

3.11 TRAFFIC

3.11.1 Introduction

3.11.1.1 Definition of Resource

Traffic issues refer to transportation and circulation of vehicles within an organized framework. This discussion addresses air and marine traffic as well as ground transportation systems.

A - Air Traffic

Air traffic refers to movements of aircraft through airspace. Airspace is designated to accommodate certain types of uses, including federal airways, restricted use airspace, warning areas, and control area extensions (CAEs) (refer to [Figure 1-2](#)). Airspace designations throughout the United States are controlled by the Federal Aviation Administration (FAA) and are applicable to all aircraft. (No changes in the FAA airspace designations are proposed as part of this action.) Regulations governing visual flight are called visual flight rules (VFR). Instrument routes are flown using instrument flight rules (IFR), which enable the pilot to fly without visual reference to the ground.

Federal airways are corridors for civilian air traffic. These civilian airways are shown with a “V” or a “J” and a number designation; “V” denotes airways up to 18,000 feet MSL, while “J” denotes jet routes which are at altitudes over 18,000 feet MSL.

Restricted use airspace is used for military flight training and, for safety reasons, is not usually accessed by civilian or commercial aircraft.

Warning areas are designated areas for military activities in international airspace and are exclusively located over coastal waters of the United States and its territories. Although military flight operations and activities may be of a hazardous nature, international agreements do not provide for prohibition of flight in international airspace. Therefore, there is no restriction of flight by non-participating aircraft.

A CAE is a corridor through a warning area that can be opened or closed at the request of a user in coordination with the FAA.

B - Ocean Traffic

Ocean traffic involves the transit of military, commercial, and private vessels on the ocean surface. Offshore traffic flow and control is imposed on large vessels (large cargo and container ships or tankers) by the use of directional shipping lanes. Flow controls are also implemented to ensure that harbors and ports-of-entry remain as uncongested as possible. There is less control on ocean traffic involving recreational boating, sport fishing, commercial fishing, and activity by Navy and USCG vessels. In most cases, the factors which govern shipping or boating traffic include the following: adequate depth of water, weather conditions (primarily affects recreational boating), availability of fish of recreational or commercial value, and water temperature (higher water temperatures will increase boat traffic for skiers, jet skis, and diving activities).

C - Ground Traffic

Ground transportation refers to the movement of vehicles through a road or highway network. Roadway operating or pavement conditions and the adequacy of the existing and future roadway system to



accommodate vehicular movements are typically described in terms of the volume-to-capacity (V/C) ratio, which is a comparison of the average daily traffic (ADT) volume to roadway capacity. The V/C ratio corresponds to a Level of Service (LOS) rating (Table 3.11-1) which ranges from free-flowing traffic conditions (LOS A) for a V/C of usually less than 30 percent, to forced flow, congested conditions (LOS F) for a V/C of usually 100 percent or greater (i.e., roadways operating at or beyond design capacity).

Table 3.11-1. Level of Service Definitions

Level of Service (LOS)	Volume-to-Capacity (V/C)
A	≤ 30.0%
B	30.1 - 50.0%
C	50.1 - 75.0%
D	75.1 - 90.0%
E	90.1 - 100%
F	> 100%

Source: Caltrans 1994.

3.11.1.2 Regional Setting

A large amount of ocean traffic (consisting of both large and small vessels) occurs through the Point Mugu Sea Range. The Sea Range boundaries encompass major sea lanes and approaches for ships to ports in southern California – approximately 7,000 vessel movements through the Sea Range have been estimated for a 1-year period (NAWCWPNS Point Mugu 1996n). These shipping routes cross the Sea Range through the Santa Barbara Channel (between the mainland coast and the northern Channel Islands) and through an area south of the Channel Islands. These shipping channels are major marine transit areas for vessels traveling to and from areas northward along the coast or westward toward Hawaii and Asia. The areas around the northern Channel Islands provide extensive opportunities for recreational fishing and boating. Due to the distance from the mainland, the area around San Nicolas Island is primarily used by Naval vessels, commercial fishing boats, and sport fishing boats.

Routes for aircraft with IFR clearances run north and south along the coast and do not enter the Sea Range. There are corridors for aircraft to cross the Sea Range while under FAA control. These are regionally significant corridors because they allow air traffic to approach or leave the Los Angeles area enroute to Hawaii or other transpacific destinations.

Major roadways in the vicinity of NAS Point Mugu include the Pacific Coast Highway (California State Route 1), which forms the northeastern boundary of the base, and the Ventura Freeway (U.S. Highway 101), which is located 6 miles (10 km) north of the base and is a major regional north-south route in the California highway system.

3.11.1.3 Region of Influence

The region of influence (ROI) for traffic includes the Point Mugu Sea Range, NAS Point Mugu, and San Nicolas Island. San Miguel, Santa Rosa, and Santa Cruz islands are not addressed in this section because the alternatives analyzed in this EIS/OEIS (including the No Action Alternative) would not affect traffic at these locations.

3.11.2 Point Mugu Sea Range

3.11.2.1 Ocean Traffic

A - Military

The number and types of Navy vessels on the Sea Range depend on mission essential activities such as the T&E of weapon systems or training exercises. The types of Navy vessels on the Sea Range are highly variable and range from small work boats used for nearshore work to major Navy combatants such as aircraft carriers. The baseline level of Navy vessel “events” (one trip into the Sea Range for an assigned mission) on the Sea Range was obtained from NAWCWPNS reports (Table 3.11-2). Operations are conducted in large subdivisions of the total Sea Range, and blocks of range times are allocated for these operations.

Vessel activity can be divided into three categories: project ships, project boats, and support boats. Project ships are larger Navy combatant vessels such as destroyers, cruisers, or any large Navy ships directly involved in events. They may operate anywhere on the Sea Range depending on mission needs, although most ship operations occur within 60 NM (110 km) of San Nicolas Island in Range Areas 3A, 3D, 4A, 4B, 5A, 5B, M3, and M5. Most project ships operating on the Sea Range originate off-range (e.g., San Diego). Project boats are smaller vessels directly involved in test or training activities. While they may also operate throughout the Sea Range, project boat operations occur mainly within the range areas receiving the most use, including Range Areas 4A, 4B, 5A, 5B, 6A, 6B, 3A, 3D, and M5. Support boats are the smallest vessels; they have limited range and usually operate close to shore near Point Mugu and San Nicolas Island in Range Areas 3A, 3B, 3D, W1, W2, and M3.

The activity level of ships or boats is characterized by a ship or boat event. As shown in Table 3.11-2 for the baseline year, there were 495 project ship events, 79 project boat events, and 225 support boat events on the Sea Range. To put the Navy vessel operations level in perspective, the table also includes an estimate of annual commercial shipping activity in 1995.

B - Civilian

Civilian vessels fall into two general categories: commercial and recreational. Estimates for the number of large commercial shipping vessels that transit the Sea Range are based on a 1996 study prepared by the NAWCWPNS Test Operations Division. The only study on the number of commercial fishing vessels on the Sea Range is dated (Pacific Missile Test Center 1976) and does not accurately characterize current conditions. The USCG has indicated that no definitive study exists on recreational boating traffic on the Sea Range; only anecdotal estimates are available.

Commercial

Commercial vessels enter and cross the Sea Range on a routine basis. A wide variety of commercial vessels transit the Sea Range, including container carriers, vehicle carriers, bulk ore ships, oil tankers, roll on/roll off ships, and general cargo ships. The size of these ships can range from very large oil tankers that are over 1,000 feet (300 m) in length to the smaller general cargo ships whose length can be under 300 feet (90 m). For safety purposes, large vessel traffic on and through the Sea Range is tracked and controlled by the USCG. The USCG also provides traffic advisories to vessels transiting the Sea Range.



Table 3.11-2. Baseline Navy and Commercial Vessel Events on the Sea Range

Vessel Type	Number of Events ¹
Project Ships	495
Project Boats	79
Support Boats	225
Total Navy	799
Commercial Shipping Estimate 1995	>7,000²

¹ "Event" is defined as one trip into the Sea Range for an assigned mission.

² Data collected over a nine month period in 1995 and extrapolated to a one-year period.

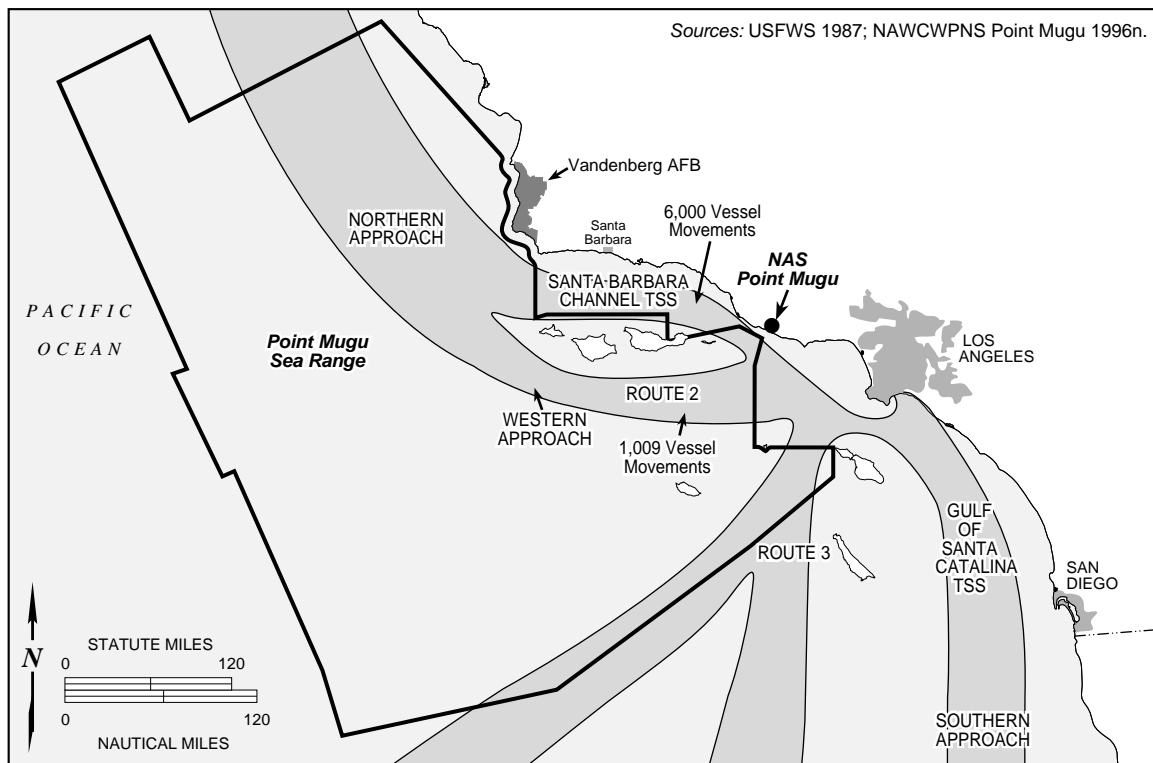
Source: NAWCWPNS Point Mugu 1996k,n.

There are two primary routes into and across the Sea Range (Figure 3.11-1). One is the Santa Barbara Channel route (or Northern Approach), a two-way shipping lane which generally parallels the coast and runs between the mainland and the Channel Islands. The other is the Western Approach about 25 NM (46 km) south of the Channel Islands. This route was established for safety reasons for supertankers entering and leaving the area. The length of the Santa Barbara Channel route is approximately 180 NM (330 km) and the Western Approach is over 270 NM (500 km) long. Traveling at 15 knots (28 km/hr), a ship can cross the Sea Range via the Northern Approach and Western Approach in about 12 and 18 hours, respectively.

The *Ship Traffic Study, Southern California Operations Area, Status Report* (NAWCWPNS Point Mugu 1996n) provides data on ship traffic on and near the Sea Range. The period covered was 1 January through 30 September 1995. About 3,583 vessel movements occurred to and from the ports of Los Angeles and Long Beach. These records have been further disaggregated to include 1,985 vessels entering the Sea Range from the north and west enroute to the ports of Los Angeles and Long Beach. There were 2,220 vessel departures from the same ports to the north and west. There were also 306 vessels observed on the Sea Range by Range NP-3D aircraft, individuals in the Range Surveillance Center, or through official Naval message traffic. Statistical extrapolation of these numbers allows these data to be annualized. The annual traffic estimate through the Santa Barbara Channel Traffic Separation Scheme (TSS) is 6,000 vessel movements; the annual estimate for the Western Approach is 1,009 vessel movements.

Recreational

Boating and fishing are year-round activities on the water near Point Mugu and on the Sea Range. Recreational boats include powered boats and sailboats. There is no source for official counts of recreational boats on the Sea Range. Estimates can be made based on a count of vessel movement at the nearest harbor frequented by recreational boaters. Channel Islands Harbor is 1 mile north of Port Hueneme and has facilities for launching small boats and slips for mooring them. The Harbor Patrol keeps a count of daily vessel operations at the harbor. For 1997, the total boat operations count was 92,485, an average of 253 per day. This figure represents the number of boats launching at the harbor and transient vessels entering the harbor. However, not all boats launched or transient at this harbor enter the Sea Range. The Channel Islands Harbor Patrol estimates that on the weekends, the number of recreational boats that are on the Sea Range in the vicinity of the Channel Islands could be 500 or more. During weekdays or periods of marginal weather, the number of recreational boats would be substantially less. Most of the recreational boating in the region is concentrated between the coast and the Channel Islands, outside Sea Range boundaries.



TSS = Traffic Separation Scheme

Figure 3.11-1

Major Shipping Lanes on the Sea Range and Estimate of Annual Shipping Traffic Volumes

3.11.2.2 Air Traffic

A - Military

There are eight Warning Areas which comprise the majority of the airspace over the Sea Range (refer to [Figure 1-2](#)): W-289, W-289N, W-290, W-412, W-532, W-537, W-60, and W-61. All or part of these areas are in international airspace. These Warning Areas are active on an intermittent basis and are activated in coordination with the FAA. The flying public is informed of their activation by NOTAMS issued by the FAA. The location and activation status of these Warning Areas can have an effect on civil aviation on routes between Hawaii and the west coast of the U.S.

The overseas air route structure crosses the Sea Range via CAEs. There are four CAEs which cross the Sea Range and one CAE on the range's southern boundary (refer to [Figure 1-2](#)):

- 1155 (through W-532)
- 1176 (through W-537)
- 1316 & 1318 (through W-289)
- 1177 (just to the south of the Sea Range and north of San Clemente Island).

CAEs 1316 and 1318 are closed daily during daylight hours and occasionally on weekends. CAE 1176 is closed for missile launches from Vandenberg AFB. CAE 1155 is also closed daily for other operations from the north, other than from Point Mugu. CAE 1177 is the most important of the five CAEs and is



rarely closed. The FAA does not record the numbers of IFR flights through the Sea Range on the CAEs. However, general estimates of traffic through the Sea Range on all the CAEs is about 20 arrivals and departures daily. This is only IFR traffic and does not include aircraft flying VFR.

Memoranda of Agreement exist between NAWCWPNS and the FAA which address the usage of the Warning Areas and stipulate the conditions under which the CAEs can be closed to civil traffic. Under most circumstances at least one CAE must remain available for use by general aviation and commercial air carriers. NAWCWPNS has established procedures to minimize the disruption of other air traffic due to operations on the range.

Military aircraft routinely operate in international airspace over the Sea Range. These aircraft take off from the airfield at NAS Point Mugu or from other locations. In addition, during major exercises on the Sea Range, aircraft will take off from an aircraft carrier and subsequently land aboard the ship. Aircraft which take off from NAS Point Mugu have IFR flight clearance from the FAA Air Traffic Control (ATC) Service through the military tower at NAS Point Mugu. During flight on the Sea Range, no IFR clearance from the FAA is required since most of the area is in international airspace and flight is accomplished using VFR with a see-and-avoid concept. Although aircraft operate in every range area, the following range areas near San Nicolas Island have the heaviest usage: 3A, 3D, 4A, 4B, 5A, 5B, M3, and M5. For the baseline year, 3,934 sorties were flown on the Sea Range (a *sortie* is the complete flight of a single aircraft; for a description of operational terms, refer to [Chapter 10](#), Glossary and Index). Military aircraft activities are explained in more detail in [Section 3.0](#), Current Activities.

B - Civilian

Aircraft operating on IFR clearances under control of the Los Angeles Air Route Traffic Control Center (ARTCC) normally fly on formal airway route structures. In the vicinity of NAS Point Mugu, these airways run along the coastline and to the east. [Figure 3.11-2](#) shows the high-altitude airway route structure in the vicinity of NAS Point Mugu. Special airways, CAEs, cross the Sea Range to the west and can be opened or closed by the FAA at the request of the Navy in order to facilitate activities on the Sea Range. The airways running north and south are among the most heavily used in the area but do not conflict with activities on the Sea Range since they are located over land or along the coast.

Since most of the Sea Range is over international waters, aircraft operate under VFR or without clearance from ATC. Flight under these conditions is conducted under a see-and-avoid concept and flown clear of clouds or other limited-visibility conditions such as rain or fog.

3.11.3 Point Mugu

3.11.3.1 Air Traffic

NAS Point Mugu is located within airspace controlled by the Los Angeles ARTCC. The Los Angeles ARTCC has delegated control of aircraft into and out of the NAS Point Mugu airfield to NAS Point Mugu Air Traffic Services, which operates the Radar ATC facility and the control tower at the airfield. Thus, NAS Point Mugu has responsibility for the control of all civilian and military aircraft operating on IFR clearances within its designated airspace.

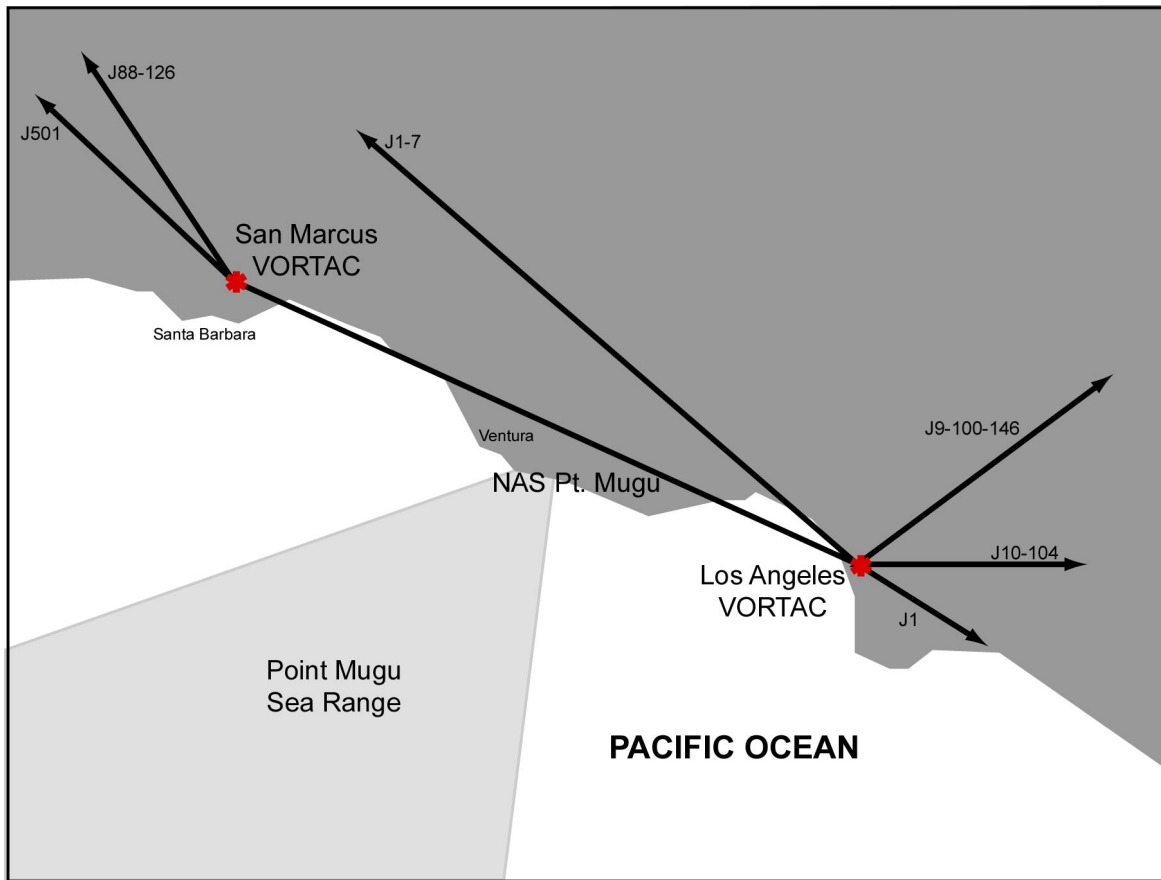


Figure 3.11-2
High-Altitude Airway Route Structure in the Vicinity of NAS Point Mugu

A - Military

An aircraft operation is defined as an aircraft event at the airfield that involves a takeoff (or an intent for flight), a landing, a low approach to the airfield, or a touch-and-go landing. Thus, a single sortie from the airfield with one takeoff and one landing would be considered two aircraft operations. The NAS Point Mugu airfield supports an annual total of approximately 45,933 aircraft operations (refer to [Table 3.0-1](#); this reflects baseline year totals plus the recent addition of E-2 aircraft). There were 5,300 civilian aircraft operations from the airfield at NAS Point Mugu in FY95. The number of military operations at the airfield for FY95 (19,866) is much greater than the number of sorties flown on the Sea Range for a comparable period in FY95 (3,934) because one sortie can consist of several aircraft operations. (Note: Not all sorties flown on the Sea Range originate from NAS Point Mugu; many can originate from the Navy's airfield at NAWS China Lake, California, or from other military airfields.)

B - Civilian

There are two civilian airfields near the NAS Point Mugu airfield: Oxnard Airport, 7 miles (11 km) to the northwest, and Camarillo Airport, 6 miles (10 km) to the north. Oxnard Airport traffic includes both scheduled air carrier and general aviation traffic, while the Camarillo Airport (formerly Oxnard AFB) is



solely a general aviation airfield. In 1996, Camarillo Airport reported 172,905 aircraft operations, and Oxnard Airport had 110,145 aircraft operations.

Factors influencing air traffic flow in the Point Mugu area are described below.

- VFR operations at Oxnard Airport, Camarillo Airport, and NAS Point Mugu operate independently.
- VFR traffic flow along the coastline is heavy but does not present a conflict with NAS Point Mugu air traffic operations because of altitude separation.
- Traffic on federal airways is at high altitudes and does not conflict with NAS Point Mugu.
- Camarillo Airport further congests the area's air traffic flow; however, as a VFR facility with strict adherence to a properly designed local pattern, it does not generate any major conflicts with either NAS Point Mugu or Oxnard Airport VFR traffic flow.
- IFR operations at the airports conflict under certain conditions and result in either a one-for-one sharing of the airspace or circuitous routing procedures. Specific conflicts include instrument approaches to NAS Point Mugu Runway 21, Oxnard Airport Runway 25, and Camarillo Airport Runway 26; and instrument departures from NAS Point Mugu Runway 03, Oxnard Airport Runway 07, and Camarillo Airport Runway 08.

3.11.3.2 Ground Traffic

A - Offbase

Primary Roadways

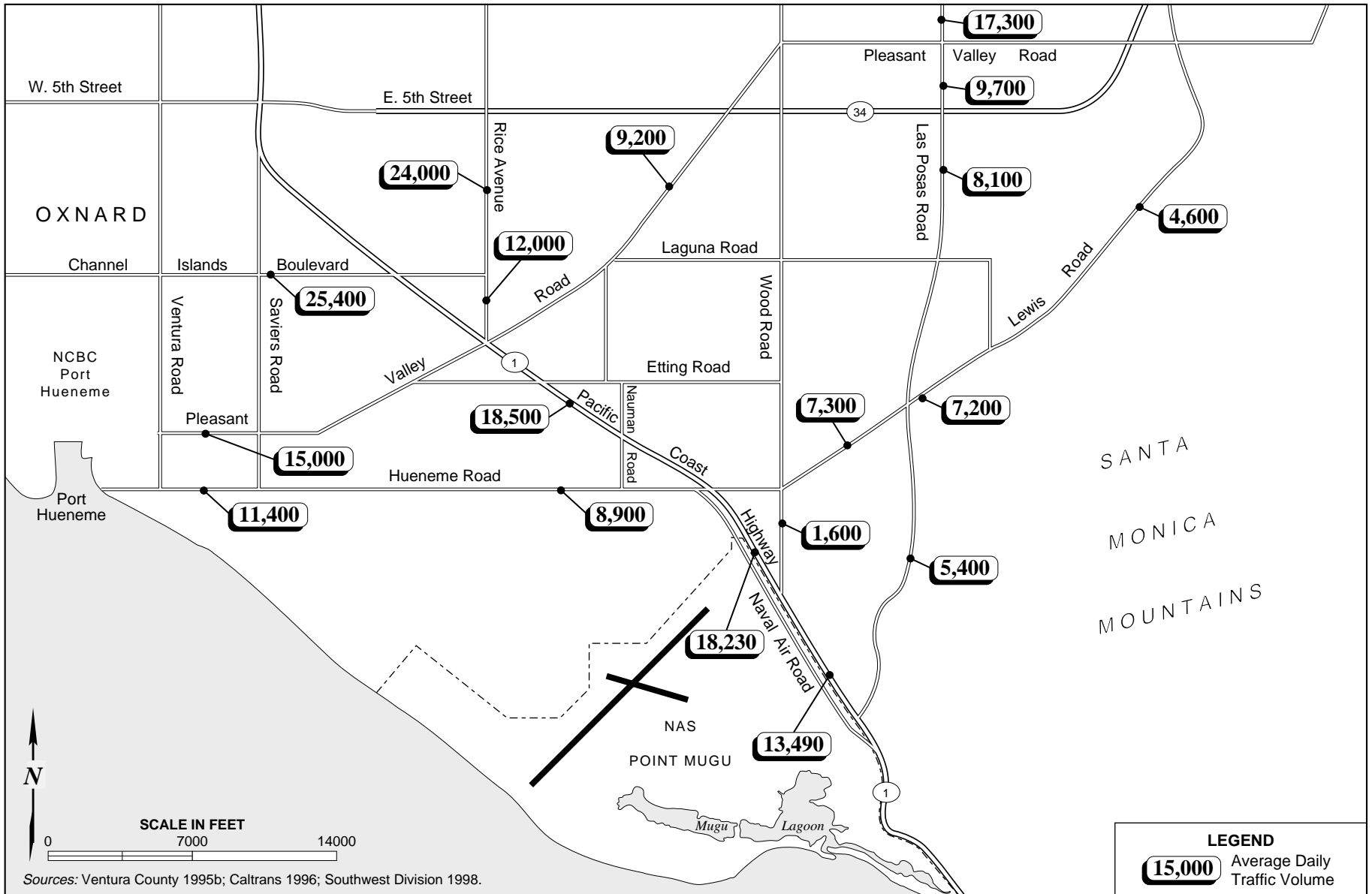
NAS Point Mugu is served by an extensive road system to allow access to and from base facilities. [Figure 3.11-3](#) shows the local roads in the vicinity of NAS Point Mugu and their estimated ADT volumes. The Pacific Coast Highway (California State Route 1) forms the northeastern boundary of the base. The Ventura Freeway (U.S. Highway 101) is approximately 6 miles (10 km) north of the base and is a major north-south route in the California highway system. Both the Ventura Freeway and the Pacific Coast Highway allow access to the Los Angeles area. Major roads which run from the Ventura Freeway south toward NAS Point Mugu are Rice Avenue, Wood Road, Las Posas Road, and Lewis Road. Direct access to the base is from a frontage road along the Pacific Coast Highway primarily at Gates 2 and 3.

[Table 3.11-3](#) shows V/C ratios and LOSs for major offbase street segments immediately adjacent to NAS Point Mugu. [Table 3.11-4](#) shows LOSs for unsignalized intersection operations outside of NAS Point Mugu. These tables show that traffic movements are currently at LOS C or better.

Circulation Patterns

Since the elimination of bus service to the area in 1996, NAS Point Mugu is not served by any public transit. Access to the base is therefore primarily by personal vehicle (some carpooling does occur). Traffic in the vicinity of the base runs southeast and northwest on the Pacific Coast Highway.

North-south roads near the base, Las Posas Road and Wood Road, are the main access routes from the north (Camarillo area) to the base entrances. All offbase roadways and most offbase intersections serving NAS Point Mugu operate at LOS A or B on a daily basis (see [Tables 3.11-3](#) and [3.11-4](#)).



Sources: Ventura County 1995b; Caltrans 1996; Southwest Division 1998.

LEGEND
15,000 Average Daily Traffic Volume



Figure 3.11-3
Major Roadways and Existing Average Daily Traffic Volumes in the Vicinity of NAS Point Mugu



B - Onbase

Roadways and Gates

The base has four entrances: Gates 1, 2, 3, and 5 (Figure 3.11-4). The majority of traffic accesses the base via the Pacific Coast Highway from the north (52 percent) and Las Posas Road (36 percent), which runs north from the base to the City of Camarillo (Southwest Division 1998). Of the remaining traffic, 8 percent access the base via Wood Road, and 4 percent access via Pacific Coast Highway from the south. Gates 2 and 3 accommodate about 50 and 45 percent, respectively, of NAS Point Mugu entry and exit traffic. Gate 5 is at the far western edge of the base and provides access from Arnold Road to Perimeter Road and is open by special request only. ADT volumes at major roads and gates are shown in Figure 3.11-4.

Circulation Patterns

NAS Point Mugu has over 50 miles (80 km) of paved roads. Primary roadways on the base include North Mugu Road, Main Road, Laguna Road, 11th Street, 13th Street, and Beach Road (see Figure 3.11-4). The existing roads are adequate to accommodate current and projected traffic loads at the base.

The majority of major arterial streets have four lanes and traffic flow conditions are generally good (LOS B or better). The primary access road to the area across Mugu Lagoon is Laguna Road. Laguna Road intersects Beach Road which provides access to Gate 5 and Perimeter Road on the west end of Runway 21/03. Access to the industrial areas east of Runway 21/03 is via 11th Street and 13th Street. The only current circulation conflict occurs at the intersection of North Mugu Road and the Pacific Coast Highway frontage road. This intersection (without a traffic signal) is estimated to operate at LOS C during evening rush hour traffic when large numbers of vehicles are leaving the base (estimate based on traffic levels expected through 1999) (Linscott, Law, and Greenspan 1997). All other intersections on the base operate at LOS B or better.

Parking

The *Master Plan* (Western Division 1986) reports that sufficient parking is available onbase for employees except in a few areas. Since the publication of the *Master Plan*, the facility has had a reduction in employees, and no significant shortages in parking are presently known to exist.

3.11.4 San Nicolas Island

3.11.4.1 Air Traffic

The San Nicolas Island airfield is owned, operated, and maintained by the Navy. It consists of a single runway (30/12) on the southeast portion of the island. It is an instrument-capable airfield with a 10,000-foot (3,050-m) long runway that can accommodate the largest military transport aircraft. The runway is equipped with two bi-directional arresting gears for use with tail hook equipped aircraft (for simulated aircraft carrier landings). The San Nicolas Island airfield serves as the primary staging area for remote controlled flights conducted by QF-4 aircraft. The only authorized air traffic into the airfield are those approved by NAS Point Mugu and generally include aircraft involved in T&E activities, training on the Sea Range, and scheduled contract passenger flights which bring duty personnel, researchers, or other permitted visitors to the island. On an average busy day, there are approximately seven arrivals and seven departures at the San Nicolas Island airfield (refer to Section 3.3, Noise).



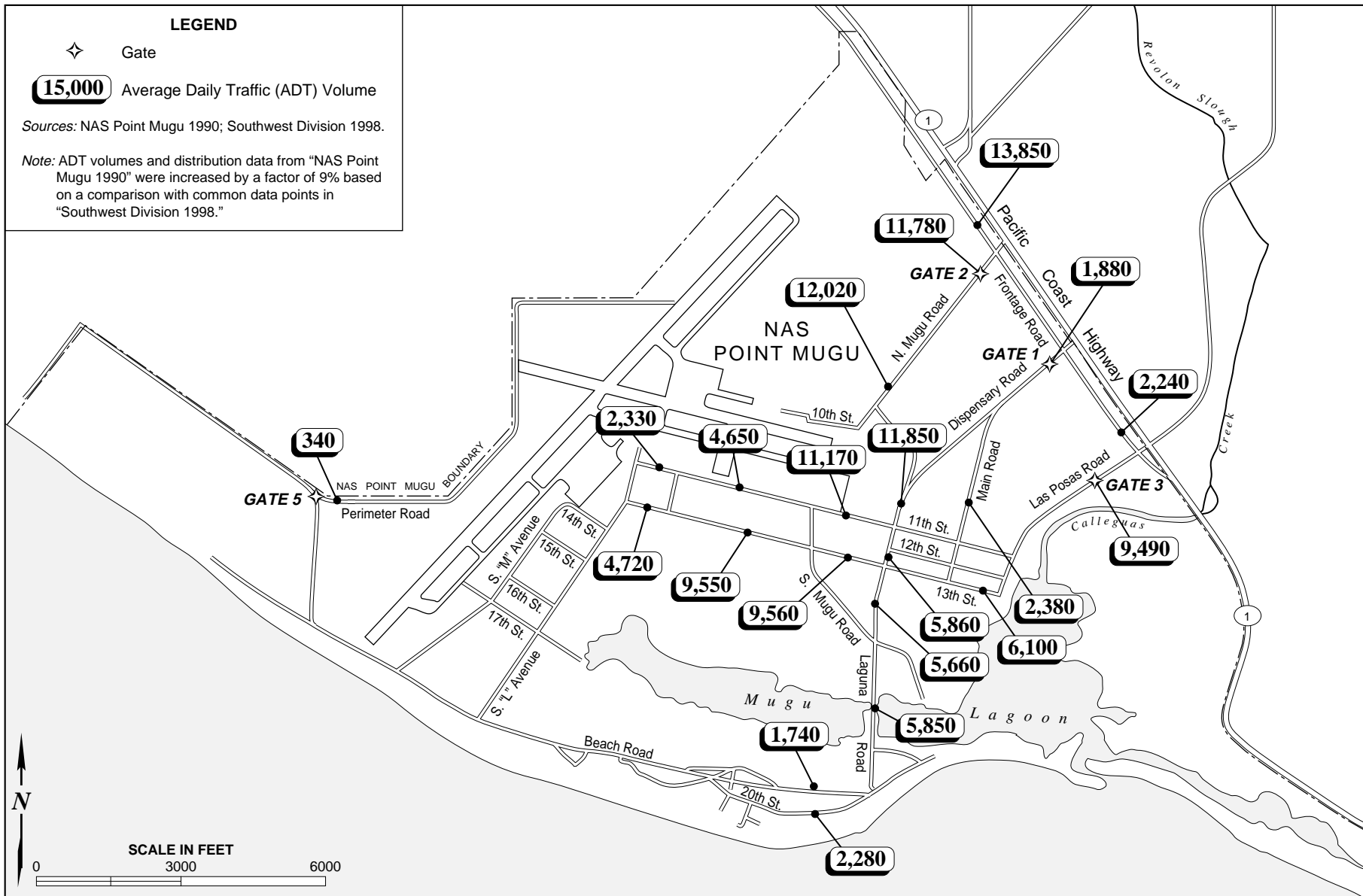


Figure 3.11-4
Average Daily Traffic Volumes at NAS Point Mugu



3.11.4.2 Ground Traffic

A - Roadways

There are approximately 22 miles (35 km) of paved roads on San Nicolas Island. The roads generally run southeast to northwest along the long axis of the island. Monroe Drive, Beach Road, Jackson Highway, Shannon Road, Tufts Road, and Skyline Drive are the primary named roadways (refer to [Figure 3.0-2](#)).

B - Circulation Patterns

The circulation of traffic on the island centers around three general areas: 1) the Community Support Complex which contains the housing area, 2) the airfield, and 3) the T&E infrastructure on the western half of the island. A secondary traffic focus is the Beach Road access to the Barge Landing area on the southeast coast of the island.

All vehicles on the island are government-owned or -controlled, with approximately 30 present at any one time. Traffic conflicts only occur when convoys transport ordnance or other hazardous materials. Non-participating vehicles are precluded from operating along roads taken by these convoys while enroute.



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