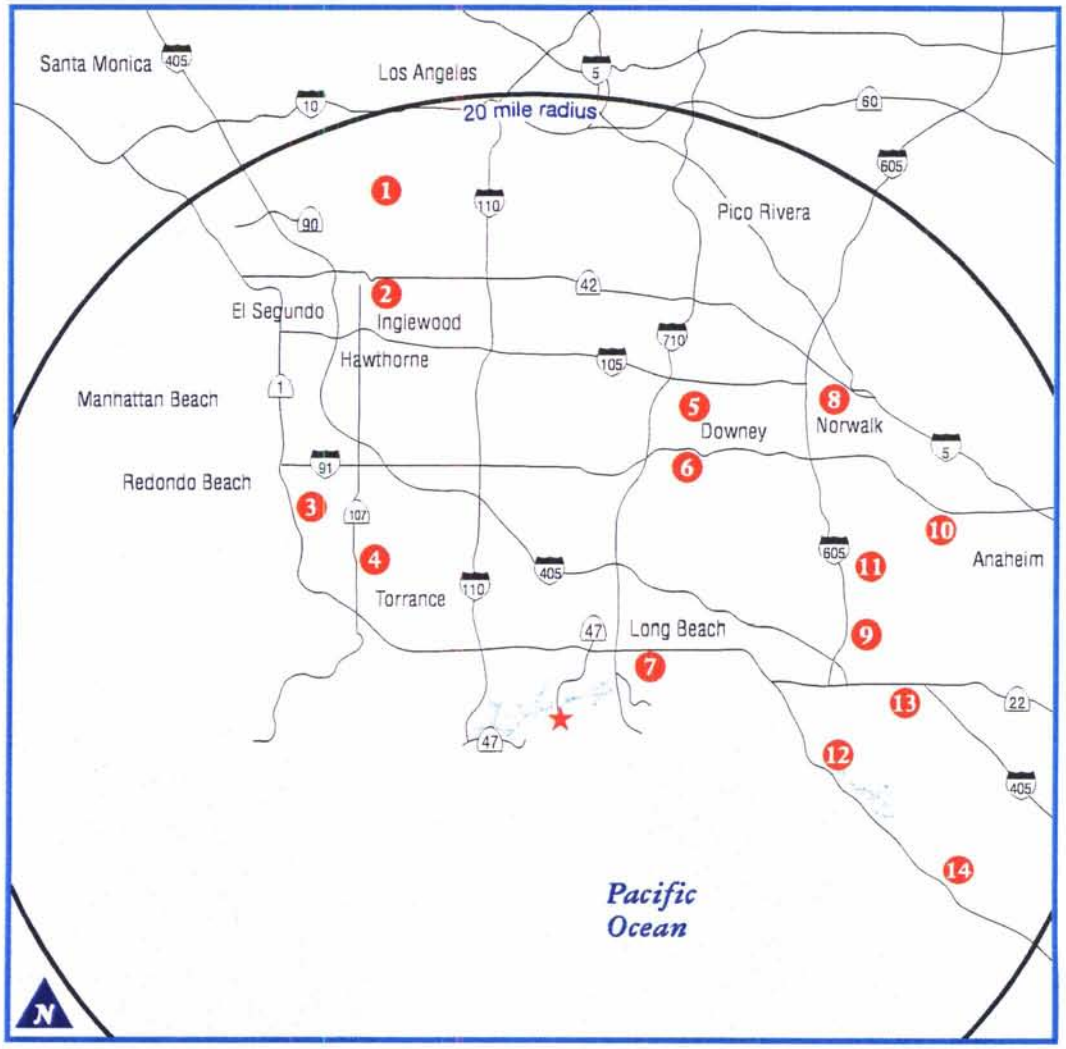
SELECTED MEDICAL FACILITIES AND ESTIMATED AVERAGE DAILY OCCUPANCY
(WITHIN 20 MILES OF LONG BEACH NAVAL SHIPYARD)

Map Ref.#	Hospital Name	City	Beds	Average # Inpatients per Day	Average Daily Occupancy	Selected Patient Services: Trauma Center	Medical/ Surgical	Obstetrics	Orthopedic Surgery
1	Brotman Medical Center	Culver City	317	N/A	N/A		X	X	X
2	Centinela Hospital Medical Center	Inglewood	375	183	49%		X	X	X
2	Daniel Freeman Memorial Hospital	Inglewood	330	250	76%		X	X	X
3	AMI South Bay Hospital	Redondo Beach	150	82	55%		X	X	X
4	LAC-Harbor-UCLA Medical Center	Torrance	493	407	83%	X	X	X	X
4	Little Company of Mary Health Services	Torrance	224	143	64%		X	X	X
4	Torrance Memorial Medical Center	Torrance	320	200	63%		X	X	X
5	Downey Community Hospital Foundation	Downey	337	126	37%		X	X	X
6	Bellflower Medical Center	Bellflower	145	N/A	N/A		X	X	X
6	Kaiser Foundation Hospital	Bellflower	314	223	71%		X	X	X
7	* Long Beach Community Hospital	Long Beach	302	146	48%	X	X	X	X
7	* Long Beach Memorial Medical Center	Long Beach	729	400	55%	X	X	X	X
7	Pacific Hospital of Long Beach	Long Beach	152	54	36%		X	X	X
7	* St. Mary Medical Center	Long Beach	556	283	51%	X	X	X	
7	* Veterans Affairs Medical Center	Long Beach	1,131	1000	88%		X		X
7	San Pedro Peninsula Hospital	San Pedro	199	90	45%		X	X	X
8	Coast Plaza Doctors Hospital	Norwalk	126	45	36%		X		X
9	Los Alamitos Medical Center	Los Alamitos	173	N/A	N/A		X	X	X
10	Orange County Community Hospital	Buena Park	159	32	20%		X		
11	AMI Hospital and Medical Center	Garden Grove	154	86	56%		X	X	X
12	Huntington Beach Medical Center	Huntington Beac	135	135	100%		X	X	X
12	Pacifica Community Hospital	Huntington Beac	103	31	30%		X		X
13	FHP Hospital	Fountain Valley	230	116	50%		X	X	
14	Hoag Memorial Hospital Presbyterian	Newport Beach	355	236	66%		X	X	X
	Total/ Weighted Average		7,509		62%				

*Indicates hospitals currently providing service to Navy personnel.
N/A: Information not available.
Source: 1994 American Hospital Association (AHA) Guide
All facilities classified as General Medical and Surgical by the AHA.

EXHIBIT 11

LOCATION OF CITIES WITH SELECTED MEDICAL FACILITIES[1]



★ *Long Beach U.S. Naval Shipyard*

(1) There may be more than one medical facility in a city. See Exhibit 10.

1. Culver City
2. Inglewood
3. Redondo Beach
4. Torrance
5. Downey
6. Bellflower
7. Long Beach
8. Norwalk
9. Los Alamitos
10. Buena Park
11. Garden Grove
12. Huntington Beach
13. Fountain Valley
14. Newport Beach

B. Average Daily Occupancy

There are more than 7,500 beds in the 24 hospitals. Reported average daily occupancy varies from as low as 20 percent at the Orange County Community Hospital to full occupancy at Huntington Beach Medical Center. Overall, the average daily occupancy is 62 percent, indicating an average daily additional capacity of approximately 2,853 beds.

Four of the 24 hospitals are currently providing services to LBNSY personnel. These facilities (Long Beach Community Hospital, Long Beach Memorial Medical Center, St. Mary Medical Center, and Veterans Affairs Medical Center) also have excess capacity.

Based on discussions with healthcare professionals and trends in the healthcare industry, virtually all medical centers and hospitals will be accepting patients covered by the Civilian Health and Medical Program for the Uniformed Services (CHAMPUS).