ONTARIO INTERNATIONAL AIRPORT

FINAL

ENVIRONMENTAL IMPACT REPORT FOR TERMINALS, OTHER FACILITIES AND OPERATIONS TO SUPPORT 12 MILLION ANNUAL PASSENGERS

November 1991

City of Los Angeles
Department of Airports
Environmental Management Bureau
One World Way
Post Office Box 92216

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ACRONYMS AND ABBREVIATIONS

LTO	Landing and Take-Off Cycle
DOA	Department of Airports
ONT	Ontario International Airport
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
AQMP	Air Quality Management Plan
TIM	Time-in-mode
LAX	Los Angeles International Airport
MAP	million air passengers
CO	Carbon monoxide
NO_x	nitrogen oxides
HC	hydrocarbons
SO_x	sulfur oxides
PM	particulate matter
ppm	parts per million
ug/m^3	micrograms per cubic meter
AGM	annual geometric mean

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

This Summary addresses the environmental effects of the proposed Terminal and other improvements to Ontario International Airport (ONT). Project background, project objectives, project description, environmental setting and project alternatives are included. Also a table summarizing environmental impacts and mitigation measures is provided.

INTRODUCTION

This Final Environmental Impact Report (FEIR) contains a complete environmental assessment of the proposed Terminal Expansion and Operations to support 12 million annual passengers at Ontario International Airport (ONT). A Public Hearing on the proposed Terminal Expansion project was held as part of the public review process. The purpose of the Hearing was to obtain public comment on the adequacy of the assessment. A summary of written comments, testimony at the Hearings, together with actual documentation received, are included in the Appendices of this report.

INTENDED USE OF THE EIR

This FEIR has been prepared in accordance with California Environmental Quality Act (CEQA) Statutes and Guidelines (June, 1986). This document also provides an update to previous EIRs prepared by the Department of Airports for ONT in 1975, 1982, and 1990.

Moreover, this FEIR is intended to support the permitting processes of all agencies whose discretionary approvals must be obtained for particular elements of this project, including an amendment to the existing Air Quality Certificate from California Air Resources Board (CARB) and Building Permits for the passenger terminal and related facilities from the City of Ontario.

PROJECT BACKGROUND

ONT is located approximately two miles east of Ontario's Central Business District. The airport site is bounded by Southern Pacific Railroad on the north, Mission Boulevard and Union Pacific Railroad on the South, Cucamonga Avenue on the west, and Haven Avenue on the east. Primary access to the airport is from Interstate 10 via Vineyard Avenue from the north and Route 60 via Grove Avenue from the south.

Existing facilities at the airport include a 63,000-square foot passenger terminal, a supplemental passenger terminal, general aviation facilities, air freight buildings, automobile parking lots, and other airport and aircraft maintenance and support services. Off airport land uses near ONT include industrial, commercial, residential and agricultural development.

The nation-wide growth in air transport and increase demand for air travel in the Southern California region has begun to strain the capacity of airport facilities at ONT. In 1991, passenger service at ONT was exceeding design capacity. ONT currently accommodates a passenger volume in excess of 5 million annual passengers (MAP) with existing terminal facilities and roadway infrastructure that were originally designed to handle about 2.5 MAP. Passenger traffic volume at ONT has shown a ten-year average growth rate of about 8% between 1979 and 1989. Passenger growth has begun to affect existing facilities in terms of overcrowded terminals, passenger congestion, and roadway traffic delays.

ONT is recognized as having an important role in the economic vitality of the Ontario community; in providing direct and convenient air service; and as a major link in the national air commerce system. As regional demand for air travel continues to grow service levels at ONT will continue to worsen. Also, environmental impacts associated with traffic circulation, air quality and noise will continue to increase unless airport facility improvements are made to provide for this regional growth in an orderly manner.

All affected governmental agencies at the local, county, regional, state and federal levels have agreed with planned capacity of 12 MAP for ONT. The 12 MAP level was determined to be a reasonable capacity guideline for planning the future growth at ONT, while minimizing impacts on the Ontario community. Additional airport facilities are needed to accommodate 12 MAP at a reasonable level of service and to mitigate potential environmental impacts associated with 12 MAP. These additional facilities include, but are not limited to:

1. A new passenger Terminal complex
2. International Terminal Facilities
3. Additional surface parking
4. 1,800-foot easterly runway extension
5. Taxiway Apron and other airfield improvements
6. Various on-and off-airport roadway improvements
7. Increased number of operations to accommodate 12 MAP

Earlier ONT EIRs published by the Los Angeles Department of Airports (LADOA, 1975, and 1982, 1990) considered the impacts for ONT at a capacity of 12 MAP. It was anticipated in the 1975 LADOA EIR that to reach a capacity of 12 MAP, 125,000 annual air carrier operations would be needed. The California Air Resources Board approved an Air Quality Certificate for ONT based on 12 MAP or 125,000 annual air carrier operations in 1978. However, airline deregulation and other market factors resulted in the widespread use of smaller rather than larger aircraft by the air carriers. A Supplemental Draft EIR was prepared in 1990 for 181,000 annual air carrier operations to serve 12 MAP. This Supplemental Draft EIR (dated April, 1990) was circulated for public comments.

The DEIR was prepared to address the substantial changes which were not addressed in the previous EIRs. Revised information indicates that the project may have significant effects which were not discussed in the earlier LADOA 1975 and 1982 EIRs. This FEIR was prepared to address the revised changes and comments received on the Draft EIR.

A Public Hearing on the adequacy of the Draft EIR was held in July 1991 at Ontario City Hall.

PROJECT OBJECTIVES

The primary objectives of the project are to provide additional airport facilities to increase the capacity of ONT from the (1990) 5 MAP capacity to 12 MAP. To adequately serve 12 MAP, the Department of Airports proposes to build a new passenger Terminal with all the necessary related airport facilities. The purpose of these improved facilities is to accommodate future growth in the region.

PROJECT DESCRIPTION

The number of aircraft operations needed to serve 12 MAP will vary depending on the size and capacity of the fleet serving ONT. In this FEIR it is assumed that 12 MAP will occure in the year 2000 with a 100 percent Stage III fleet and 181,000 annual aircraft operations.

To accommodate these operational levels, the proposed project would include development of:

A New Passenger Terminal Complex: The project would include development of a new terminal in two phases. The first phase would accommodate 9 MAP and the second phase an additional 3 MAP. Based on a linear Terminal configuration, the airport will consist of a Terminal building with three nodes in Phase One, and an additional node in Phase Two. Each node will contain ticketing, baggage claim, airline operations, and concession areas on two levels. Secured holdrooms and aircraft jetways will be on the second level, extended along the entire length of the Terminal. This linear Terminal configuration will maintain an average walking distance of 700 feet from curb to gate.

International Terminal Facilities: The interim project consists of a modular facility located on the existing apron, to be developed in two phases, a new federal inspection facility situated westerly of the main Cucamonga Creek storm drain channel and southerly of Airport Drive. The first phase provides for a 21,000-square foot arrivals building with an airfield busing operation to the main Terminal. The second phase is proposed to be an additional 32,000-square foot departure structure with its own landside loop roadway and public parking lot for approximately 400 cars.

Long-term plans for International Facilities could be included with the Phase Two construction of a new Passenger Terminal Complex or entail a major conversion of the existing Terminal.

Airport Roadway Improvements: Vehicular access from Airport Drive to the terminal area will occur at three separate points, providing counterclockwise movement along the length of the terminal, and around the parking areas. Terminal area-generated traffic on Airport Drive, will be able to use Vineyard Avenue, Archibald Avenue, Haven Avenue or Grove Avenue to access the regional transportation system as well as local arterials. Roadway improvements would include widening and improvement of Airport Drive, Archibald Avenue grade separation and Grove Avenue grade separation.

Parking: The ONT improvement program will include development of approximately 13,000 parking spaces.

Runway Improvements: As part of the ONT Part 150 Program, an extension of Runway 26R by about 1,800 feet east was recommended. Approximately 56 acres of additional land and easements are required for clear zones, service areas, and landing lights.

Taxiway and other Airfield Improvements: Other needed ONT project improvements include high-speed and connecting taxiways, which will include Taxiway N (westerly extension), Taxiway S, Taxiway 22U, and Taxiway 42 reconstruction. Other improvements needed include upgrading of the airfield lighting control system along with runway/taxiway lighting and signage, new aprons taxiways, and service roads.

Increased Number of Operations: In the year 2000, the annual number of operations at ONT would be 181,000 air carrier operations (over 70,000 pounds); 36,855 small air carrier operations (under 70,000 pounds); and 46,400 general aviation, business jet and military aircraft operations.

ALTERNATIVES

The alternative scenarios analyzed in this document are as follows:

No Project (Short-Term and Long-Term)

This scenario means that a major new terminal would not be built and the airport would continue to operate with the existing Air Quality Certificate which limits operations to 125,000 annual air carrier operations over 12,500 pounds.

The airport would first reach the 125,000 annual air carrier limit in about 1995 (Short-term). At that time the airport would serve about 8 MAP, with about a 65 percent Stage III fleet mix of the 125,000 annual large air carrier operations.

Over time, as airlines substitute larger aircraft for the smaller ones, the number of MAP will increase even though total operations remained constant at 125,000. The No Project (Long-term) shows the airport operating at 12 MAP in the year 2015 with a 100 percent Stage III fleet mix and 125,000 annual air carrier operations without a new Terminal.

Terminal without Air Quality Certificate

With this scenario, the airport would operate at 12 MAP in the year 2010, with a 100 percent Stage III fleet mix, and 125,000 annual large aircraft operations. It would also include an 1800-foot easterly runway extension.

Twenty (20) Million Annual Passengers

With this scenario, the airport would operate at 20 MAP in the year 2020, with a 100 percent Stage III fleet mix, and 215,000 annual large aircraft operations.

FINDINGS

Amending the Air Quality Certificate to permit additional aircraft operations to accomodate 12 MAP will reduce noise and air quality impacts.

Building the Terminal and related facilities will relieve the existing and proposed overcrowding at Ontario Airport.

Ontario Airport (ONT) will ultimately serve 12 million annual passengers (MAP) with or without the proposed project. The project, amending the Air quality Certificate and building a new facility, means that the airport will reach the 12 MAP service level sooner and with less impact on the traveling public. Noise and air quality impact on the surrounding community will be less with the project.

Type of aircraft can be more important in curbing noise and air pollution than absolute numbers of operations. Because the Air Quality Certificate puts absolute limits on the number of aircraft operations, larger aircraft are needed to transport 12 MAP. Larger aircraft can make more noise and air pollution than smaller aircraft.

This study analyses both types of aircraft fleets needed to move 12 MAP. The no project alternative represents the current Air Quality limit of 125,000 annual air carrier operations. The proposed project represents more operations, 181,000, but smaller aircraft carrying the same 12 million annual passengers.

In the analysis it was determined that more operations with smaller aircraft produced less air quality and noise impacts than the current 125,000 operation limit in the current Air Quality Certificate. The proposed project is the environmentally superior alternative. In this alternative better service is provided to the traveling public. Also impacts to the surrounding community are reduced more than any other alternative, including the no project alternative.

Table ES-1 represents the impacts of each of the various alternatives:

Table ES-1

Comparison of Impacts of the Alternatives with the Proposed Project

SCENARIO	AIR QUALITY (lbs./day)					NOISE			ENERGY (gal./day)		
Description	CO	NOx	ROG	SOx	PM	Acres	D.U.	Pop	Acfuel	Diesel	Gas
No Project Alternative at 12MAP w/100% Stage 3	20,188	8,924	9,875	428	831	266	1,276	3830	75,225	788	69,853
Terminal Project w/o Air Quality Cerfificate at 12MAP w/100% Stage 3	20,188	8,924	9,875	428	831	121	294	883	75,225	788	69,853
Terminal Project at 20MAP w/100% Stage 3	42,148	14,910	5,436	864	1,250	154	462	1,387	111,628	11,237	87,185
Project w/o Noise Reg. at 12MAP w/80% Stage 3	18,517	8,427	3,285	481	826	324	1,177	3,533	80,909	816	69,918
Project w/ Noise Reg. at 12MAP w/100% Stage 3	17,891	8,320	2,988	460	815	95	110	330	77,439	702	69,915
Difference between the No Project and Project	-2,297	-604	-6,887	+32	-16	-171	-1,166	-3,500	+2,214	-86	+62

EIR CONTENTS

A description of the project and its alternatives is presented in Section 1. The relationship of this EIR to other projects and plans is discussed in Section 2. The environmental setting, impacts and mitigation measures for the project are discussed in Section 3. The analysis of the project scenarios are presented in Section 4. Long-term implications and growth-inducing impacts of the proposed project are discussed in Section 5. References and supporting documentation are included in the Appendices.

SUMMARY OF ADVERSE SIGNIFICANT IMPACTS AND MITIGATION MEASURES

Table ES-2 contains a summary of significant impacts of the proposed project, the proposed mitigation measures in each environmental area, and the anticipated level of significance of impacts after the mitigation measures have been implemented.

Table ES-2

Summary of Potentially Significant Adverse Impacts and Mitigation Measures for the Proposed Project at 100% Stage III

Environmental Catagory Significant Impact	Mitigation Measures	Significance after Mitigation	Mitigation Program Responsibility
Air Quality			
Construction NOx and Co emissions during construction exceed criteria pollutant threshold levels.	See Air Quality Measures 1 thru 5 noted in Appendix J.	Significant	Contracter/ SCAQMD
Operations The Project reduces CO emissions from 20,188 to 17,891 lbs. per day; NOx from 8,924 to 8,320 lbs. per day; ROG from 9,875 to 2,988 lbs. per day and; PM from 831 to 815 lbs. per day.	See Air Quality Measures 6 thru 8 noted in Appendix J.	Significant, but less than current Air Quality Certificate restrictions.	LADOA/City of Ontario
Noise			
The 65 CNEL land use impact under this scenario would be less severe than under any other scenario. However, this scenario still would not comply with Title 21 of the California Code.	See Noise Measure number 1 noted in Appendix J.	Significant, but less than existing conditions.	LADOA
Transportation/Circulation			
Traffic on north/south roadways to be adequate (LOS D and above) after ONT improvements. Projected traffic to produce congestion on most east/west roadway segments. I-10 Fwy from Euclid to I-15 Fwy to operate over capacity (LOS F). Rte 60 Fwy from Euclid to I-15 Fwy to operate over capacity (LOS F). These impacts considered critical on ONT trips.	See Trans./Cir. Measures 1 thru 6 noted in Appendix J.	Significant traffic congestion will occur at many intersections in the airport area after mitigation.	LADOA/City of Ontario

PSR58.10

Table ES-2 (Continued)

Summary of Potentially Significant Adverse Impacts and Mitigation Measures for the Proposed Project at 100% Stage III

Environmental Catagory Significant Impact	Mitigation Measures	Significance after Mitigation	Mitigation Program Responsibility
Energy			
Daily aircraft operations fuel use is reduced from 80,909 to 77,439 gallons. Ground support fuel operations reduced from 816 to 702 daily gallons for diesel fuel and from 473 to 470 gallons for gasoline fuel. Passenger vehicle trips daily fuel usage reduced from 69,918 to 69,445 gallons.	See all Measures noted under Air Quality, Noise and Transportation/Circulation in Appendix J.	Energy impacts will be less than the "No Project" Alternative	Contractor/ SCAQMD

Note: This EIR contain an evaluation of the proposed project at 80% Stage III (Unmitigated Project) and at 100% Stage III (Mitigated Project). A 100% Stage III Noise Policy was adopted by the Los Angeles Board of Airport Commissioners since the preparation of this FEIR. The FAA has also adopted a 100% Stage III Noise Regulation by 2000. This table summarizes impacts of the proposed project at 100% Stage III only.

SECTION 1

DESCRIPTION OF THE PROJECT AND ALTERNATIVES

SECTION 1

DESCRIPTION OF THE PROJECT AND ALTERNATIVES

1.1 PROJECT LOCATION

Ontario International Airport (ONT) is located approximately two miles east of Ontario's Central Business District. The airport site is bounded by Southern Pacific Railroad on the north, Mission Boulevard and Union Pacific Railroad on the south, Cucamonga Avenue on the west, and Haven Avenue on the east. Primary access to the airport is from Interstate 10 via Vineyard Avenue from the north and Route 60 via Grove Avenue from the south. The arterial system surrounding the airport is generally an irregular grid system, interrupted by railroad tracks along the northern and southern borders. Large agricultural tracts are also found in the vicinity of the airport. Surrounding land uses consist of industrial, commercial, residential and agricultural development. See Figure 1-1 showing the regional location and Figure 1-2 showing the site location of the airport.

1.2 GENERAL SETTING

The airport is owned and operated by the City of Los Angeles Department of Airports (LADOA). Facilities on the airport include a 63,000 square-foot passenger terminal, a supplemental passenger terminal, general aviation facilities, air freight buildings, parking lots, and numerous airport and aircraft maintenance and support services. Based on accepted airport planning criteria, the existing terminal and other facilities are now operating over their respective design capacities.

The ONT runway system consists of two east/west parallel runways, 26R-8L and 26L-8R. The existing passenger terminal area is located on the north side on Runway 26R-8L which is used primarily by commercial carriers, and is 150 feet wide and 12,200 feet long. Runway 26R-8L supports gross aircraft weights of 200,000 pounds for dual gear aircraft; 560,000 pounds for dual tandem gear aircraft; and 850,000 pounds for double dual tandem aircraft. Generally, 26L-8R is the primary runway for arrivals while 26R-8L is used mostly for departures. Runway 26L-8R is 150 feet wide by 10,200 feet long and can support gross aircraft weights of 200,000 pounds for dual gear aircraft, 560,000 pounds for dual tandem gear aircraft, and 850,000 pounds for double dual tandem aircraft. Figure 1-3 shows the existing airport facilities.

1.3 PROJECT OBJECTIVES

The objectives of this project are to develop ONT to adequately serve 12 million annual passengers (12 MAP) per year, and to mitigate environmental impacts associated with future growth at ONT. The 12 MAP was the forecast level approved in the previous ONT Master Plan (LADOA, 1985). It is also the level required to meet the air transportation needs of the region and the state. However, some experts now believe that this level will be inadequate to meet future demands.

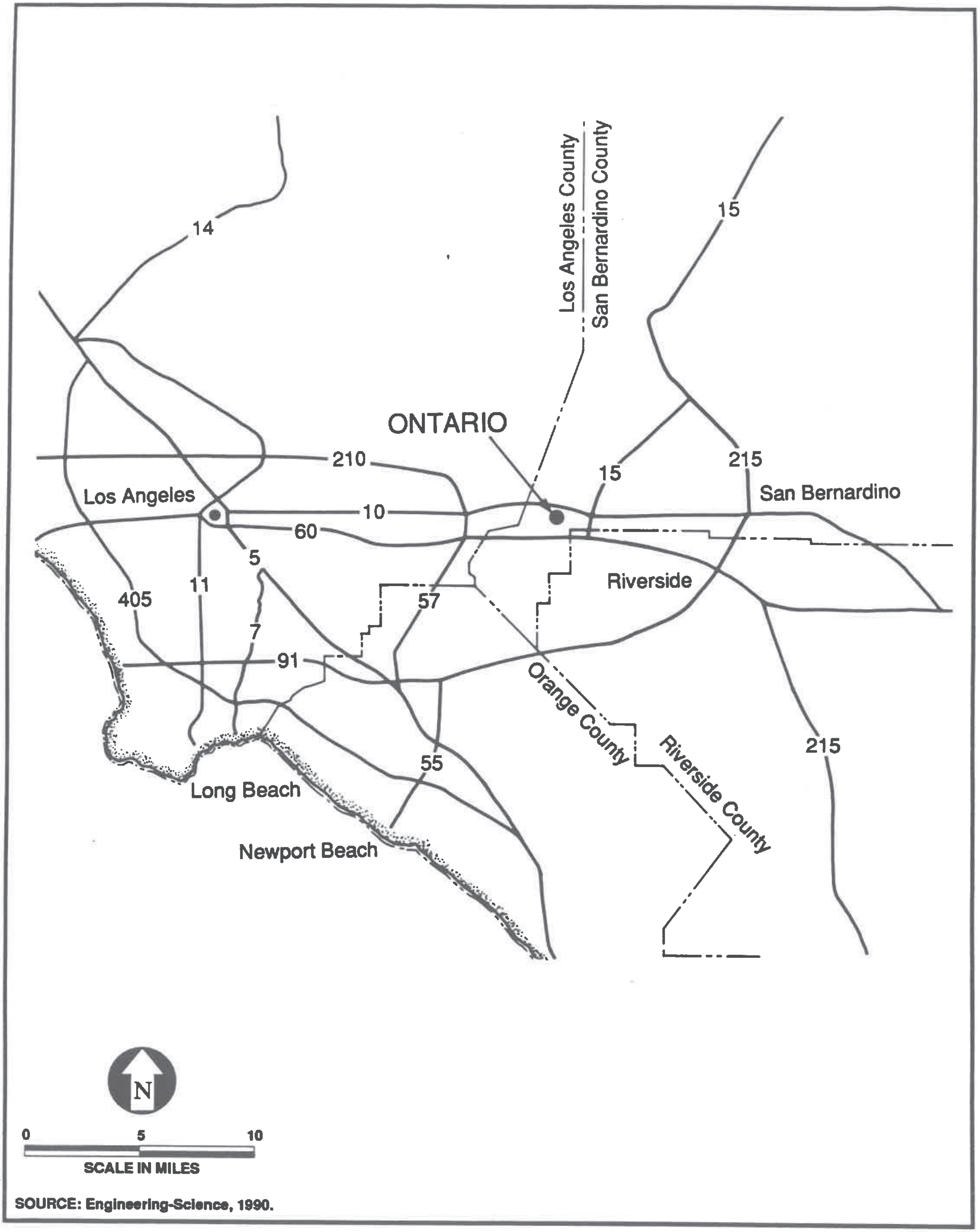


Figure 1-1 Regional Site Location Map

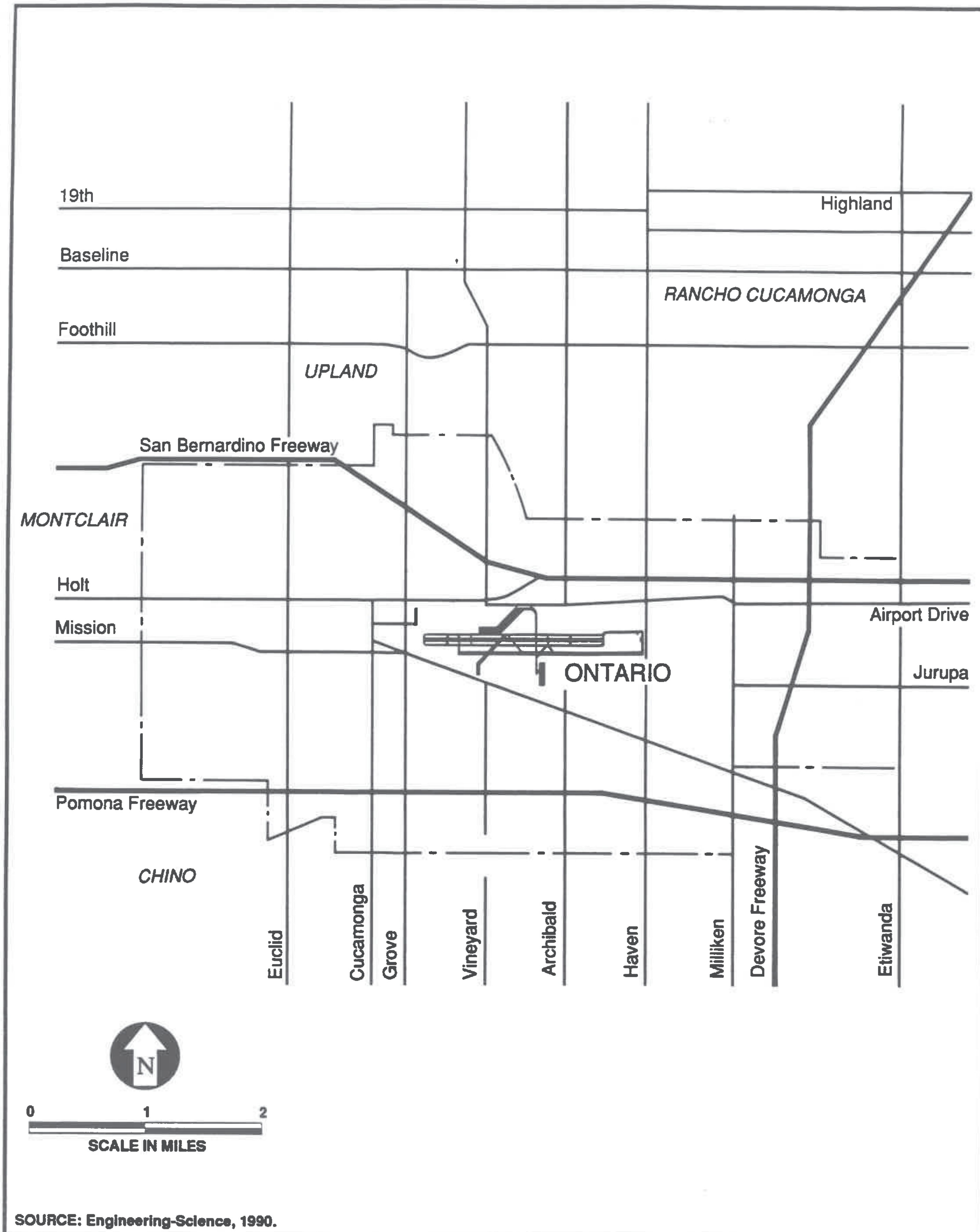
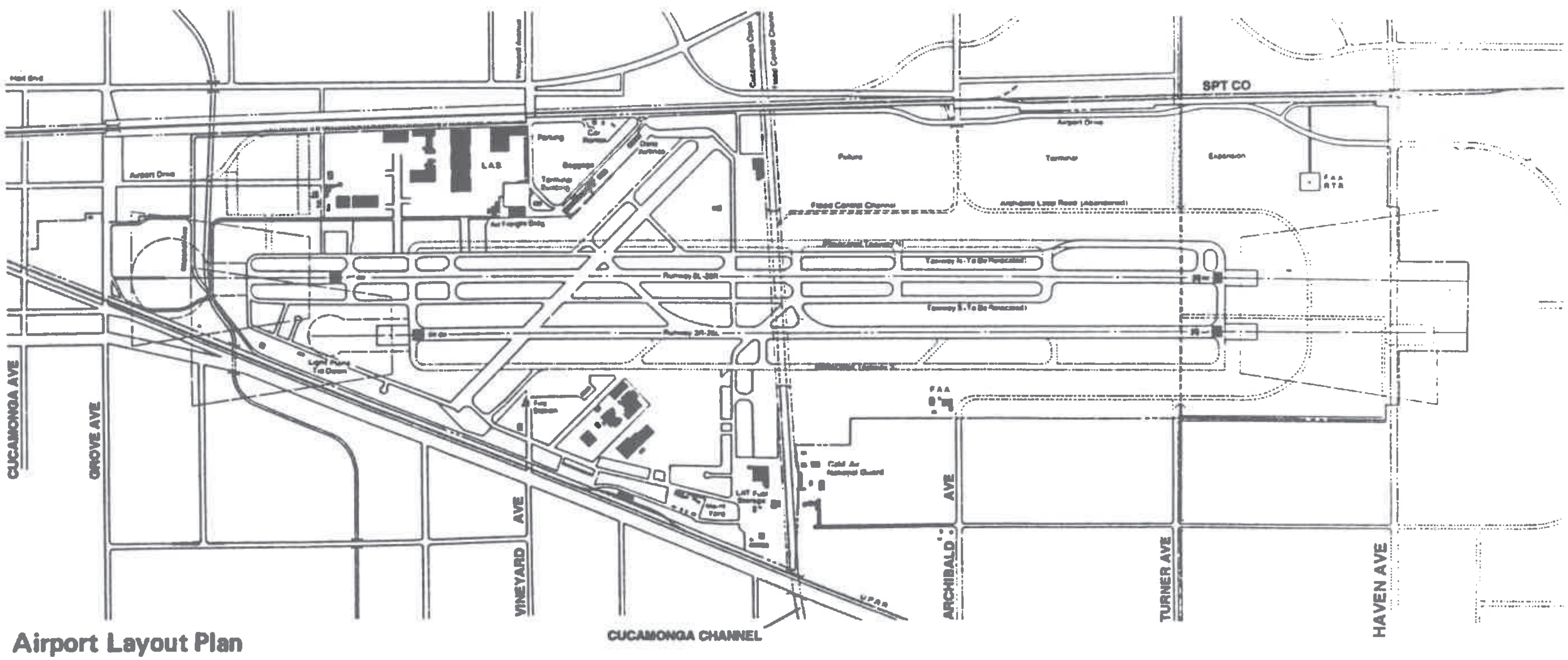


Figure 1-2 Site Location Map

EIR Study Area



SOURCE: LADOA, 1990

Figure 1-3 Existing Facilities

OntarioAir

The growth at ONT in terms of passengers has reflected a ten-year average rate in excess of 8 percent. This growth is the result of expanded service on the part of the carriers serving ONT. The substantial growth in cargo volumes of 43 percent over a ten-year period has also contributed to the airport growth. This projected growth requires building a new passenger terminal, related airport facilities, and obtaining an amendment to the Air Quality Certificate from the California Air Resources Board (CARB).

The Department of Airports 1990 forecast indicates that about 181,000 annual air carrier operations of aircraft over 70,000 pounds will be needed to provide service for 12 MAP. This number of air carrier operations of aircraft over 70,000 pounds will require an amendment to the existing CARB Air Quality Certificate. This certificate currently limits ONT to 12 MAP or 125,000 annual air carrier operations over 12,500 pounds. Information in this document will be used by decisionmakers at the Department of Airports and CARB in approving the Air Quality Certificate amendment and related implementation of a 12 MAP airport.

Construction of the new terminal and related airport facilities will require a building permit from the City of Ontario. Extension of Runway 26R easterly by 1,800 feet requires approval from the FAA, the California Department of Transportation (Caltrans) and CARB.

1.4 PROJECT DESCRIPTION

The proposed project analyzed in this document includes the unmitigated project and the mitigated project scenarios. With the unmitigated scenario, the airport would operate at 12 MAP, in the year 2000, with an 80 percent Stage III fleet mix and 181,000 annual aircraft operations. With the mitigated scenario, the airport would operate at 12 MAP, in the year 2000, with a 100 percent Stage III fleet mix and 181,000 annual aircraft operations.

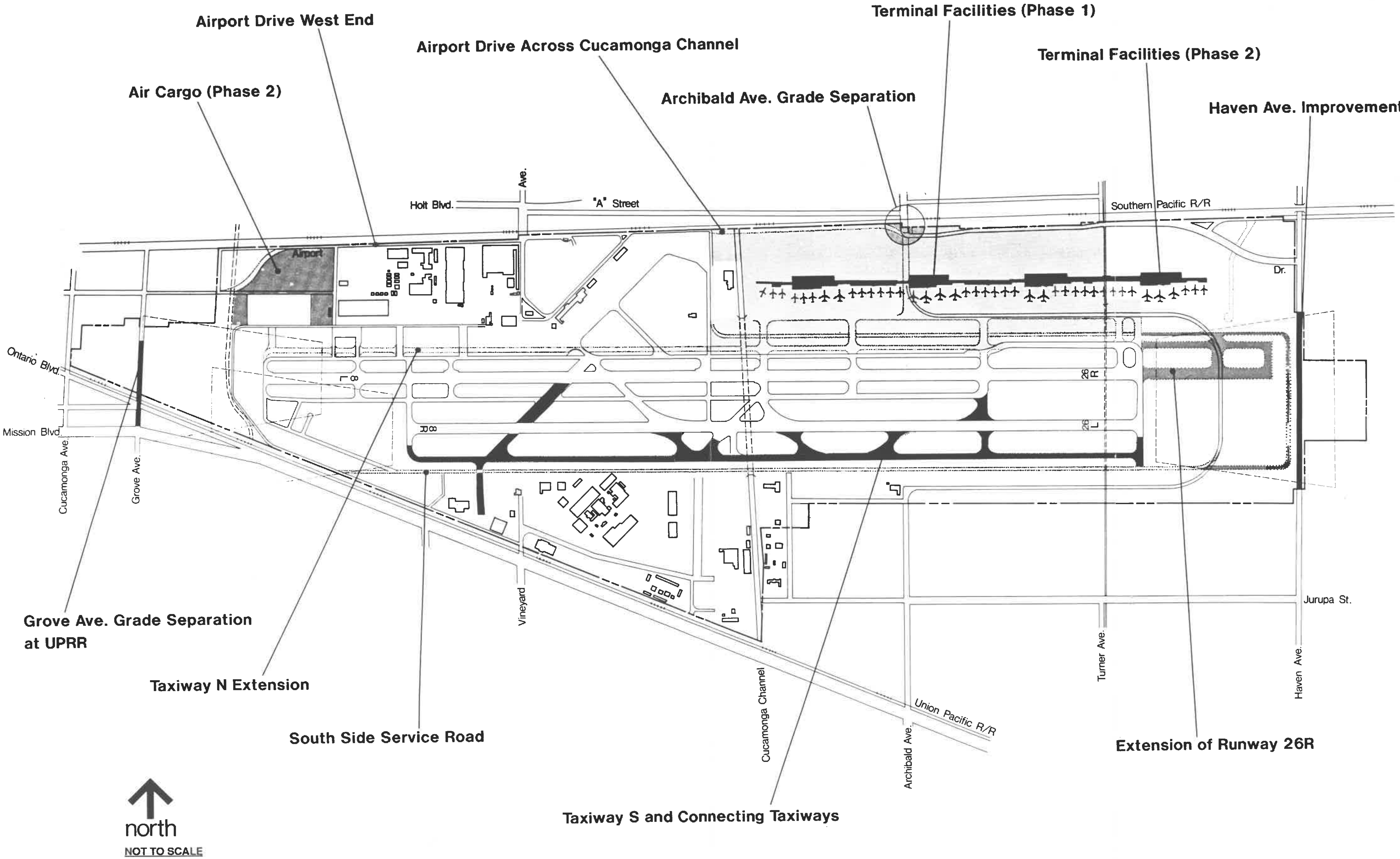
To accommodate these operational levels, major improvements are proposed at ONT, (see Figure 1-4). The proposed developments for the airport are described below:

1.4.1 A New Passenger Terminal Complex

The project would include development of a new terminal in two phases. The first phase would accommodate 9 MAP and the second phase 12 MAP. Based on a linear terminal configuration, the airport will consist of a terminal building with three nodes in Phase One, and an additional node in Phase Two. Each node will contain ticketing, baggage claim, airline operations, and concession areas on two levels. The secured holdrooms and aircraft jetways will be on the second level, extended along the entire length of the terminal. This linear terminal configuration maintains an average walking distance of 700 feet from curb to gate.

During Phases One and Two, terminal construction will add about 800,000 square feet of space to accommodate total peak hour passengers of 3,300 and 4,200, respectively. The 9 MAP facility will include 35 aircraft gate positions, with 9 additional gate positions added at the 12 MAP level. The terminal will also include six to eight remote aircraft positions. Figure 1-5 shows the ONT Terminal Area Master Plan.

Due to the lack of adequate passenger terminal space and the amount of construction time required to build the main terminal expansion project, temporary passenger terminal facilities will be constructed by the airport.



SOURCE: LADOA, 1990

Figure 1-4 Ten Year Capital Improvement Program

1.4.2 International Terminal Facilities

The interim project includes a modular facility located on the existing apron, to be developed in two phases. This project consists of a new federal inspection facility situated westerly of the main Cucamonga Creek storm drain channel and southerly of Airport Drive. The first phase will consist of a 21,000-square foot arrivals building with an airfield bussing operation to the main terminal. The second phase is proposed to be an additional 32,000-square foot departure structure with its own landside loop roadway and a public parking lot for approximately 400 cars.

Long-term plans for International Facilities could be included with the Phase Two construction of the new Passenger Terminal Complex or entail a major conversion of the existing terminal.

1.4.3 Airport Roadway Improvements

Vehicular access from Airport Drive to the terminal area will occur at three separate points, providing counterclockwise movement along the length of the terminal, and around the parking areas. Terminal area-generated traffic on Airport Drive, will be able to use Vineyard Avenue, Archibald Avenue, Haven Avenue or Grove Avenue to access the regional transportation system as well as local arterials. Roadway improvement program will include widening and improvement of Airport Drive, Archibald Avenue grade separation and Grove Avenue grade separation.

1.4.4 Parking

The ONT improvement program will include development of approximately 13,000 parking spaces.

1.4.5 Runway Improvements

As part of the ONT Part 150 Program, Runway 26R will be extended by about 1,800 feet east. Approximately 56 acres of additional land and easements are required for clear zones, service areas and landing lights. Potential impacts of extending the runway to the east were documented in an earlier EIR, (LADOA, 1975). Based on the earlier study and analysis completed for the Supplemental EIR (LADOA, 1990), noise impacts will be reduced by the use of such an extension.

1.4.6 Taxiway and Other Airfield Improvements

Other needed ONT project improvements include high-speed and connecting taxiways, which will include the Taxiway N westerly extension, and Taxiway S, Taxiway 22U, and Taxiway 42 reconstruction. Other improvements will include the airfield lighting control system along with runway/taxiway lighting and signage, new aprons, taxiways and service roads. Figure 1-6 shows the Proposed Runway 26R extension.

1.4.7 Increased Number of Operations

The increased number of operations at ONT is projected at 181,000 (including aircraft weighing over 70,000 pounds), 36,855 (including aircraft weighing under 70,000 pounds), and 46,400 (including general aviation, business and military aircraft.) The earlier EIR (LADOA, 1975) anticipated use of larger jets to service the airport. Instead of using larger jets, the airline industry has incorporated a larger fleet of smaller jet aircraft in its operations as a result of deregulation and other market factors. The LADOA (1975) EIR predicted that commercial turboprop activity would be phased out; however, commercial turboprop operations have actually increased. Thus, the class and size of aircraft require increased operations to move the same number of passengers.

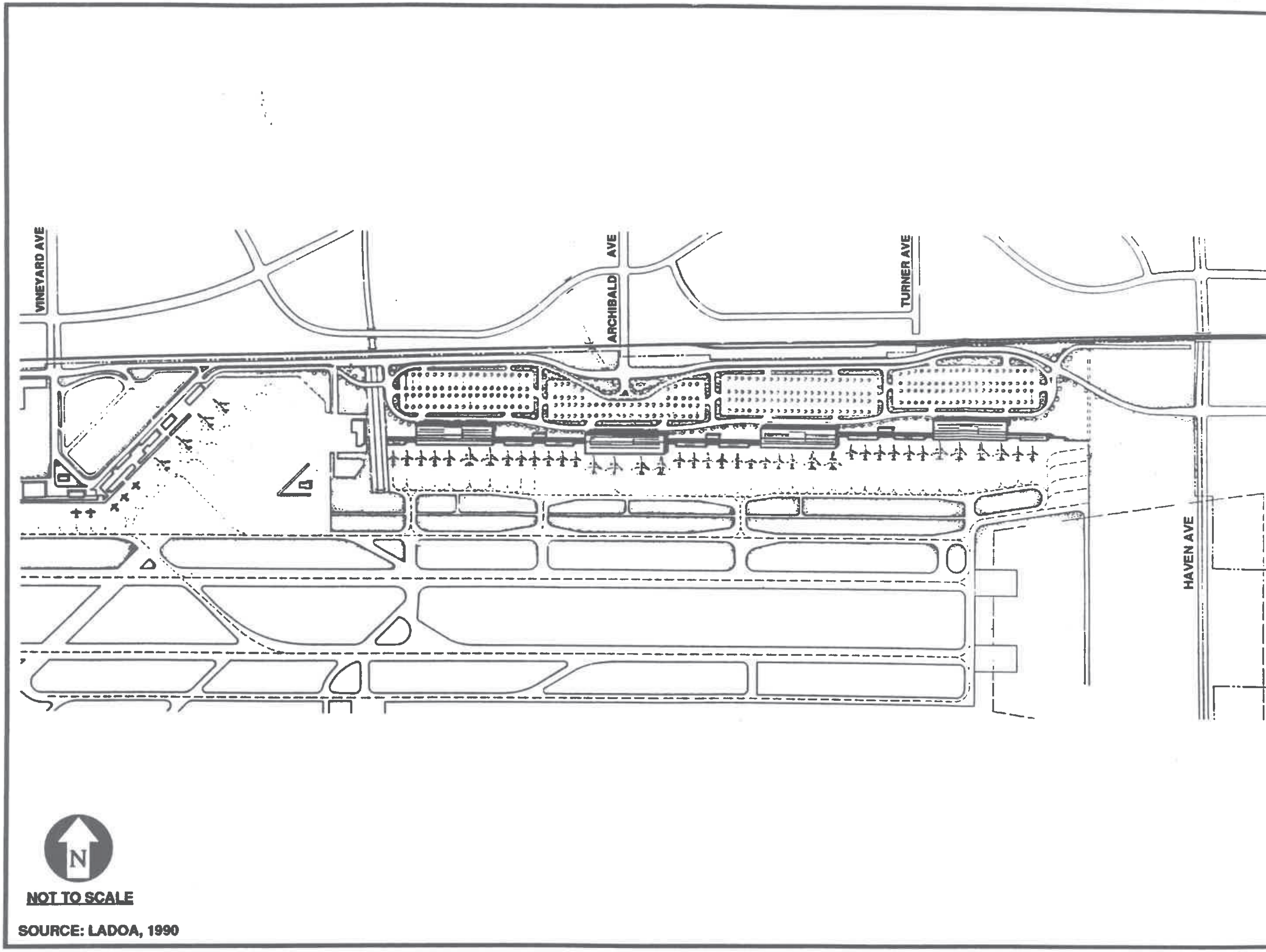


Figure 1-5 Terminal Area Master Plan

Previous forecasts predicted that ONT would have a high level of general aviation activity. This has not occurred. As ONT has become a commercial airport, commercial jetliners and general aviation aircraft usually experience compatibility problems. Also, the general aviation industry has been in decline on a nationwide basis, which results in reduced general aviation activity.

Composition of different types and sizes of aircraft comprising the fleet vary over time. As the type and size of aircraft in the fleet change, so will the capacity of the fleet. Wide-body aircraft carry more people than narrow-body aircraft and therefore fewer operations are needed to carry the same number of passengers. With the current aircraft mix, more operations would be needed to accommodate 12 MAP. With the fleet mix forecast in 1975, fewer operations were necessary. The 1975 fleet mix represents operations with large aircraft. The present, revised forecast is based on current trends. It reflects smaller aircraft with more operations. A comparison of the number of aircraft operations assumed in the 1975 EIR and the present Revised 12 MAP forecast is shown on Table 1-1. A description of the 1975 EIR original 12 MAP aircraft fleet mix is provided on Table E-1 of Appendix E. The existing fleet mix for 4.2 MAP is provided on Table E-2. The aircraft fleet mix for the Revised 12 MAP is summarized on Table E-3. Forecast assumptions and methodologies are discussed in Appendix F.

Table 1-1

12 MAP Aircraft Operations

		1975 - 12 MAP Forecast	Revised - 12 MAP Forecast
Air Carrier Operations over	70,000 pounds	121,034	180,887*
Air Carrier Operations under	70,000 pounds	0	36,855
Non-Air Carrier Operations (General Aviation, Business Jets, and Military)		149,285	46,400
TOTAL OPERATIONS		**270,319**	**264,142**

Source: LADOA, 1991

*Of these, approximately 28,500 are over 12,500 pounds.

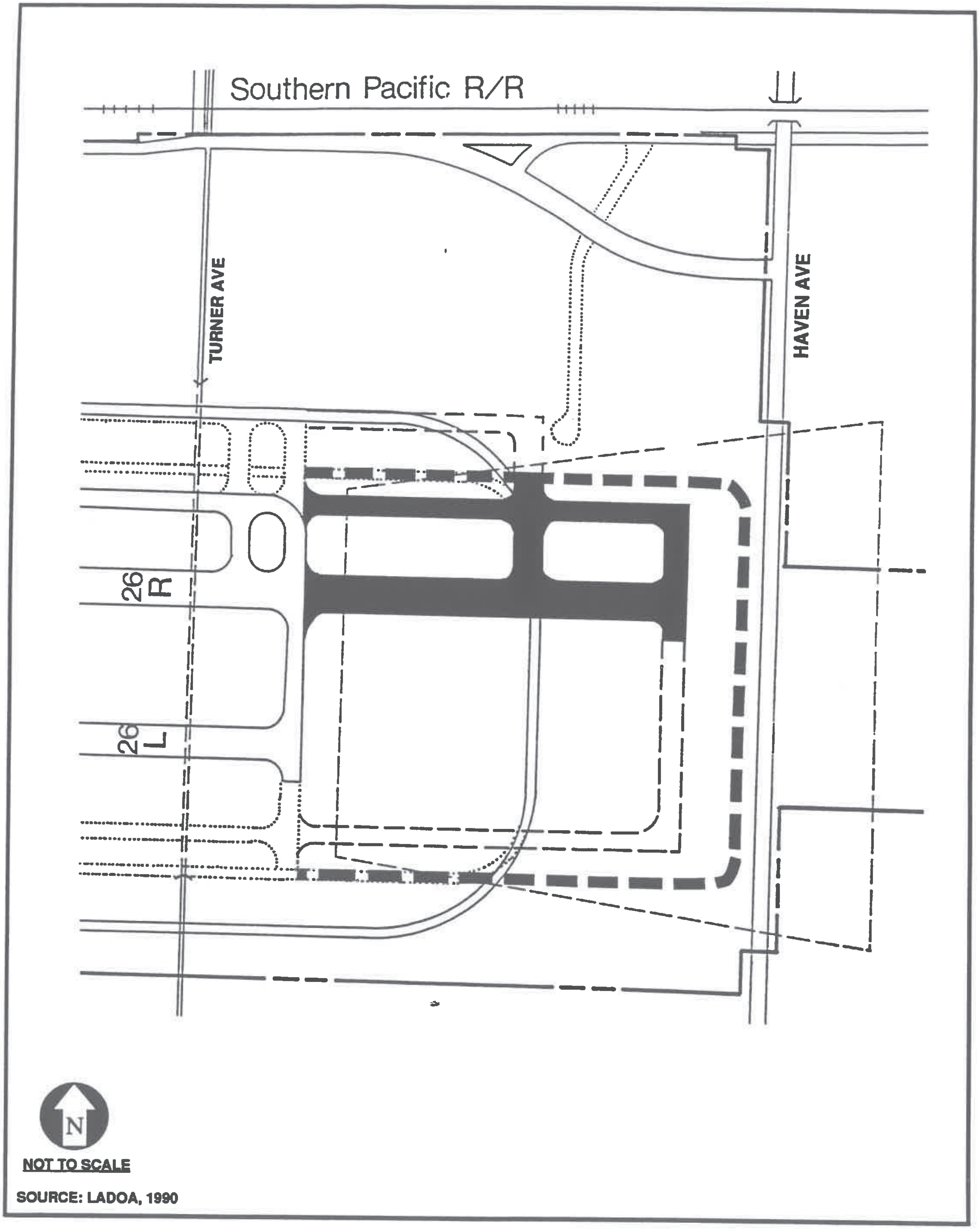


Figure 1-6 Proposed Runaway 26R Extension

1.5 ALTERNATIVES SCENARIOS TO THE PROPOSED PROJECT

The four project alternatives are summarized below and are also presented on Table 1-2.

No Project (Short-Term)

This scenario means that the airport will be operating in the year 1995 similar to its current operating conditions, except for the increase in annual passengers,

Table 1-2

Alternatives

	No Project (Short-Term)	No Project (Long-Term)	Terminal Without Air Quality Certificate	20 MAP
Operations	125,000 (Over 12,500 lbs)	125,000 (Over 12,500 lbs)	125,000 (Over 12,500 lbs)	216,000 (Over 70,000 lbs)
% Stage III	65%	100%	100%	100%
MAP	8	12	12	20
Year	1995	2015	2010	2020
Runway Extension	NO	NO	YES	YES
Preferential Use Runway	YES	Reduced	YES	YES
Comments		No new terminal means operation spread throughout day and night because peak-hour capacity is reduced.		
Contour Map Exists	YES	YES	YES	YES

Source: LADOA, 1991

projected at 8 MAP with a 65 percent Stage III fleet mix and 125,000 annual aircraft operations.

No Project (Long-Term)

This scenario shows the airport operating at 12 MAP in the year 2015, with a 100 percent Stage III fleet mix, and 125,000 annual aircraft operations.

Terminal without Air Quality Certificate

This scenario means that the airport will operate at 12 MAP in the year 2010 with a 100 percent Stage III fleet mix, and 125,000 annual aircraft operations. It will also include an 1800-foot easterly runway extension.

Twenty (20) Million Annual Passengers

With this scenario, the airport would operate at 20 MAP in the year 2020, with a 100 percent Stage III fleet mix, and 216,000 annual aircraft operations.

SECTION 2

EIR USE, RELATED PROJECTS, AND RELATIONSHIPS TO PLANS

SECTION 2

EIR USE, RELATED PROJECTS, AND RELATIONSHIPS TO PLANS

2.1 INTENDED USE OF THE EIR

In accordance with the California Environmental Quality Act (CEQA), completion of an Environmental Impact Report (EIR) is required to provide information on environmental impacts related to changes in the proposed aircraft fleet mix, increase in aircraft operations, and the development of new facilities for ONT. The lead agency, which is the public entity that has the principal responsibility of supervising the preparation of the EIR, is the City of Los Angeles Department of Airports.

In accordance with CEQA guidelines Article 11, Section 15163, this Subsequent EIR is being prepared to address subsequent changes to the proposed project that require significant revisions to the previous (LADOA, 1975, 1982, and 1990) EIRs. The analysis in this Subsequent EIR will include the effects of Air, Noise, Transportation and Energy. Comments from various agencies will also be addressed in this document.

Other agencies that will use the EIR as the basis for their decision to issue approvals and/or permits are listed below.

2.1.1 Federal Aviation Administration (FAA)

As an agency of the Federal Department of Transportation, the FAA is responsible for creating and enforcing the rules, regulations and standards which apply to all aspects of civil aviation. FAA licenses pilots, certifies the airworthiness of aircraft, including permissive noise certification levels for all aircraft (FAR Part 36); inspects and approves modification levels for all aircraft which pertain to aircraft handling; and develops, operates, and maintains a nationwide system of airways. The agency also licenses airports to operate — considering such factors as site, runways, crash equipment, and other aspects of safe operation. The FAA determines screening procedures used to control access to aircraft and boarding areas.

In its capacity as operator of the nation's airways, the FAA establishes the flight pattern at airports and safe operating flight paths along airways. The FAA also establishes the minimum visibility standards at airports, below which no aircraft is permitted to operate.

The FAA is responsible for administering the Federal Aviation Regulation (FAR) Part 150 Program. This program implements portions of Title I of the Aviation Safety and Noise Abatement Act of 1979. It establishes a standard for measurement of airport (and background) noise, a single system for determining the exposure of individuals to airport noise, and an airport noise compatibility planning program tailored to the conditions of each airport. The planning program includes (1) provision for the development and submission to the FAA of Noise Exposure Maps and Noise Compatibility Programs by airport operators; (2) standard noise calculation methods and analytical techniques for use in airport assessments; (3) identification of land uses surrounding the airport and (4) procedures for criteria for FAA approval or disapproval of noise compatibility programs by the administrator. The program includes consideration of alternative noise controls that might be employed as well as appropriate land use planning strategies. The goal of the program is for the airport proprietor, in consultation with state/local planners, local aviation groups and interested citizens, to

2.1.5 South Coast Air Quality Management District (SCAQMD)

The SCAQMD has permit authority for any stationary source emissions generated at the airport site.

2.1.6 County of San Bernardino

Airport Land Use Commissions were established by state legislation to achieve the highest degree of compatible land use in communities surrounding airports by coordinating their respective land use plans.

The San Bernardino West Valley Airport Land Use Commission is staffed by the San Bernardino County Planning Department. The Commission has prepared an Airport Comprehensive Land Use Plan for communities surrounding the airport. The County of San Bernardino Planning Department will review and submit recommendations on the proposed project in accordance with CEQA guidelines.

2.1.7 City of Ontario

Cities have the responsibility of designating, regulating, and restricting land use and development to promote health, safety, and general welfare in accordance with the Airport Comprehensive Land Use Plan. As such, the City of Ontario has the power to regulate and control land use and development within its jurisdiction in order to promote the public interest and general welfare. Design criteria, building standards and building moratoria within the airport influence area are within the purview of Ontario City Council powers. The City of Ontario will review and submit recommendations on the proposed project in accordance with CEQA guidelines.

2.1.8 Commercial Air Carriers

Commercial air carriers are private companies licensed by the government to operate aircraft between cities to carry passengers and air freight for a profit. Their operating procedures are regulated by the FAA in order to ensure public safety.

2.2 RELATED PROJECTS

There are several projects that are planned or proposed at ONT and its immediate vicinity. These projects include:

2.2.1 UPS Air Cargo Hub

United Parcel Service (UPS), a major international air freight operator, proposes to build a major air cargo facility adjacent to the southeast corner of the airport. This facility would serve as the main collector and distribution center for UPS operations in the western United States. Completion of the proposed UPS air cargo hub development located south of ONT is anticipated by the year 2005 (LADOA, 1988a). Impacts of the proposed UPS facility have been considered in this EIR. Provision for impacts are demonstrated in the assumptions for changes in aircraft fleet mix, and in the trip generation rate assumed in the Transportation and Circulation section of this report.

2.2.2 Fuel Storage And Distribution Facility

A consortium of airline tenants proposes to construct a bulk fuel storage and distribution facility on 3.05 acres toward the southeast corner of ONT at the end of Turner Avenue. The fuel depot will contain three 45,000-barrel storage tanks connected to the Southern Pacific Pipeline; a truck-loading island; a feeder pipeline; and a terminal apron hydrant system. Based on existing operations and fuel usage, it is estimated that the new facility will be able to service approximately 12 MAP. A separate EIR is being prepared for this project.

2.2.3 The California - Nevada Super Speed Train (SST) Project

The proposed SST route will extend northeast from Anaheim Stadium in Orange County, California to downtown Las Vegas, Nevada. The proposed route will run through several communities in Orange, Los Angeles, San Bernardino, and Riverside Counties in California and Clark County in Nevada. The route would parallel and lie within the I-15 right-of-way for most of the distance. Current candidate cities for the SST stations include Anaheim,(Orange County), Ontario, Barstow, Victor Valley (San Bernardino County), Palmdale (Los Angeles County), Riverside/Corona (Riverside County) and Las Vegas (Clark County).

Several station sites have been suggested by officials in the City of Ontario and they include ONT near the proposed Amtrak Station. A station at this location would be consistent with the City's General Plan land use designations. The 1982 General Plan Policy Map indicates that the proposed terminal project could be modified to accommodate an SST Station.

The second suggested station is located in the northwest quadrant of the I-10 and Archibald Avenue interchange just north of ONT. This site and the surrounding area are designated for Planned Community Developments, a classification generally intended for residential uses.

The third suggested site is located in the I-10/I-15 Interchange area (including the northeast, northwest and southwest quadrants. This area is designated on the General Plan Map for planned industrial development.

2.2.4 Ground Access Project

The Ground Access Project consists of a network of new roads, road widening, and railroad grade separation projects, including a new interchange at Haven Avenue on Route 60 Freeway, the Haven Avenue Corridor, upgrading of the I-15/Jurupa existing interchange, upgrading of the two interchanges on I-10 on Archibald Avenue and Haven Avenue and various networking streets. These combined roadway system improvements will increase the circulation capacity needed for airport traffic growth and regional area wide development around the airport.

In conjunction with roadway improvements around the airport, a conceptual program for inbound and outbound signage has been developed by Caltrans and is currently under review by the LADOA. It appears that many of the freeway signs may be incorporated into existing programmed Caltrans projects.

2.3 RELATIONSHIP TO STATE, REGIONAL, AND LOCAL PLANS AND STATUTES

A primary objective in the environmental analysis of the proposed project is to ensure that the criteria and guidelines of applicable plans and policies are met. The following discussion addresses how the proposed project will comply with corresponding plans.

2.3.1 San Bernardino County Consolidated General Plan and Implementation System (including Noise and Air Quality Elements)

The General Plan of San Bernardino County serves as a planning base for community development. It delineates land use, noise, air quality, circulation, and safety policies for the entire county, including the Ontario International Airport area. Objectives of the General Plan, as related to the proposed project, are to avoid and abate excess noise exposures by requiring noise mitigation measures, providing sufficient noise exposure information, promoting the current and future use of mass transit, and decreasing air emission releases from new and existing projects.

Overall impacts of this project to air quality, noise, circulation and energy are addressed in this EIR. Local requirements for each of these impact areas have been considered in their respective sections.

2.3.2 City of Ontario General Plan (including the Noise Section of the Hazards Element, and the Zoning Code of the Airport Environs Element)

The General Plan for the City of Ontario provides guidance for planned growth in the community, while requiring mitigation to eliminate all man-made and natural hazards to public safety. Provisions regarding the expansion of ONT delineate careful review required for potential noise impacts and increased congestion of local streets and highways.

The Airport Environs Element defines land use policies and implementation programs to improve land use compatibility between the airport and surrounding land uses. Recommended for approval by the City of Ontario Planning Commission on January 8, 1991, the Airport Environs Element serves as the Airport Land Use Plan (ALUP) that will provide the state-mandated consistency between the Airport Land Use Plan and the General Plan.

The noise impacts for the proposed project are discussed in the Noise section. Projected impacts to local streets and highways, as a result of project implementation, are presented in the Transportation and Circulation section.

2.3.3 Ontario International Airport Terminal Area Master Plan

The Ontario International Airport Terminal Area Master Plan was drafted in 1985 for the purpose of future master planning, including architectural, engineering and construction services on airport property. Airport improvements have been primarily based on this plan. The Master Plan proposes an expansion of the entire facility to serve 12 MAP. Forecasts in the Master Plan assume that the airport would continue short and medium haul routes, with limited wide-body operations.

This EIR identifies impacts related to a fleet mix revision of 181,000 annual air carrier operations of aircraft over 70,000 pounds to accommodate 12 MAP.

2.3.4 SCAQMD Air Quality Management Plan

The primary objective of the Air Quality Management Plan (AQMP) is to set forth a comprehensive strategy for attaining compliance with both federal and state ambient air quality standards. The plan identifies sources of emissions, and establishes control measures to reduce emissions over a specified time period. Airport-related activities have been identified by the AQMP to be a major source of emissions. The following are requirements contained in the AQMP:

- Modify aircraft operations and procedures, and use alternative fuels and technologies for ground service vehicles.

- Reduce usage of auxiliary power units while air carrier aircraft are parked at terminal gates, through provision and use of centralized power and air conditioning systems.

- Reduce the number of air passenger-related auto trips generated by airports.
- Phase out FAR Part 36 Stage II aircraft and transition to all Stage III aircraft.
- Use vapor recovery systems to capture escaping aviation fuel emissions.

Impacts related to air quality are identified in the Meteorology and Air Quality section. A consistency analysis has been performed to ensure that elements of the project are in compliance with the AQMP.

SECTION 3

ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION

SECTION 3

ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION

3.1 METEOROLOGY AND AIR QUALITY

3.1.1 Setting

3.1.1.1 Climate and Meteorology

The distinctive climate of Ontario and the South Coast Air Basin (Basin) is determined by its terrain and geographical location. The Basin is bound on the west by the Pacific Ocean, on the south by the San Diego County line, and on the north and east by the San Gabriel, San Bernardino and San Jacinto Mountains. The Basin is a coastal plain with connecting broad valleys and low hills bounded by the Pacific Ocean on the southwest, and high mountains along its perimeter. Terrain in the Basin varies from rugged, high mountains with elevations up to 11,500 feet in the northern and eastern parts of the area, to almost flat-lying coastal plains at or just above sea level. Between the mountains and the ocean is a complex array of terraces, hills and foothills.

The Basin lies in the semi-permanent high pressure zone of the eastern Pacific, where the climate is mild and is tempered by cool sea breezes. This climatological pattern is occasionally interrupted by periods of extremely hot weather, winter storms or Santa Ana winds.

Wind is an important climatic consideration because it controls both the local (microscale) diffusion of pollutants near a pollution source and the regional (mesoscale) trajectory of those emissions. The average wind speed at Ontario is nine miles per hour and more than half of all the air passing over Ontario International Airport is oriented in a narrow sector defined by winds flowing from the west to southwest toward the east and northeast. During the day, the principal trajectory of air from Ontario is toward Fontana and San Bernardino. At night, the flow becomes considerably disorganized. As air along the slopes of the San Gabriel mountains cools, it becomes denser and sinks toward the floor of the adjacent valleys. Because of Ontario's proximity to the mountains, nighttime winds across Ontario often blow south and westward.

There are seven types of southern California climates and Ontario is located in the area referred to as the Intermediate Valley. The warmest parts of the Intermediate Valley region are found furthest inland. At San Bernardino, 50 miles from the sea, the July mean temperature is in the high 70's°F, with the maximum averaging to 20 degrees higher. Just inside the Intermediate Valley, the lower mean is 50.1°F.

A persistent temperature inversion is present in the atmospheric layers near the surface of the earth, hampering vertical dispersion of air pollutants in the Basin. Usually, the inversion is lower before sunrise than during the daylight hours; a new, still lower inversion is established with the advent of the morning sea breeze. As the sun warms the ground, which, in turn, warms the surface air layers, the mixing height increases as the day progresses. The temperature of the surface air layer approaches the potential temperature of the base of the inversion layer as this heating pattern continues. When the temperatures become equal, the inversion layer begins to erode at its lower edges and finally "breaks" when enough warming takes place. This phenomenon is frequently observed in the middle to late afternoon on hot summer days when smoggy air suddenly clears. Winter inversions frequently "break" up by mid-morning, thereby preventing significant pollutant buildup. The overall average occurrence of inversions at the ground surface is 11 days per month; the average varies from two days in June to 22 days in December and January. Higher inversions at less than 2500 ft above sea level average 22 days each month. Restricted maximum mixing heights of 3500 ft average 191 days each year.

Rainfall in the South Coast Air Basin falls during the November-April period. Summer rainfall is normally restricted to widely-scattered thundershowers near the coast, and slightly heavier shower activity occurring in the east, and over the mountains. Annual average rainfall varies from nine inches in Riverside to fourteen inches in Downtown Los Angeles. Higher amounts are measured at foothill locations. The monthly and yearly rainfall totals are extremely variable. The rainy days vary from five to ten percent of all days in the Basin and the frequency of such days is higher near the coast.

3.1.1.2 Air Quality

Regional Air Quality. Ambient concentrations of air contaminants are measured within the Basin and compared to Federal and State standards to determine air quality. These standards are set by the U.S. Protection Agency (EPA) and the California Air Resources Board (CARB) at levels to protect public health and welfare with an adequate margin of safety. There are Federal and State ambient air quality standards for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), suspended particulate matter (PM_{10}), sulfur dioxide (SO_2), and lead. The South Coast Air Quality Management District (SCAQMD) also measures for compliance with two other State standards: sulfur and visibility. These standards are shown on Table 3.1-1.

The EPA, under the provisions of the Clean Air Act, requires each state that has not attained the National Ambient Air Quality Standards to prepare a separate local plan detailing how these standards are to be met in each local area. These plans, are to be prepared by local agencies designated by the governor of each state and incorporated into a State Implementation Plan (SIP).

In conformance with federal government requirements, the South Coast Air Quality Management District and the Southern California Association of Governments (SCAG) jointly prepared the revised 1989 Air Quality Management Plan (AQMP), which was adopted by the two agencies on March 17, 1989. The plan became effective upon the approval and adoption by the California Air Resources Board on August 15, 1989 and was integrated into the State Implementation Plan. Presently, the AQMP is being revised to meet California's Clean Air Act and federal requirements. Pending anticipated (July, 1991) adoption of the Revised AQMP, proposed projects are to be evaluated for conformity with the provisions of the 1989 regional air plan.

Table 3.1-1
Federal and State
Ambient Air Quality Standards

Pollutant	Standard Federal (primary)	(secondary)	California
Ozone (O_3)			
1 - hr average, ppm	0.12	0.12	0.09
Carbon Monoxide (CO)			
1 - hr average, ppm	35	35	20
8 - hr average, ppm	9	9	9
Nitrogen Dioxide (NO_2)			
1 - hr average, ppm	-	-	0.25
Annual average, ppm	0.053	0.053	-
Sulfur dioxide (SO_2)			
1 - hr average, ppm	-	-	0.25
3 - hr average, ppm	-	0.50	-
24 - hr average, ppm	0.14	-	0.05
Annual Average, ppm	0.03	-	-
Suspended particulates (PM_{10})[a]			
24 - hr average, ug/m^3	150	150	50
AGM[b], ug/m^3	50	50	30
Lead (Pb)			
30 - day average, ug/m^3	-	-	1.5
Calendar Quarter, ug/m^3	1.5	1.5	-
Sulfates			
24 - hr average	-	-	25 ug/m^3
Hydrogen sulfide			
1 - hr average	-	-	0.03 ppm
Vinyl chloride			
24 - hr average	-	-	0.01 ppm
Visibility Reducing Particles	-	-	d
1 observation			

Source: South Coast Air Quality Management District, 1986-88.
[a] PM_{10} = particulate matter less than 10 microns diameter (inhalable).
[b] AGM = annual geometric mean
[c] California standards, other than ozone, carbon monoxide, sulfur dioxide (1 hour) and particulate matter (PM^{10}), are values that are not to be equaled or exceeded. The ozone, carbon monoxide, sulfur dioxide (1 hour) and PM^{10} standards are not be exceeded.
[d] In sufficient amount to reduce the prevailing visibility to less than 10 miles when relative humidity is less than 70 percent.
ppm = parts per million
ug/m^3 = micrograms per cubic meter

Existing Air Quality. The SCAQMD maintains a network of air monitoring stations throughout the Basin. The Ontario air monitoring station is located nearest to the project site. Particulate matter data are presented on Table 3.1-2. Particulate matter is the only pollutant monitored at the Ontario Station. Data for the Upland Station are presented on Table 3.1-3, to further describe ambient air quality in the study area.

Table 3.1-2
Summary of Air Quality Data[a]
Ontario, 1988-1990

Pollutant	1988	1989	1990
Total suspended particulates (TSP)[b]			
Max (24-hr), ug/m^3	283	349	243
AGM, ug/m^3	106.8	116.2	90.6
% AGM, (Federal) exceeded	ND	ND	ND
Suspended particulates (PM_{10})			
24-hr average, ug/m^3	192	254	185
AGM, ug/m^3	66.7	69.7	61.0
% AGM (State) exceeded	78.3	80.3	62.7

Source: South Coast Air Quality Management District, 1988-1990.

AGM = annual geometric mean

ND = no data

ug/m^3 = microgram per cubic meter

a Pollutants shown are those for which the South Coast Air Basin is designated as a federal nonattainment area. State and federal standards for both lead and sulfur dioxide have been met everywhere in the Basin for the past five years.

b Less than 12 full months. Monitoring discontinued.

Since the Ontario station monitors only particulate matter. Table 3.1-3 shows data gathered from the Upland monitoring station to represent the other criteria pollutants.

Table 3.1-3
Summary of Air Quality Data[a] Upland, 1988-1990

Pollutant	1988	1989	1990
Ozone (O_3)			
Max. (1-hour), ppm	0.35	0.32	0.29
Days exceeding State Standard	165	146	113
Carbon Monoxide (CO)			
Max. (1-hour), ppm	9.0	8	9
Days exceeding 1 hr State Standard	0	0	0
Days exceeding 8 hr State Standard	0	0	0
Nitrogen Dioxide (NO_2)			
Max. (1-hour), ppm	0.21	0.20	0.19
Days exceeding State Standard	0	0	0
Total suspended particulates (TSP)			
Max (24-hr), ug/m^3	229	292	289
AGM, ug/m^3	95.9	98.7	93.0
% AGM,(Federal) exceeded	ND	ND	ND
Suspended particulates (PM_{10})			
24-hr average, ug/m^3	NM	NM	NM
AGM, ug/m^3	NM	NM	NM
% AG (State) exceeded	NM	NM	NM

Source: South Coast Air Quality Management District, 1988-1990.

AGM = annual geometric mean

NM = not measured

ND = no data

ppm = parts per million

ug/m^3 = micrograms per cubic meter

a Pollutants shown are those for which the South Coast Air Basin is designated as a federal nonattainment area. State and federal standards for both lead and sulfur have been met everywhere in the Basin for the past five years.

These data indicate that the primary problem in the project vicinity is ozone. On the average, between 1988 and 1990, the state ozone standard is exceeded 41 percent of the time. During 1990 the ozone standard in the area was exceeded 113 days. Continual exceedance of the standard is expected during the summertime, since such exceedances are far more prevalent during that period. Particulate matter (PM10) is also a problem and may be attributable to wide-open, undeveloped spaces in the area. During 1990 PM10 exceeded the state standard about 63 percent of the days sampled.

The following section contains an evaluation of potential air quality impacts resulting from the Proposed Project, and its conformity to the AQMP. It has been prepared in two parts and references the criteria given above.

3.1.2 Impacts

3.1.2.1 Significance Criteria

The Basin is under the jurisdiction of the SCAQMD which has regulatory authority over stationary source air pollution control and, jointly with SCAG, over air quality planning in the Basin. The Proposed Project is subject to the South Coast Air Quality Management District air quality rules and regulations. The SCAQMD also reviews all proposed project developments in the Basin for potential air quality impact significance. Significant air quality impacts are measured by the following criteria.

Daily Pollutant Threshold Levels. Potential significant air quality impacts in the Basin are evaluated by criteria suggested in the SCAQMD's "Air Quality Handbook for Preparing Environmental Impact Reports" (SCAQMD, 1987). The Handbook identifies measurable emissions, including project-related emission factors and suggested threshold criteria, which may be used in determining if air quality analysis is needed. These threshold levels are used in determining whether a project has the potential to cause a significant adverse impact on air quality. The following threshold levels indicate potential adverse air quality impacts from projects capable of daily emissions of one or more of the following pollutants:

Carbon Monoxide	550 lbs/day
Sulfur Dioxide	150 lbs/day
Nitrogen Oxides	100 lbs/day
Particulates	150 lbs/day
Reactive Organic Gases	75 lbs/day
Lead	3 lbs/day

AQMP Conformity. The AQMP also serves as a guide for evaluating the potential air quality impacts of projects being considered for approval by land use management agencies in SCAQMD's jurisdiction. The plan provides the framework for regional growth control efforts based on a regional forecast of emissions developed by SCAG, identifies sources of emissions, and establishes control measures to reduce emissions over a specified period of time. SCAG is responsible for developing regional plans for transportation management, growth, and land use. These areas are considered indirect sources and can produce regional air quality impacts due to their growth-inducing impacts. Airport-related activities have been identified in the AQMP as a major indirect source of emissions, and SCAG has developed specific aviation-related control measures in the AQMP.

Impacts Analysis. Impacts of the project are analyzed based on the emission sources needed to achieve 12 MAP traffic at Ontario International Airport (ONT). These sources include airport improvements, aircraft and ground support operations, mobile sources (vehicles traveling to and from the airport), and stationary sources (electrical and natural gas use) primary in the terminals. Airport improvements are primarily construction-related. Construction activities are considered short-term and would produce two types of air contaminants: exhaust emissions from construction equipment, and fugitive dust generated as a result of soil disturbance. All other emissions are operational or long-term, and are a direct result of the Proposed Project. The air quality evaluation for these sources focuses on airport air quality impacts operations at 12 MAP, with a yearly total of 181,000 airport operations. The analysis was both for an assumed aircraft fleet mix of 80 percent Stage III aircraft (Unmitigated Project), and a fleet mix of 100 percent Stage III aircraft (Mitigated Project).

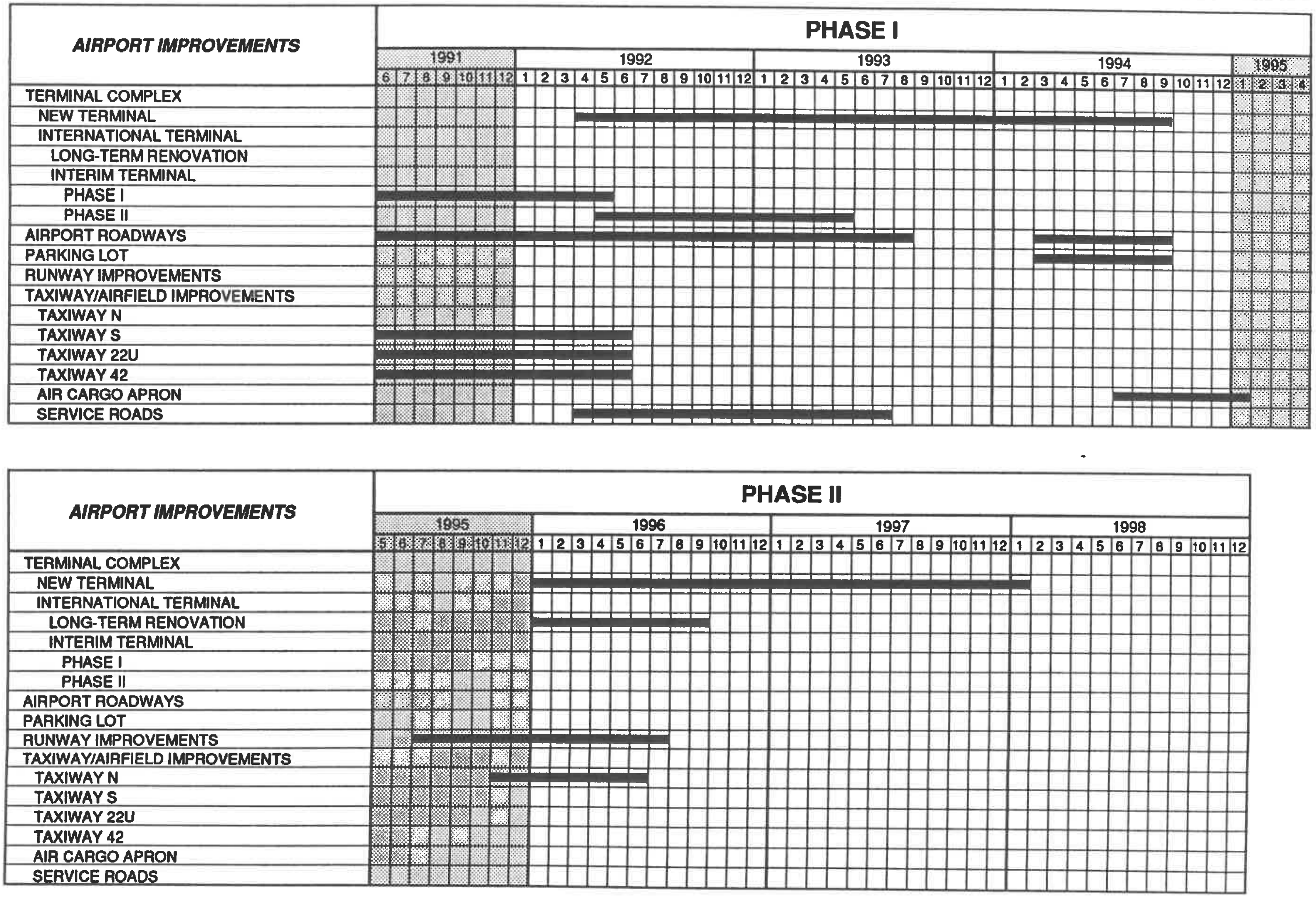
3.1.2.2 Construction Impacts

All airport improvements are part of the proposed Mitigated and Unmitigated alternatives. The other project alternatives include partial or all airport improvements and are discussed in Section 4.1 of this report. The airport improvements include: new terminals and parking areas, a runway extension, and aircraft taxi and motor vehicle roadway modifications. Construction of these improvements would create a temporary source of air pollutant emissions which would vary as a function of construction activity level and specific duration. The new air passenger terminal is excepted to be constructed in two phases. Phase 1 is planned for 1992 through 1994. Phase 2 is scheduled for 1996 through 1998. The other airport improvements would take place within the Phases, with construction activities occurring intermittently over the next eight years. Figure 3.1-1 illustrates the type of airport improvements and the proposed dates of commencement and completion of construction within each phase.

Due to the airport improvement phasing, the project's overall construction-related emission estimates are based on (1) the general parameters and assumptions concerning each construction activity (discussed below), and (2) the number and types of equipment operating for the respective airport improvement as a function of its area size and construction activity. Table 3.1-4 shows the construction equipment fleet mix developed for this analysis, and the associated emissions factors.

New Passenger Terminal Complex. The passenger terminal and the 44 gate positions would be constructed on approximately 53 acres. Thirty-five of the gate positions would be constructed in Phase 1 on 40 acres. The remaining 9 gate positions would be developed on 13 acres during Phase 2. Additionally, during each phase, 400,000 square feet of space would be added to the existing terminal building.

International Air Passenger Terminal. The project includes the construction of an Interim and Long-Term International Air Passenger Terminal. The Interim International Facility would be a constructed modular facility on the existing apron. The Interim facility would be developed in two phases with the first phase consisting of a 21,000 square-foot arrivals building with air passenger busing operations to the main terminal. Construction activity for this first phase would occur for approximately one year. The second phase proposes an additional 32,000 square-foot departure structure with its own roadway.



SOURCE: LADOA, 1991.

Figure 3.1-1 Ontario International Airport Improvement Phasing Plan

Table 3.1-4

Emission Factors for Construction Equipment and Vehicles

Equipment Type	Units	CO	NO_x	ROG	SO_x	PM	Factor Source
				Pollutants			
Backhoe	lb/hr	0.434	2.01	0.160	0.133	0.143	AP-42,II-7.1
Air Compressor	lb/hr	12.6	0.326	0.421	0.017	0.021	AP-42,3.3-1
Front-end loader	lb/hr	0.572	1.89	0.25	0.182	0.172	AP-40,II-7.2
Heavy-duty truck	lb/mi	0.02	0.04	0.006	0.007	0.007	EMFAC7C
Trench machine	lb/hr	0.75	2.9	0.29	0.21	0.10	AP-42,II-7.1
Material truck	lb/mi	0.02	0.04	0.006	0.007	0.007	EMFAC7C
Welding machine	lb/hr	0.434	2.01	0.160	0.133	0.143	AP-42,3.3-1
Flat-bed truck	lb/mi	0.02	0.04	0.006	0.007	0.007	EMFAC7C
Motor grader	lb/hr	0.151	0.713	0.040	0.086	0.061	AP-42,II-7.2
Compactor	lb/hr	1.01	0.06	0.08	0.003	0.02	AP-42,II-7.2
Dump truck	lb/mi	0.02	0.04	0.006	0.007	0.007	EMFAC7C
Paver	lb/hr	0.675	1.69	0.152	0.143	0.139	AP-42,II-7.1
Roller	lb/hr	0.304	0.862	0.067	0.067	0.050	AP-42,II-7.1
Sideboom tractor	lb/hr	0.346	1.26	0.121	0.137	0.112	AP-42,II-7.1
Scraper	lb/hr	1.25	3.83	0.282	0.462	0.405	AP-42,II-7.1
Wheeled tractor	lb/hr	3.57	1.27	0.188	0.09	0.135	AP-42,11-2.1
Water truck	lb/hr	1.80	4.16	0.191	0.45	0.255	AP-42,11-2.1
Pavement breaker	lb/hr	0.24	0.92	0.09	0.07	0.03	AP-42,II-7.1
Fugitive Dust	lb/ac	0	0	0	0	110	AP-42,11.2.1

Source: EPA, 1985

and a public parking lot for approximately 400 cars. Construction activity for the second phase would continue for another year, with an expected completion date of May 1992.

The Long-Term International Air Passenger Terminal would either be constructed as part of the New Air Passenger Terminal during the Phase 2 construction activity, or the existing terminal interior would be renovated to accommodate the International Passenger facility. Activity for this conversion would tentatively begin in January 1996 and end in September 1996.

Airport Roadway Improvements. Roadway construction activities would include road widening, improvements, and grade separations on approximately 20 acres. This activity is scheduled for approximately 3 years, in Phase 1.

Parking. The ONT improvement program would include the development of approximately 13,000 parking spaces. Assuming the average size for one parking space is 160 square feet, approximately 45 acres of land would be required for the proposed parking lot. Construction is anticipated to last for 7 months during Phase 1.

Runway Improvements. The extension of Runway 26R would require site preparation on approximately 6 acres. Additional construction activities are modifications to a taxiway (4 acres) and to a service road (5 acres). The construction of these improvements is scheduled to occur in Phase 2.

Taxiway and Airfield Improvements. This construction activity would include improving existing service roads, the air cargo apron, and taxiway connections, extensions and reconstruction. These improvements would require construction activity on approximately 35 acres during Phase 1 and 15 acres during Phase 2.

Fugitive dust emissions from site preparation were calculated from the total acreage for each of the airport improvements. The average dust emission factor is 110 pounds per disturbed acre. Assuming site preparation would be confined to 25% of the duration of each of the airport improvement construction periods, daily fugitive dust emissions would exceed the threshold amounts established by the SCAQMD for approximately 53 days of site preparation activity for parking improvements. See Appendix Table G-1.

Projected daily air emissions from construction-related machinery are shown on Table 3.1-5. Air emissions were calculated by the number and types of equipment, and an 8-hour daily usage was associated with construction of each of the airport improvements. Included in the emission projections are mobile source emissions. The average daily truck travel distance is assumed to be 50 miles. Onsite water truck mileage is based on the acreage of the applicable construction activity.

Construction worker vehicles are estimated at 60 miles of daily travel per vehicle, with an assumed speed of 50 miles per hour. Emission rates for these vehicles were based on the calendar year applicable to the year of the construction activity, as identified in the SCAQMD's Handbook for Preparing EIRs (SCAQMD, 1987).

The construction machinery-related emissions indicate that of the pollutant categories, only NO_x emissions exceed the SCAQMD's threshold levels in the construction of five of the six proposed airport improvements. Where construction activities overlap, (as identified in Figure 3.1-1), CO emissions would exceed the threshold level for approximately 5 months (October 1994 through January 1995) in Phase 1, and for 6 months (January 1996 through June 1996) in Phase 2 of the total construction period. NOx and ROG would also exceed threshold levels during construction periods where construction activities overlap. See Appendix Table G-2.

The construction emission projections represent a conservative (worst-case) estimate of total daily emissions attributable to project construction activities because not all equipment would be operating continuously over the whole eight-hour week period.

3.1.2.3 Operations Impacts

Aircraft Movement Emissions. Emissions from aircraft movements are estimated using accepted emission factors that take into account a complete landing and takeoff (LTO) cycle. An LTO cycle consists of the approach from a threshold altitude (specified as 3,000 feet), landing, taxi and idle to shutdown; start-up, idle and taxi to head of runway, takeoff, and climbout to the threshold altitude. Each of these activities is characterized as a "mode". In AP-42, the Environmental Protection Agency published emission factors (in terms of pounds of pollutant per hour of operation) applicable to each phase of an LTO cycle and average times-in-modes (TIM in minutes) for a variety of aircraft and aircraft engines (USEPA, 1972).

Table 3.1-5

Air Emission Pollutants from Daily Construction Equipment Operations (Exhaust Emissions Only)

Construction Activity and Equipment Quantities Required	CO	NO_x	ROG	SO_x	PM
	Pollutants (lbs/day)				
New Passenger Terminal/International Passenger Terminal					
Scraper (2)	20.0	61.3	4.5	7.4	6.5
Wheeled Tractor (1)	28.6	10.1	1.5	0.72	1.1
Water truck (1)	0.29	0.61	0.10	0.11	0.12
Heavy-duty truck (3)	2.8	5.7	0.97	1.0	1.1
Sideboom tractor (1)	2.8	10.1	1.0	1.1	0.90
Backhoe (2)	6.9	32.0	2.6	2.1	2.3
Material truck (2)	1.8	3.8	0.64	0.70	0.73
Dump truck (2)	1.8	3.8	0.64	0.70	0.73
Flat bed truck (2)	1.8	3.8	0.64	0.70	0.73
Paver (1)	5.4	13.5	1.2	1.1	1.1
Roller (1)	2.4	6.9	0.54	0.54	0.40
Welding machine (2)	6.9	32.2	2.6	2.1	2.3
Air compressor (1)	100.8	2.6	3.4	0.14	0.17
Construction worker vehicles (30)	13.0	5.3	2.4	-	1.1
TOTAL	**195.2**	**191.7**	**22.7**	**18.4**	**19.3**
Long-Term International Air Passenger Terminal/Existing Air Passenger Terminal					
Welding machine (1)	3.5	16.1	1.2	1.1	1.1
Air compressor (1)	100.8	2.6	3.4	0.13	0.16
Construction worker vehicles (12)	5.2	2.1	0.96	-	0.45
TOTAL	**109.5**	**20.8**	**5.6**	**1.2**	**1.7**
Interim International Air Passenger Terminal					
Scraper (1)	10	30.6	2.2	3.7	3.2
Wheeled Tractor (1)	28.6	10.7	1.5	0.72	1.1
Water truck (1)	14.4	33.3	1.5	3.6	2
Heavy-duty truck (1)	1.2	2	0.31	0.35	.35
Sideboom tractor (1)	2.8	10.1	.96	1.1	0.92
Backhoe (1)	3.5	16.1	1.3	1.1	1.1
Material truck (1)	1	2	0.31	0.35	0.35
Paver	5.4	13.5	1.2	1.1	1.1
Roller	2.4	6.8	0.53	0.53	0.42
Welding machine (1)	3.5	16.1	1.3	1.1	1.1
Air compressor (1)	100.8	2.6	3.4	0.13	0.16
Construction worker vehicles (25)	12.4	5.1	2.1	-	0.98
TOTAL	**186.0**	**148.9**	**16.6**	**13.7**	**12.9**

Table 3.1-5 (Continued)

Air Emission Pollutants from Daily Construction Equipment Operations (Exhaust Emissions Only)

Construction Activity and Equipment Quantities Required	Pollutants (lbs/day)				
	CO	NO_x	ROG	SO_x	PM
Airport Roadway					
Backhoe (2)	6.9	32.0	2.6	2.1	2.3
Air compressor (1)	100.8	2.6	3.4	0.14	0.17
Front-end loader (1)	4.6	15.2	2.0	1.5	1.4
Heavy-duty truck (2)	1.8	3.8	0.64	0.70	0.73
Pavement breaker (1)	1.9	7.4	0.72	0.56	0.24
Water truck (1)	0.11	0.23	0.04	0.04	0.04
Paver (1)	5.4	13.5	1.2	1.1	1.1
Roller (1)	2.4	6.9	0.54	0.54	0.40
Trench machine (1)	6.0	23.2	2.3	1.7	0.80
Construction worker vehicles (20)	9.9	4.1	1.7	-	0.78
TOTAL	**139.8**	**108.9**	**15.1**	**8.3**	**8.0**
Parking Lot					
Backhoe (2)	6.9	32.0	2.6	2.1	2.3
Motor grader (1)	1.2	5.7	0.32	0.69	0.49
Trench machine (1)	6.0	23.2	2.3	1.7	0.80
Front-end loader (2)	9.2	30.4	4.0	2.9	2.8
Heavy-duty truck (2)	1.8	3.8	0.64	0.70	0.73
Air compressor (1)	100.8	2.6	3.4	0.14	0.17
Water truck (1)	0.26	0.53	0.09	0.10	0.10
Construction worker vehicles (20)	8.6	3.5	1.6	-	0.76
TOTAL	**134.8**	**101.7**	**14.9**	**8.3**	**8.1**
Runway Improvements					
Backhoe (2)	6.9	32.0	2.6	2.1	2.3
Scraper (1)	10.0	30.6	2.2	3.7	3.2
Air compressor (1)	100.8	2.6	3.4	0.14	0.17
Motor grader (1)	1.2	5.7	0.32	0.69	0.49
Front-end loader (2)	9.2	30.4	4.0	2.9	2.8
Heavy-duty truck (2)	1.8	3.8	0.64	0.70	0.73
Flatbed truck (2)	1.8	3.8	0.64	0.70	0.73
Pavement breaker (1)	1.6	10.2	1.0	0.78	0.34
Paver (1)	1.9	7.4	0.72	0.56	0.24
Roller (1)	2.4	6.9	0.54	0.54	0.40
Compactor (1)	8.1	0.48	0.64	0.02	0.16
Water truck (1)	0.11	0.23	0.04	0.04	0.04
Construction worker vehicles (20)	9.9	4.1	1.7	-	0.78
TOTAL	**155.7**	**138.2**	**18.4**	**12.9**	**12.4**

Table 3.1-5 (Continued)

Air Emission Pollutants from Daily Construction Equipment Operations (Exhaust Emissions Only)

Construction Activity and Equipment Quantities Required	Pollutants (lbs/day)				
	CO	NO_x	ROG	SO_x	PM
Taxiway and Other Improvements[a]					
Motor grader (1)	1.2	5.7	0.32	0.69	0.49
Sideboom tractor (1)	2.8	10.1	1.0	1.1	0.90
Welding machine (1)	3.4	16.1	1.3	1.0	1.1
Air compressor (1)	100.8	2.6	3.4	0.14	0.17
Water truck (1)	0.29	0.61	0.10	0.11	0.12
Front-end loader (1)	4.6	15.2	2.0	1.5	1.4
Pavement breaker (1)	1.9	7.4	0.72	0.56	0.24
Compactor (1)	8.1	0.48	0.64	0.02	0.16
Roller (1)	2.4	6.9	0.54	0.54	0.40
Heavy-duty truck (2)	1.8	3.8	0.64	0.70	0.73
Construction worker vehicles (20)	9.9	4.1	1.7	-	0.78
TOTAL	**137.2**	**73.0**	**12.4**	**6.4**	**6.5**

Source: Engineering-Science, Inc.
[a] Per taxiway

The TIM is specific to an airport and is dependent, in part, on taxi distances. Taxi distances at ONT are comparable to those at Los Angeles International Airport (LAX). TIMs at LAX have been extensively studied and were found to be slightly higher than those for ONT. Therefore, as a conservative measure, TIMs for LAX are used in generating emission factors for each LTO cycle for aircraft movements at ONT. Categories for various aircraft are presented on Table 3.1-6. TIMs for business jets, turbo props, and piston-type small aircraft are the same as those given in AP-42. Table 3.1-7 presents TIMs for general aircraft categories at LAX.

Table 3.1-6

Categories of Aircraft Operated at Ontario International Airport

Jumbo Jet	Long Range	Medium	Business	Turbo Prop	Piston-Type
B747	DC8	B727	LEAR35	DHC7	GSAEPF
L1011	B757	B737	LEAR25	SD330	BEC58P
DC10		DC9	CNA500	DHC6	COMSEP
B767		MD81	GIIB	CNA441	DC3
A300		MD82	MU3001		
		MD83			
		BAE146			

Source: Engineering-Science, Inc.

Table 3.1-7

Times-in-Mode for Various Aircraft Categories Operated at Ontario International Airport

Aircraft Category	Times-In-Mode (minutes) Approach	Taxi/Idle (In)	Taxi/Idle (Out)	Takeoff	Climbout
Jumbo Jet	4.00	6.22	10.00	0.63	2.20
Long-Range	4.00	3.81	11.65	0.53	2.20
Medium-Range	4.00	3.64	8.97	0.53	2.20
Business Jet	1.60	6.50	6.50	0.40	0.50
Turbo Prop	4.50	7.00	19.00	0.50	2.50
Piston	6.00	4.00	12.00	0.30	5.00

Source: Engineering-Science, Inc.

Emission factors for an LTO cycle for the various aircraft, based on LAX TIMs, are presented on Table 3.1-8. It should be noted that AP-42 does not include emission factors for some newer aircraft and aircraft engines operated at ONT. The emission factors for these newer aircraft were generated by the Los Angeles Department of Airports, based on engine certification data obtained from the Federal Aviation Administration in Washington, D.C. Certification data were available for fuel use rates, hydrocarbons, carbon monoxide, and nitrogen oxide, as well as a smoke number (used as an indicator for PM emissions). Particulate and sulfur oxide emission data were not available. To supplement the certification data, the DOA assumed a 0.1% sulfur content in jet fuel to estimate the sulfur oxide emission factor. The particulate matter emission factor was estimated by comparing smoke numbers available for other engine types.

Table 3.1-8
Emissions per LTO Cycle

Aircraft Type/Weight	CO	Pollutant (lbs per LTO cycle) NO_x	ROG	SO_x	PM
70,000 lbs or more					
747200	166.98	77.20	61.05	5.85	3.74
74710Q	101.96	113.29	39.17	5.80	0.26
DC870	30.71	35.90	1.39	3.18	1.28
DC8QN	163.75	22.65	130.81	3.42	4.14
BAE146	12.82	7.47	1.54	0.94	0.64
727Q9	29.75	25.29	6.71	2.42	0.91
727Q7	29.75	25.29	6.71	2.42	0.91
727Q15	29.75	25.29	6.71	2.42	0.91
727D17	29.75	25.29	6.71	2.42	0.91
767CF6	21.48	50.51	2.23	2.79	0.13
DC1010	58.41	61.00	20.07	3.31	0.20
DC1030	76.47	84.96	29.38	4.35	0.20
DC1040	125.24	57.90	45.79	4.39	2.80
L1011	132.16	59.85	89.44	4.08	2.80
737300	14.33	14.69	0.80	1.37	0.61
A300	50.98	56.64	19.58	2.90	0.13
DC910	19.84	16.86	4.47	1.61	0.61
DC9Q7	19.84	16.86	4.47	1.61	0.61
737QN	19.84	16.86	4.47	1.61	0.61
737D17	19.84	16.86	4.47	1.61	0.61
737Q15	19.84	16.86	4.47	1.61	0.61
MD81	8.76	19.53	2.73	1.67	0.37
MD82	8.23	23.07	2.50	1.67	0.37
MD83	8.23	23.07	2.50	1.67	0.37
757PW	14.64	34.96	1.43	2.02	0.13
Less than 70,000 lbs					
LEAR35	5.38	1.22	1.84	0.15	0.13
LEAR25	41.16	0.59	4.14	0.35	0.46
CNA500	9.08	0.74	3.33	0.16	0.12
GIIB	48.05	5.23	35.96	0.72	0.53
MU3001	9.08	0.74	3.33	0.16	0.12
DHC7	10.00	2.02	6.34	0.36	0.89
SD330	6.27	1.15	7.71	0.17	0.41
DHC6	5.00	1.01	3.17	0.18	0.41
DC3	5.00	1.01	3.17	0.18	0.41
CNA441	5.00	1.01	3.17	0.18	0.41
GASEPF	14.38	0.03	0.26	0.01	0.03
BEC58P	96.25	0.04	1.77	0.02	0.00
COMSEP	14.38	0.03	0.26	0.01	0.03

Source: Engineering-Science, Inc.

Using the emission factors presented on Table 3.1-8, the average day emissions from aircraft movements at ONT for the Unmitigated and Mitigated scenarios are presented on Tables 3.1-9 and 3.1-10. Emissions on the assumed worst-case or busiest day are presented on Table 3.1-11. The busiest day is estimated to have 15% more aircraft operations than the average day.

Table 3.1-9

Projected Daily Emissions from Aircraft Movements at Ontario International Airport Unmitigated Project - 80% Stage III Fleet Mix

Aircraft Type/weight	LTOs per day	Emissions (lbs per day)				
		CO	NO_x	ROG	SO_x	PM
70,000 lbs or more						
747200	2.28	380.72	176.02	139.19	13.34	8.52
74710Q	5.92	604.62	671.81	232.28	34.39	1.54
DC870	8.51	261.34	305.51	11.83	27.06	10.89
DC8QN	0.90	147.38	20.38	117.73	3.08	3.73
BAE146	76.72	983.55	573.10	118.15	72.12	49.10
727Q9	3.66	108.88	92.56	24.56	8.86	3.33
727Q7	2.28	67.83	57.66	15.30	5.52	2.07
727Q15	7.74	230.26	195.74	51.93	18.73	7.04
727D17	1.78	52.95	45.02	11.94	4.31	1.62
767CF6	10.10	216.95	510.15	22.52	28.18	1.31
DC1010	1.78	103.97	108.58	35.72	5.89	0.36
DC1030	0.45	34.41	38.23	13.22	1.96	0.09
DC1040	3.07	384.49	177.75	140.57	13.48	8.60
L1011	0.50	66.08	29.92	44.72	2.04	1.40
737300	20.50	293.76	301.14	16.40	28.08	12.50
DC9Q7	3.46	68.65	58.34	15.47	5.57	2.11
737QN	17.02	337.68	286.96	76.08	27.40	10.38
737D17	1.93	38.29	32.54	8.63	3.11	1.18
737Q15	8.02	159.12	135.22	35.85	12.91	4.89
MD81	1.09	9.55	21.29	2.97	1.82	0.40
MD82	46.09	379.32	1063.30	115.22	76.97	17.05
MD83	13.60	111.93	313.75	34.00	22.71	5.03
757RR	10.43	152.69	364.63	14.91	20.07	1.35
Less than 70,000 lbs						
LEAR35	4.03	21.68	4.92	7.41	0.60	0.52
LEAR25	4.64	190.98	2.74	19.21	1.63	2.13
CNA500	2.58	23.43	1.91	8.59	0.41	0.31
GIIB	1.03	49.49	5.39	37.04	0.75	0.55
MU3001	1.02	9.26	0.76	3.40	0.16	0.12
DHC7	4.07	40.07	8.22	25.80	1.46	3.62
DHC6	39.31	196.55	39.70	124.61	7.07	16.12
DC3	0.46	2.30	0.46	1.46	0.08	0.19
CNA441	10.26	51.30	10.36	32.52	1.85	4.21
GASEPF	15.47	222.46	0.46	4.02	0.15	0.46
BEC58P	12.90	1241.62	0.52	22.83	0.26	0.00
COMSEP	4.64	66.72	0.14	1.21	0.05	0.14
TOTAL EMISSIONS						
lbs per day		7,311	5,655	1,588	453	183
tons per year		1,334	1,032	291	83	33

Source: Engineering-Science, Inc.

Table 3.1-10

Projected Daily Emissions from Aircraft Movements at Ontario International Airport Mitigated Project - 100% Stage III Fleet Mix

Aircraft Type/weight	LTOs per day	Emissions (lbs per day) CO	NO_x	ROG	SO_x	PM
70,000 lbs or more						
747200	2.28	380.72	176.02	139.19	13.34	8.52
747200B	5.93	604.62	671.81	232.28	34.39	1.54
DC870	9.41	289.03	337.81	13.10	29.88	12.07
BAE146	76.72	983.55	573.10	118.15	72.12	49.10
767CF6	10.10	216.95	510.15	22.52	28.18	1.31
DC1010	2.22	129.66	135.43	44.56	7.35	0.44
DC1040	3.07	384.49	177.75	140.57	13.48	8.60
L1011	0.51	67.40	29.92	44.72	2.04	1.40
737300	50.94	729.78	748.30	41.00	69.89	30.94
MD81	1.09	9.55	21.29	2.97	1.82	0.40
MD82	61.55	506.38	1419.81	153.68	103.06	22.77
MD83	13.60	111.93	313.75	34.00	22.71	5.03
757RR	10.43	152.69	364.63	14.91	20.07	1.35
Less than 70,000 lbs						
LEAR35	4.02	21.68	4.92	7.41	0.60	0.52
LEAR25	4.64	190.98	2.74	19.21	1.63	2.13
CNA500	2.58	23.43	1.91	8.59	0.41	0.31
GIIB	1.03	49.49	5.39	37.04	0.75	0.55
MU3001	1.03	9.36	0.77	3.43	0.17	0.13
DHC7	4.06	40.60	8.19	25.75	1.45	3.63
DHC6	39.31	196.55	39.70	124.61	7.07	16.12
DC3	0.46	2.30	0.46	1.46	0.08	0.19
CNA441	10.26	51.30	10.36	32.52	1.85	4.21
GASEPF	15.47	222.50	0.46	4.02	0.15	0.46
BEC58P	12.90	1241.62	0.52	22.83	0.26	0.00
COMSEP	4.64	66.74	0.14	1.21	0.05	0.14
TOTAL EMISSIONS						
lbs per day		6,683	5,555	1,291	433	172
tons per year		1,220	1,014	236	79	31

Source: Engineering-Science, Inc.

Table 3.1-11

Maximum Daily Aircraft Movement Emissions
Mitigated and Unmitigated Scenarios
(lbs per day)

	CO	NO_x	ROG	SO_x	PM
Unmitigated	8,408	6,503	1,826	521	210
Mitigated	7,685	6,388	1,485	497	198

Source: Engineering-Science, Inc.

Aircraft Service Operations Emissions. Emissions are also generated by various types of equipment that provide miscellaneous services to the aircraft while they are on the ground. These emissions are due to the burning of fuel used to operate the equipment. The time required to service an aircraft varies by aircraft type, and sometimes by individual airline. Table 3.1-12 is a matrix of the different types of aircraft service units and the average number of minutes that each aircraft is serviced. Table 3.1-13 presents the corresponding fuel used and hourly consumption of fuel for the various types of aircraft support equipment.

The emissions from aircraft support equipment operations are estimated using emission factors for diesel and gasoline combustion as published in AP-42. These emission factors are presented on Table 3.1-14. The corresponding emissions are calculated by multiplying the service time for each type of support equipment by the number of LTO's per day for each aircraft, then by the fuel consumption for each type of support equipment, and finally by the corresponding pollutant emission factor. The emissions from aircraft support equipment for the Unmitigated and Mitigated scenarios are summarized on Table 3.1-15 and 3.1-16.

Related Vehicular Movement Emissions. The project's proposed 12 MAP is not expected to result in significant additional employee vehicle trips to ONT since the number of air passenger trips is not directly related to employment levels at ONT.

Passenger trip generation is by far the greatest single source of vehicular trips at the airport. Cargo and general aviation activity also contributes to vehicular trips, but to a much lesser degree.

Previous studies conducted to support the Terminal Area Master Plan (1985) found that each airline passenger generates 1.9 vehicle trips. This figure includes all passenger activity, cargo activity, and employee trips. It does not include general aviation activity. As the airport grows and the passenger volume approaches the projected 12 MAP level, more high-occupancy vehicles such as mini-vans and buses are anticipated to serve the airport. This will result in a reduction of the trip generation factor. As a conservative estimate, a 10 percent reduction is assumed, producing a trip generation factor of 1.7 trips per airline passenger.

Aircraft	Tractor	Belt Loader	Container Loader	Cabin Service	Lavatory Truck	Water Truck	Food Truck	Fuel Truck	Tow Tractor	Conditioner	Air Start	Ground Power Units	Trans-porter	Auxiliary Power Units
70,000 lbs or more														
747200	77.5	96.0	92.0	24.0	24.0	12.0	55.0	50.0	10.0	0.0	3.0	60.0	19.0	20.0
74710Q	77.5	96.0	92.0	24.0	24.0	12.0	55.0	50.0	10.0	0.0	3.0	60.0	19.0	20.0
DC870	49.0	60.0	0.0	15.0	18.0	0.0	30.0	40.0	5.0	30.0	5.0	30.0	0.0	20.0
DC8QN	49.0	60.0	0.0	15.0	18.0	0.0	30.0	40.0	5.0	30.0	5.0	30.0	0.0	20.0
BAE146	24.0	30.0	0.0	0.0	15.0	10.0	17.0	15.0	5.0	0.0	0.0	0.0	0.0	40.0
727Q9	33.0	56.0	6.0	12.0	15.0	0.0	17.0	20.0	10.0	0.0	0.0	15.0	3.0	25.0
727Q7	33.0	56.0	6.0	12.0	15.0	0.0	17.0	20.0	10.0	0.0	0.0	15.0	3.0	25.0
727Q15	33.0	56.0	6.0	12.0	15.0	0.0	17.0	20.0	10.0	0.0	0.0	15.0	3.0	25.0
727D17	33.0	56.0	6.0	12.0	15.0	0.0	17.0	20.0	10.0	0.0	0.0	15.0	3.0	25.0
767CF6	74.0	80.0	80.0	25.0	18.0	10.0	20.0	45.0	10.0	0.0	0.0	40.0	0.0	20.0
DC1010	74.0	80.0	80.0	25.0	18.0	10.0	20.0	45.0	10.0	0.0	0.0	40.0	0.0	20.0
DC1030	74.0	80.0	80.0	25.0	18.0	10.0	20.0	45.0	10.0	0.0	0.0	40.0	0.0	20.0
DC1040	74.0	80.0	80.0	25.0	18.0	10.0	20.0	45.0	10.0	0.0	0.0	40.0	0.0	20.0
L1011	74.0	80.0	80.0	25.0	18.0	10.0	20.0	45.0	10.0	0.0	0.0	40.0	0.0	20.0
737300	42.5	60.0	0.0	15.0	15.0	0.0	20.0	15.0	5.0	0.0	0.0	0.0	0.0	40.0
DC910	24.0	30.0	0.0	0.0	15.0	10.0	17.0	15.0	5.0	0.0	0.0	0.0	0.0	40.0
DC9Q7	24.0	30.0	0.0	0.0	15.0	10.0	17.0	15.0	5.0	0.0	0.0	0.0	0.0	40.0
737QN	42.5	60.0	0.0	15.0	15.0	0.0	20.0	15.0	5.0	0.0	0.0	0.0	0.0	40.0
737D17	42.5	60.0	0.0	15.0	15.0	0.0	20.0	15.0	5.0	0.0	0.0	0.0	0.0	40.0
737Q15	42.5	60.0	0.0	15.0	15.0	0.0	20.0	15.0	5.0	0.0	0.0	0.0	0.0	40.0
MD81	24.0	30.0	0.0	0.0	15.0	10.0	17.0	15.0	5.0	0.0	0.0	0.0	0.0	40.0
MD82	24.0	30.0	0.0	0.0	15.0	10.0	17.0	15.0	5.0	0.0	0.0	0.0	0.0	40.0
MD83	24.0	30.0	0.0	0.0	15.0	10.0	17.0	15.0	5.0	0.0	0.0	0.0	0.0	40.0
757PW	33.0	56.0	6.0	12.0	15.0	0.0	17.0	20.0	10.0	0.0	0.0	15.0	3.0	25.0
Below 70,000 lbs														
LEAR35	20.0	0.0	0.0	0.0	10.0	10.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	30.0
LEAR25	20.0	0.0	0.0	0.0	10.0	10.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	30.0
CNA500	20.0	0.0	0.0	0.0	10.0	10.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	30.0
GIIB	20.0	0.0	0.0	0.0	10.0	10.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	30.0
MU3001	20.0	0.0	0.0	0.0	10.0	10.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	30.0
DHC7	20.0	0.0	0.0	0.0	10.0	10.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0
SD330	20.0	0.0	0.0	0.0	10.0	10.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0
DHC6	20.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0
DC3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0
CNA441	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0
GASEPF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0
BEC58P	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0
COMSEP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Engineering Science, 1990.

Table 3.1-12 Aircraft Support Equipment Service Time Per LTO (Minutes)

Table 3.1-13

Fuel Consumption of Aircraft Support Equipment

Support Equipment	Fuel Type	Fuel Consumption gallons/hour
Tractor	Diesel	1.80
Belt loader	Diesel	0.70
Container loader	Diesel	1.75
Cabin service	Diesel	1.50
Lavatory truck	Gasoline	1.50
Water truck	Gasoline	1.50
Food truck	Gasoline	2.00
Fuel truck	Gasoline	1.70
Tow tractor	Diesel	2.35
Conditioner	Diesel	1.75
Air start	Diesel	1.80
Ground power units	Diesel	1.80
Transporter	Diesel	1.50
Auxiliary power units	Diesel	1.00

Source: Engineering-Science, Inc.

Table 3.1-14

Emission Factors for Fuel Combustion in Heavy Duty Equipment

	Emission Factor, lbs per 1,000 gallons				
Fuel	CO	NO_x	ROG	SO_x	PM
Diesel	153.51	368.01	40.48	31.10	30.10
Gasoline	3,960.00	95.80	130.00	5.28	6.06

Source: EPA, 1985.

Table 3.1-15

Projected Emissions from Aircraft Support Operations for the Unmitigated Scenario - 80% Stage III Fleet Mix

Support Equipment	Emissions (lbs per day)				
	CO	NO_x	ROG	SO_x	PM
Tractor	44.5	106.7	11.7	9.0	8.7
Belt loader	20.0	47.9	5.3	4.0	3.9
Container loader	9.8	23.4	2.6	2.0	1.9
Cabin service	6.7	16.2	1.8	1.4	1.3
Lavatory truck	400.1	9.7	13.1	0.5	0.6
Water truck	182.2	4.4	6.0	0.2	0.3
Food truck	638.6	15.4	21.0	0.9	1.0
Fuel truck	656.5	15.9	21.6	0.9	1.0
Tow tractor	9.0	21.5	2.4	1.8	1.8
Conditioner	1.3	3.0	0.3	0.3	0.2
Air start	0.3	0.8	0.1	0.1	0.1
Ground power units	8.3	19.9	2.2	1.7	1.6
Transporter	0.9	2.1	0.2	0.2	0.2
Auxiliary power units	23.8	57.1	6.3	4.8	4.7
TOTAL EMISSIONS	**2,002**	**344**	**94**	**28**	**27**

Source: Engineering-Science, Inc.

Table 3.1-16

Projected Emissions from Aircraft Support Operations for the Mitigated Scenario - 100% Stage III Fleet Mix

Support Equipment	Emissions (lbs per day)				
	CO	NO_x	ROG	SO_x	PM
Tractor	44.2	105.8	11.6	8.9	8.7
Belt loader	19.4	46.6	5.1	3.9	3.8
Container loader	9.4	22.4	2.5	1.9	1.8
Cabin service	6.2	14.9	1.6	1.3	1.2
Lavatory truck	400.1	9.7	13.1	0.5	0.6
Water truck	194.1	4.7	6.4	0.3	0.3
Food truck	640.0	15.5	21.0	0.9	1.0
Fuel truck	647.8	15.7	21.3	0.9	1.0
Tow tractor	8.5	20.4	2.2	1.7	1.7
Conditioner	1.3	3.0	0.3	0.3	0.2
Air start	0.3	0.8	0.1	0.1	0.1
Ground power units	7.2	17.3	1.9	1.5	1.4
Transporter	0.7	1.7	0.2	0.1	0.1
Auxiliary power units	24.4	58.5	6.4	4.9	4.8
TOTAL EMISSIONS	**2,004**	**337**	**94**	**27**	**27**

Source: Engineering-Science, Inc.

It is estimated that 92.5 percent of the airline passenger traffic is composed of "origin and destination" passengers. The balance of the passengers are layovers, with no associated vehicle trips. At 12 MAP, the associated passenger vehicle trips based on the 1.7 trip generation factor is 51,700 vehicle trips (12 MAP x 0.925 x 1.7) per day. Using an 18-hour day and a peak factor of 1.45, the projected average and peak hourly volumes are 2,872 trips and 4,165 trips, respectively.

The Proposed Project fleet mixes would accommodate 1,800 tons of cargo each day. Since cargo activity has already been included in the trip generation factor, only the increase in 400 ton cargo operations needs to be accounted for in determining the number of additional trips attributable to additional cargo handling. A medium-duty truck has a maximum-load capacity of approximately 10 tons. Assuming 80% loading of a truck, 50 (400 tons/8 tons per truck trip) additional trips would be generated from additional cargo operations.

General aviation is estimated to constitute only about 10-12 percent of the total operations at any airport (see Appendix F, Forecast Assumptions and Methodologies). For the assumed 696 total aircraft operations per day, about 12% or 84 general aviation operations per day are estimated. This general aviation activity was not included in the trip generation rate of 1.7 trips per airline passenger. In the Ground Access Terminal Expansion EIR (LADOA, 1982), a trip generation factor of 1.33 was used. Assuming that this factor is applicable to general aviation activity, about 112 vehicular trips would be generated from general aviation activity.

Daily vehicular trips for the project are based on passenger, cargo and general aviation activities for 12 MAP. The estimated daily vehicle trip rates are applicable to both the mitigated and unmitigated scenarios, and are presented on Table 3.1-17.

Table 3.1-17

12 MAP Daily Vehicular Trips

Passenger[a]	Cargo[b]	General Aviation	Total Trips
51,810	50	112	51,972

Source: Engineering-Science, Inc.

[a] Includes employee and cargo trips
[b] Increase in cargo trips

To estimate the emissions attributable to vehicular movement related to airport operations, emission factors contained in the "Air Quality Handbook for Preparing EIRs," (SCAQMD, 1987) were used, using the year 2000 as the project year, and an average vehicle speed of 35 miles per hour. A vehicle trip was assumed to be an average of 20 miles. The airport-related vehicular emissions are presented on Table 3.1-18. Included in the daily emission estimates are emissions from busses transferring passengers (8 times per day with a travel distance of 2 miles) to and from the Interim International Airport.

Table 3.1-18

Airport-Related Vehicular Emissions
(lbs per day)

CO	NO_x	ROG	SO_x	PM
9,204	2,428	1,603	None	616

Source: Engineering-Science, Inc.

Emissions from Energy in Structures. Energy use in the proposed terminals and other structures from electricity and natural gas use was calculated using the procedure set forth in the SCAQMD Air Quality Handbook (SCAQMD, 1987). This energy use, and associated emissions, serves building lighting, heating, space conditioning, and water heating demands, and includes direct emissions at the site, and offsite emissions from electricity generation.

Combined emissions from natural gas use and electricity generation were determined to be 11 lb/day for CO; 46 lb/day for NO_x; 0.82 lb/day for ROG; 3 lb/day for SO_x; and 1 lb/day for PM. These levels are below the thresholds of significance for criteria air contaminants.

3.1.2.4 Summary of Emissions

Total daily emissions for each scenario are summarized on Tables 3.1-19 and 3.1-20. A comparison of the scenarios shows that the Mitigated scenario, with 100 percent Stage III aircraft, would achieve an approximate reduction of 6% in ROG and SO_x emissions, 3% in CO and PM emissions, and 2% in NO_x emissions.

Table 3.1-19

Unmitigated Scenario Emissions, 80% Stage III Fleet Mix
(lbs per day)

	CO	NO_x	ROG	SO_x	PM
Aircraft Movements	7,311	5,655	1,588	453	183
Aircraft Support	2,002	344	94	28	27
Vehicular Emissions	9,204	2,428	1,603	--	616
TOTAL	**18,517**	**8,427**	**3,285**	**481**	**826**

Source: Engineering-Science, Inc.

Table 3.1-20

Mitigated Scenario Emissions, 100% Stage III Fleet Mix
(lbs per day)

	CO	NO_x	ROG	SO_x	PM
Aircraft Movements	6,683	5,555	1,291	433	172
Aircraft Support	2,004	337	94	27	27
Vehicular Emissions	9,204	2,428	1,603	--	616
TOTAL	**17,891**	**8,320**	**2,988**	**460**	**815**

Source: Engineering-Science, Inc.

3.1.2.5 Effect on Ambient Pollutant Concentrations

To determine the impact of aircraft operations at ONT on the local air quality, a dispersion modeling study was conducted. The Federal Aviation Administration and the United States Air Force have developed the Emissions and Dispersion Modeling System (EDMS) to prepare airport or air base emission inventories, and to calculate the concentrations caused by these emissions, as they disperse downwind (U.S. DOT, 1988). EDMS can process line, point and area sources that may be present at an airport.

The model requires hourly LTOs and meteorological data as input. The worst-hour LTOs are estimated to be 8% of the daily LTOs (rounded to the nearest whole number) and occur at 7 a.m. These are presented on Table 3.1-21. When considering ground level

Table 3.1-21

Worst-Hour LTOs for the Project Scenarios

Aircraft	Worst-Hour LTOs Unmitigated	Worst-Hour LTOs Mitigated
DC870	1	-
BAE146	3	6
727QN	1	
727Q15	1	1
767CF6	1	1
737300	1	2
DC9Q7	1	-
737QN	3	1
737Q15	1	1
MD82	3	4
MD83	1	1
757PW	1	1
DHC6	3	3
CNA441	1	1
GASEPF	1	1
BEC58P	1	1
TOTAL HOURLY LTOs	24	25

Source: Engineering-Science, Inc.

pollutant concentrations, the worst-case stability classes for ground level sources are stability classes D to F; the worst-case stability class for elevated sources is stability class A. Because both ground level and elevated sources are present in aircraft operations, three different stability classes, A, D and F, were screened to determine which would cause the greatest build-up of ground level pollutants for the specific scenarios relating to the operation of Ontario International Airport. A wind speed of 1 meter per second was used as a worst-case assumption, along with the predominant southwesterly wind direction. The ambient temperature was assumed to be 70°F. The emission factors used for modeling purposes are published by the Environmental Protection Agency in AP-42 (USEPA, 1972). For aircraft not found in AP-42, emission factors generated by the Department of Airports were used.

The area surrounding ONT is largely vacant or in industrial use. There are some small pockets of retail and residential zones. In order to best represent the air quality impacts from aircraft operations, nine receptors were chosen for modeling purposes. Receptors were located in residential areas (Receptors R2, R4, R5 and R6) chosen surrounding the airport (Figure 3.1-2). Additional receptors were located at nearby schools (Receptors R3, R8, and R9).

A review of the EDMS modeling results indicates that stability class A is the worst-case at Ontario Airport. Stability classes D and F predicted zero concentration values for all alternatives, for all pollutants, at all receptors. The EDMS model using stability class A predicted zero values for all receptors except receptors 7 and 8 (Table 3.1-22). At these two receptors, a comparison of the predicted pollutant concentrations shows the highest value would be CO concentrations at receptor 8. The greatest predicted concentrations are 4.6×10^{-3} ppm CO and 1.9×10^{-3} ppm NO_x, for the Unmitigated scenario. When converted to micrograms per cubic meter using the formula in Appendix M of the SCAQMD EIR Handbook (SCAQMD 1987), both of these values are below the "Allowable Change in Concentration" criteria given on Table A-2 of SCAQMD Regulation XIII. These criteria are used to assume significance of impact, and the impacts are therefore not significant. Since the Mitigated scenario generates even lower levels of daily pollutants, there would be no significant impact from either project scenarios on ambient air quality.

Table 3.1-22

Stability Class A
Pollutant Concentration (ppm)

Scenario	Receptor	CO	NO_x[a]	ROG[a]	SO_x[a]
Unmitigated	7	4.6×10^{-3}	1.9×10^{-3}	4.4×10^{-5}	1.8×10^{-5}
	8	5.1×10^{-7}	6.4×10^{-6}	8.3×10^{-9}	3.1×10^{-8}

Source: Engineering-Science, Inc.

[a] ROG expressed as butane, NO_x expressed as NO_2, and SO_x expressed as SO_2.

The dispersion modeling considered only aircraft emissions for comparative purposes and did not consider emissions from vehicular traffic, terminal operations or aircraft support equipment. Effects on ambient air quality for these activities would be of similar magnitude based on the emissions data presented above (Table 3.1-19). Therefore, changes in current air quality from these activities would be insignificant.

3.1.2.6 AQMP Conformity Analysis

The SCAQMD and SCAG prepared the regional Air Quality Management Plan (AQMP) for the South Coast Air Basin which was approved in 1989. The plan is a comprehensive strategy for attainment of the National Ambient Air Quality Standards by the year 2007. The AQMP proposes to achieve this goal by implementing a three-tiered approach. Tier 1 requires full implementation of known control technologies and management practices. Tier II requires a significant advancement of technological applications and vigorous regulatory intervention. Tier III calls for the development of new technology, requiring major technological breakthroughs. To be approved, a project must

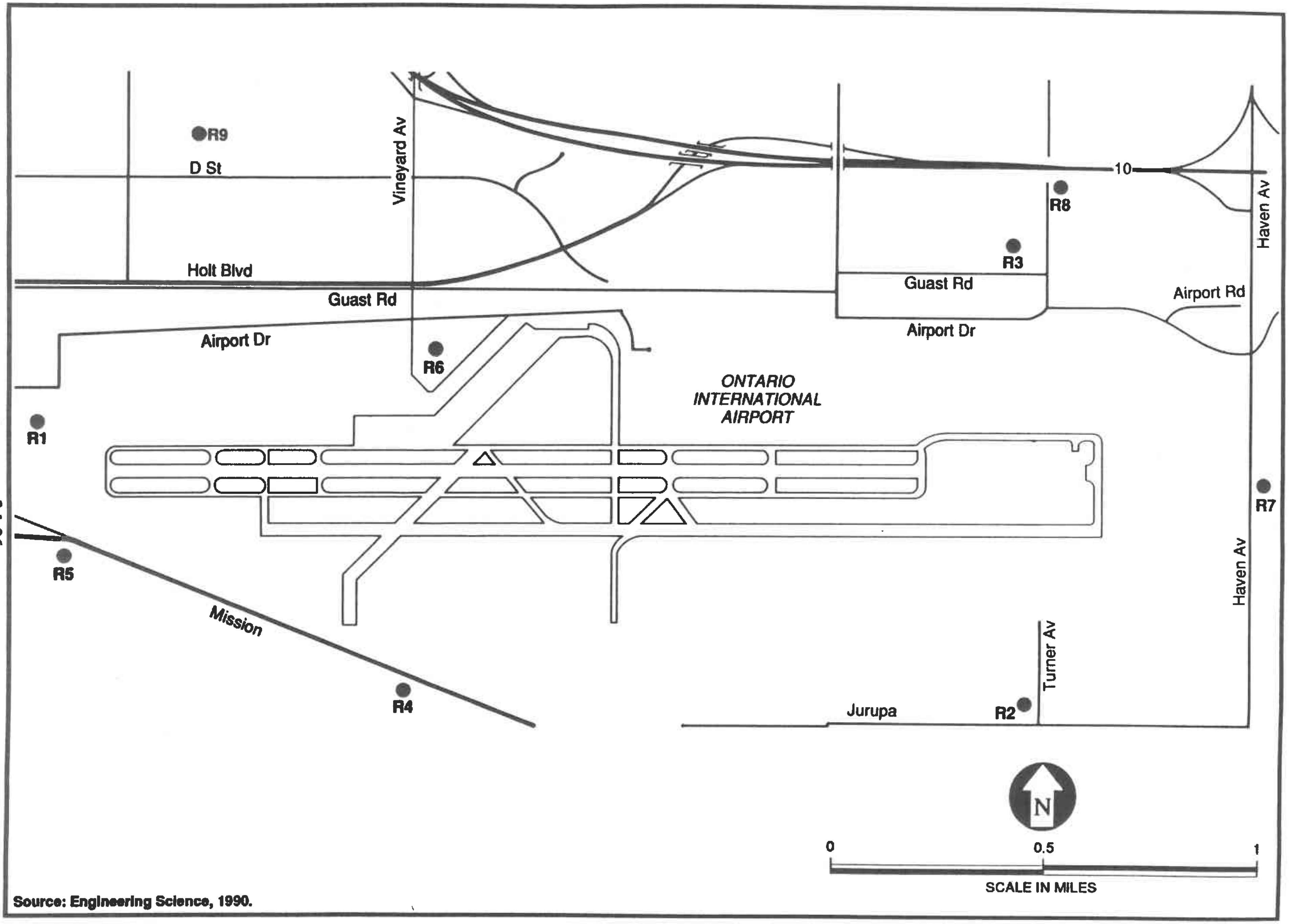


Figure 3.1-2 Receptor Locations

OntarioAir

show consistency with the AQMP, both in the use of proposed emission control measures and projected reductions in emissions.

Airports are defined as an indirect source - a facility may not directly produce emissions themselves, but induces emissions through activities which attract mobile sources. With the passage of Senate Bill 151 (Presley) in 1987, the SCAQMD has the authority to implement indirect source controls, including control of aviation-related emissions. This legislation provides both the overall incentive for aviation-related control measures to be implemented, and the flexibility to allow airport operators to select implementation for those measures which work most effectively for their airports.

Aviation-related control measures include the modification of aircraft operations and procedures, and the use of alternative fuels and technologies for ground service vehicles. The anticipated adoption of an SCAQMD indirect source rule for airports by January 1, 1992 would result in a ten percent emission reduction (0.26 tons/day of NO_x) by January 1, 1994 under Tier I controls and ninety percent emission reduction (2.35 tons/day NO_x) occurring between 1994 and 2010 under Tier II controls.

The SCAQMD has additionally identified several best available control technology (BACT) and best available control measures (BACM) which can reduce airport-related emissions. Examples of potential airport-related BACT and BACM include, but are not limited to the following measures:

- Centralize fueling systems
- Improve taxiways and/or use high-speed taxiways
- Reduce the number of aircraft engines during taxi and idle
- Control departure times
- Redesign terminal facilities
- Centralize groundpower systems and reduce auxiliary power units
- Tow departing aircraft to immediate staging areas
- Use alternative fuels (or electrification) for service vehicles
- Promote a cleaner aircraft fleet mix.

Mobile sources include airplanes, ground support vehicles which service the airplanes, and automobiles which carry air passengers to and from the airport. An indirect source regulation would reduce emissions from aircraft and ground support vehicles by promoting changes in mobile source operations and procedures, fuel use, and facility design. In the case of the Proposed Project, the proposed airport improvements include a new passenger terminal, improved taxiways, and widening of service roads. These improvements are part of the control measures identified above to achieve a reduction of daily transportation and airport-related pollutants.

The Proposed Project (both the Unmitigated and Mitigated scenarios) identify a change in aircraft fleet mix as a result of trends in the airline industry towards the use of smaller aircraft. The proposed fleet mix shows lesser use of the type of aircraft originally proposed in 1975 to achieve 12 MAP, and greater use of newer, smaller, and more efficient aircraft types. Because of this, while there is an increase in the number of operations to achieve 12 MAP, the overall emissions would actually decrease. For the sake of comparison, Table 3.1-23 shows the daily airport-related emissions for the 12 MAP analysis developed in the

Ontario Airport 1975 EIR. This fleet mix used represents operations with larger aircraft which are no longer anticipated.

Both of the Proposed Project's scenarios would result in NO_x emissions of approximately 0.60 ton/day less than the 1975 forecast. The AQMP projects an emission reduction of 0.26 ton/day by 1994 after implementation of Tier 1 control measures. By comparison, the use of either scenarios for the Proposed Project fleet mix at ONT by itself would better the AQMP's projected NO_x emissions reductions by 0.34 ton/day.

Table 3.1-23

1975 - 12 MAP Airport Related Emissions (lbs per day)

	CO	NO_x	ROG	SO_x	PM
Aircraft Movements	8,967	6,849	3,171	539	226
Aircraft Support	1,695	324	90	24	24
Vehicular Emissions	9,218	2,431	1,605	--	616
TOTAL	**19,880**	**9,601**	**4,866**	**563**	**866**

Source: Engineering-Science, Inc.

Additional reductions would be realized by the implementation of alternative fuel uses and electrification for ground service vehicles. These alternatives are presently being developed by CARB. Airport ground support vehicles are currently unregulated and CARB is in the process of setting emission standards for these sources. The tentative date of adoption and enforcement to meet the new standards is 1995 (Personal Contact, McDonald, 1991).

The proposed project's airport improvements would accommodate the anticipated growth in air passengers at ONT. The current 5 MAP is expected to increase to 12 MAP in 2000. If the Ontario airport is unable to meet the projected demands, any passenger who would normally fly from Ontario and who would have to use alternative airports because of limited service would be diverted to Los Angeles International Airport (LAX), Long Beach International Airport (LBIA), Burbank International Airport (BIA), or John Wayne International Airport (JWIA) in Orange County.

Diverting this passenger increase of 7 MAP, which is proposed to use ONT, would incur additional trip lengths from the Ontario area of approximately 60 miles to LBIA; 80 miles to LAX; 50 miles to JWIA; and, 100 miles to BIA. For purposes of analysis, half of the VMT generated for each airport alternative was calculated to take into account air passengers who are located at various distances along the routes of the alternate airports. Daily vehicular trips for 7 MAP were calculated using the same trip generation factor for the proposed project (MAP x 0.925 x 1.7) resulting in 30,157 daily trips. The total trips were equally distributed between the alternate airports with an average speed of 45 miles per hour. Table 3.1-24 shows the resultant emissions from 7 MAP vehicle trips traveling to and from the alternative airports. These vehicular emissions were then compared to the emissions generated by 7 MAP for the proposed project, where it is assumed the average speed is 35 miles per hour with a travel distance of 20 miles.

Table 3.1-24

Comparison of Estimated Daily Vehicular Emissions from Ontario and Alternative Airports

Airport	VMT	CO	NO_x	ROG	PM
		Pollutants (pounds/day)			
Long Beach	30	1,410	558	264	134
John Wayne	25	1,175	465	220	112
Los Angeles	40	1,880	744	352	179
Burbank	50	2,350	930	440	223
Alternate Airport Vehicular Emissions Total		**6,815**	**2,697**	**1,276**	**648**
Ontario	20	5,341	1,408	930	357
Excess Emissions from Vehicles from Alternative Airports over Ontario Airport		**1,474**	**1,289**	**346**	**291**

Source: Engineering-Science, Inc.

3.1.3 Recommended Mitigation Measures

3.1.3.1 Construction

The following mitigation measures would reduce air quality impacts:

1. The contractor will prepare a Comprehensive Dust Control Plan for the site prior to the issuance of a grading permit by the City of Ontario Building and Safety Official. The Plan will conform to all San Bernardino County and South Coast Air Quality Management District Regulations regarding dust control (including SCAQMD Rule 403), and will include, but not be limited to:

   * Regular watering of cleared areas to prevent dust generation. Care will be taken not to overwater cleared areas to prevent runoff and soil erosion.
   * Grading operations will be suspended during first and second stage smog alerts, or when winds exceed 30 mph.
   * A flag person will be used to guide traffic properly and ensure safety at the construction site.
   * Construction operations affecting offsite roadways will be scheduled for off-peak hours to minimize obstruction of through traffic lanes.
   * Configure construction parking to minimize traffic interference.

2. Utilize existing power sources and avoid on-site power generation.
3. Use unleaded fuel or low sulfur fuel, and catalytic converters, or propane fuel, on all welding machines, reducing NO_x and CO emissions.

4. Maintain construction equipment engines in proper tune and retard diesel engine timing 4 degrees to minimize NO_x emissions.

5. Encourage ridesharing and the use of urban mass transit by construction personnel.

3.1.3.2 Operations

Tables 3.1-19 and 3.1-20 provide data that indicates that implementation of either scenario of the Proposed Project would result in a beneficial impact to air quality, as long as the airport does not exceed the 12 MAP traffic objective. In fact, the Proposed Project would provide greater proposed emissions reductions than are stipulated in the AQMP. The use of Best Available Control Technology will be employed in the operation phase of the project.

3.1.3.3 Passenger Vehicles

The AQMP specifies the following control measures which are intended to lower motor vehicle emissions by reducing vehicle use. The control measures are elements of SCAG's Regional Mobility Plan and the SCAG Growth Management Plan. Local government agencies will share in the responsibility of implementation by incorporating these measures in their General Plans, for example by limiting automobile use by individuals, (the major contributing factor to project-related air quality impacts) to minimize traffic flow.

The following mitigation measures are recommended for trip reduction for passenger vehicles to ONT.

6. Develop public transit transfer station including shuttle service facilities.
7. Set price structures for parking areas to promote transit use.
8. Identify and evaluate remote terminal opportunities.

3.1.4 Unavoidable Adverse Impacts

Development of the Proposed Project would generate significant NO_x emissions during its construction, and significant CO emissions during a portion of the construction period. The construction phase CO emissions are short in duration, and exceed the SCAQMD threshold level for 5-7 months. At the end of this period, CO emissions for the remaining construction activities would decrease to below the SCAQMD criteria pollutant threshold level.

During the operational phase of the project, estimated emissions for the 80% and 100% stage 3 fleet will also generate significant emissions in all five pollutant catagories. However, either scenario of the proposed project will result in a beneficial impact to air quality compred to the "No Project" alternative.

3.1.5 Cumulative Impacts

Cumulative impacts are produced by the aggregation of individual environmental impacts from the Proposed Project and related projects. Where air quality impact results of one project may be insignificant, the combined projects may produce significant air quality impacts. Section 2.2 of this report identifies four related projects - three of which are directly related to ONT operations, and one which proposes to locate a train station at ONT. Construction of these projects would involve considerable combustion emissions which may occur in the same time frame as the Proposed Project. These construction phase emissions may temporarily worsen the Proposed Project's CO and NO_x emissions threshold exceedance, and cause significant impacts for other criteria air contaminants.

which proposes to locate a train station at ONT. Construction of these projects would involve considerable combustion emissions which may occur in the same time frame as the Proposed Project. These construction phase emissions may temporarily worsen the Proposed Project's CO and NO_x emissions threshold exceedance, and cause significant impacts for other criteria air contaminants.

Operational phase impacts may become significant for some air contaminants on a cumulative basis. However, since the operational phase of the Proposed Project will result in a net air quality benefit from Stage III fleet mix and improved airport facilities, project approval would improve the overall emissions future.

Mitigation of cumulative construction phase impacts would be accomplished by using the same mitigation measures prepared in Section 3.1.3.1 of this report.

3.1.6 Impacts Mitigated to Insignificance

Air quality impacts are significant in the construction phases. Construction-related NO_x and CO emissions would cease at the completion of each construction activity. The implementation of the appropriate mitigation measures during construction would lower these emissions, but they may not be sufficient to reduce the emissions to insignificance.

3.2 NOISE

3.2.1 Setting

A baseline noise contour for ONT was developed for the year 1990 (see Figure 3.2-1). The contour shows the airport operating at a level of 97,000 annual operations and 5.3 MAP with the recently constructed runway 26L. These studies indicated that the 65 CNEL impact area of ONT would extend approximately 2.5 miles to the west of the airport, 4 miles to the east, with a noise corridor extending 2.5 miles to the southeast. Table 3.2-1 summarizes the land use impacts that occur with this contour, including acreage, dwelling units, and population within the 65 CNEL contour.

Table 3.2-1

1990 (Existing) Noise Conditions
Land Use Impact Data

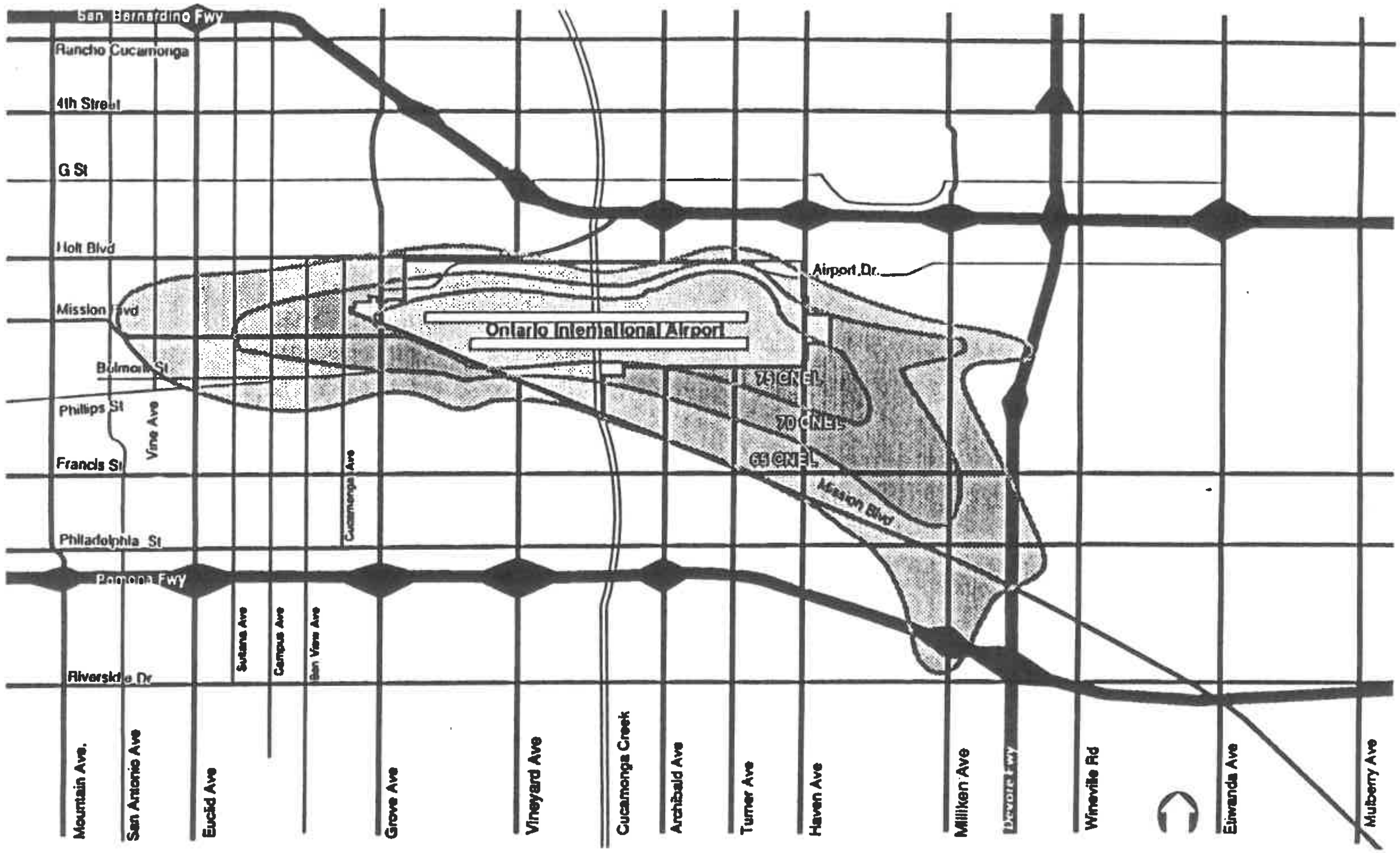
Land Use Category	Area (in acres)	Dwelling Units Within 65 CNEL Contour	Population
Residential			
Single Family	476	2,142	6,428
Duplex	0	0	0
Multi-Family	65	628	1,890
Mobile	4	23	71
Other Sensitive Land Uses			
Schools	15	---	---
Churches	12	---	---
Hospitals	0	---	---
TOTAL	**545**	**2,793**	**8,389**

Source: LADOA, 1990

3.2.2 Impacts

3.2.2.1 Significance Criteria

Noise is most often defined as unwanted sound. Sound levels can be easily measured; however, the variability is subjective and physical response to sound complicates the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "loudness" or "noisiness." Physically, sound pressure magnitude is measured and quantified using a level scale of units known as decibels (dB).



EXISTING CASE SCENARIO

Existing Case (1990)
5.3 Million Annual Passengers
97,000 Air Carrier Operations
(over 12,500 lbs.)
56% Stage III Aircraft

65 CNEL LAND USE IMPACT

	Acres	Units	Pop
Single Family	476	2142	6428
Duplex	0	0	0
Multi-Family	65	628	1890
Mobile	4	23	71
Total	545	2793	8389

SCALE

0 2000 4000
Feet

SOURCE: LADOA, 1990

Figure 3.2-1 Existing Noise Contours, 1990

Because the human hearing system is not equally sensitive to sound at all frequencies, a frequency-dependent adjustment called the A-weighting has been devised to measure sound in a manner similar to the way the human hearing system responds. The A-weighted sound level is expressed in units of "dBA."

Noise Terminology. When sound levels are measured at distinct intervals over a period of time, they indicate the statistical distribution of the overall sound level in a community during that period. The most common parameter derived from such measurements is the energy equivalent sound level (L_{eq}). L_{eq} is a single-number noise descriptor representing the average sound level in a real environment, whereas the actual noise level varies with time.

While the A-weighted scale is often used to quantify the sound level of an individual event, and is related to subjective response, the degree of annoyance response and other effects depend on a number of factors. Some of the factors impacting public sound perception which contribute to classification of sound as a public noise annoyance, are:

- magnitude of the event sound level in relation to the background, or ambient sound level,
- duration of the sound event,
- frequency of event occurrence, and
- time of day the event occurs.

Several methods have been devised to relate noise exposure over time to community response. The U.S. Environmental Protection Agency (EPA) developed the Day-Night Average sound level (L_{dn}) as the rating method to describe long-term annoyance from environmental noise. L_{dn} is similar to a 24-hour L_{eq} A-weighted level, but with a 10 dB penalty for nighttime (10 p.m. to 7 a.m.) sound levels to account for the increased annoyance that is generally felt during normal sleep hours.

The Community Noise Equivalent Level (CNEL) has been adopted by the State of California for environmental noise monitoring purposes. CNEL is similar to the A-weighted L_{eq}, but includes a 5 dB penalty during the evening hours (7 p.m. to 10 p.m.), while nighttime hours (10 p.m. to 7 a.m.) are penalized 10 dB. For outdoor noise, the L_{dn} noise descriptor is usually 0.5 to 1 dB less than the CNEL in a given environment.

Applicable Regulatory Requirements. Federal and state governments have established noise guidelines and regulations for the purpose of protecting citizens from potential hearing damage and from various other adverse physiological, psychological, and social effects associated with noise. Federal government guidelines and regulations preempt state control on noise emissions from aircraft, helicopters, railroads, and interstate highways.

- **Federal Regulations**

  The Federal Aviation Administration (FAA) regulates noise levels at airports. Federal Aviation Regulation FAR Part 36 sets noise certification levels for all aircraft designed after 1970. Foreign-manufactured aircraft are subject to International Civil Aviation Organization (ICAO) Annex 16, which is essentially identical to FAR Part 36. It is expected that both ICAO and FAA will further lower noise certification limits for future aircraft designs.

The initial goal of FAR Part 36 is to reduce existing noise levels by 10 dB. An aircraft retrofit and replacement rule has been adopted by the federal government. Since 1974, all newly manufactured U.S. aircraft have been required to meet FAR Part 36 standards. A significant noise impact would occur if any aircraft that does not comply with these standards operates at ONT.

The FAR Part 36 compliance program requires that at least 50 percent of aircraft over 75,000 pounds in the total aircraft fleet, powered by four engines, with no bypass ratio, or with a bypass ratio less than two, be replaced or retrofitted by January 1, 1983 and continuing thereafter. Further, 100 percent of all other aircraft 75,000 pounds or more must be in compliance with FAR Part 36, with the exception of two-engine aircraft engaged in small community service which will be replaced or re-engined by 1988. Lastly, the FAA requires that 100 percent of the aircraft be in compliance by January 1, 1985, with the exception of two-engine aircraft engaged in small community service.

To aid the airport operator in attaining noise/land compatibility, the FAA promulgated Part 150, "Airport Noise Compatibility Planning," which originally became effective on February 28, 1981, and was recently updated (effective March 16, 1988). Part 150 contains standards for airport operators who voluntarily submit noise exposure maps and airport noise compatibility planning programs to FAA. This regulation was based on Title I of the "Aviation Safety and Noise Abatement Act" (ASNA Act) of 1979, which adopted modified EPA recommendations for airport noise compatibility planning. Included in the regulation is the establishment of a single system for determining the exposure of individuals to airport noise, and a single system for measuring airport (and background) noise. The regulation also prescribes a standardized airport noise compatibility planning program, which includes: (1) the development and submission of noise exposure maps and noise compatibility programs to the FAA by airport operators; (2) standard noise methodologies and units for use in assessing airport noise; (3) the identification of land uses that are normally compatible (or incompatible) with various levels of airport noise; and (4) the procedure and criteria for FAA evaluation, and approval or disapproval, of noise compatibility programs by the FAA Administrator. A Part 150 study was completed in May, 1990 for ONT. Operations at ONT that would not comply with the Part 150 recommendations would be considered a significant noise impact.

The Federal Highway Administration (FHWA) has established noise standards for traffic noise on federal highways. If these standards or "noise abatement criteria" (NAC) are exceeded, a significant noise impact would occur. The NAC for most sensitive receptors (including parks, residences, schools, churches, libraries and hospitals) is 67 dBA at the exterior wall or boundary (FHWA, 1982).

Although EPA developed L_{dn}, it also recognized that averaging the noise event level over a 24-hour period tends to obscure the periodically high noise levels of individual events, and consequently, their possible adverse effects. In recognition of this, EPA also recommends a single-event noise impact analysis for sources with a high-noise level and short duration. The maximum sound level (L_{max}) is a noise descriptor that can be used for high-noise sources of short duration, such as aircraft approach, landing and takeoff. The L_{max} is the greatest sound level that occurs during a noise event. Exceedance of ambient by a noticeable amount (10dB) would be considered significant.

- **State Regulations**

  The California Division of Aeronautics (Division) has set noise standards governing airports that operate under a valid permit issued by the Division. These regulations control noise in communities in the vicinity of airports. The airport noise limit for residential communities surrounding ONT is 65 CNEL and is used as the criteria for significant impact in this EIR. This limit was established for the year 1986 and thereafter. This regulation also includes a goal for "zero" impact for the 8 MAP ONT in 1995. Exceedance of noise levels over 65 CNEL would be considered significant.

- **Regional/Local Regulations**

  A Noise Abatement Policy Statement for ONT was adopted in 1983 by the Board of Airport Commissioners of the City of Los Angeles. The purpose of this policy was to reduce the impact of aircraft noise in the communities surrounding ONT by compliance with FAR Part 36, remodeling and extension of Runway 26R, noise mitigation actions, and achievement of "zero" impact as defined in the state noise regulation level for 8 MAP in 1995. Compliance would involve decreasing aircraft noise as measured by CNEL metric, and development of compatible land use surrounding ONT. None compliance to these standards would be considered significant.

3.2.2.2 Construction Impacts

Project construction impacts will be generally localized within the airport and no significant impacts are anticipated.

3.2.2.3 Operations Impacts

Modeling Approach. Aircraft CNEL contours were developed using a combination of computer modeling and on-site noise monitoring. A computer model, the FAA's Integrated Noise Model Version 3.9 (INM) in this instance, was programmed with geometric data on the length and orientation of airport runways, aircraft flight tracks, the number of flights and noise characteristics of all aircraft using each runway and flight track. Additional detailed information concerning glide slopes, aircraft weights, thrust settings, etc., was also programmed. The model then computed noise levels at points around the airport and plotted noise level contours. Contours were verified by noise monitoring sites that are part of the City of Los Angeles Department of Airports noise monitoring system.

After the CNEL contours were completed, the expected land use impacts were calculated using a database of individual land use parcels produced by the City of Ontario. The boundary of each parcel within the City of Ontario is included in the database. In addition, data for each parcel in the county assessor files were linked with each parcel. For residential land use impact determinations, the centroid of each parcel was determined to lie either inside or outside of the anticipated contour lines for the Proposed Project and project alternatives. Dwelling units, by each type of residential use (Single Family, Duplex, Multi-Family, Mobile Home) expected to be impacted by each of the contours were determined using the assessor file information stored for each parcel. Population impacts were calculated using average dwelling unit population factors for the City of Ontario. Assessor file areas for parcels potentially impacted were summed to develop the acreage impacts. Other incompatible land use impacts were determined as well, including impacts on schools, churches, and hospitals/nursing homes.

Proposed Project. Noise contours were prepared for ONT operating at a level of 181,000 air carrier operations for both the unmitigated and mitigated projects. These assume the same flight tracks and profiles used in the 1990 baseline contour. The 181,000 operations include aircraft weighing over 70,000 pounds.

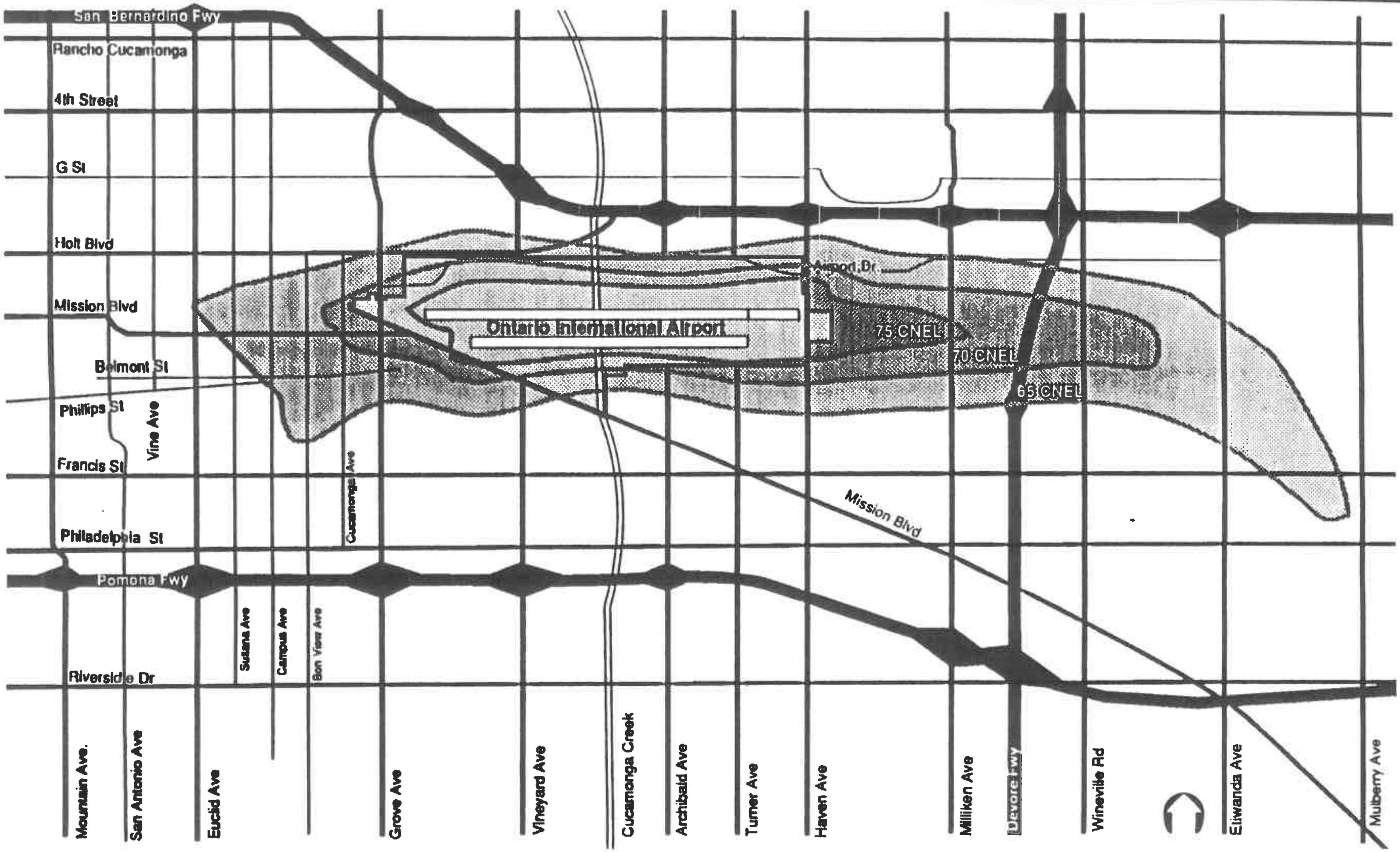
Unmitigated Project. The unmitigated contour extends slightly further in every direction away from the runway, stretching from Euclid Avenue on the west to Mulbury Avenue on the east. The westerly extension of the 65 CNEL contour falls in a residential area generally bounded by Holt Boulevard on the north, Euclid Avenue on the west, Belmont Street on the south, and Campus Avenue on the east. The area between Campus Avenue and Cucamonga Avenue in the vicinity of the airport is generally industrial. To the east of the airport, the 65 CNEL contour points in the southeast direction, generally covering an industrial area.

The 65 CNEL land use impacts under this scenario are less significant than under the No Project scenarios, but would exceed the State noise standard levels. Figure 3.2-2 summarizes the land use impacts of this scenario.

Mitigated Project. These contours cover a smaller area than the Unmitigated Project contours. They stretch from Bon View Avenue on the west to Mulbury Avenue on the east. The area generally affected by these contours is industrial in both west and east directions. The 65 CNEL land use impacts under this scenario are less significant than the No Project and Unmitigated Project scenarios. Nevertheless, these levels would exceed the State standard levels. Figure 3.2-3 summarizes the land use impacts of this scenario.

3.2.2.4 Single Event Noise

Engine Run-Ups. Aircraft engine run-ups are performed in an area designated for this activity, and are a small part of the total maintenance work done at ONT. This activity does not currently have a negative impact on noise-sensitive receptors. Neither the Proposed Project nor any of the alternatives are expected to have a significant impact.



SCENARIO D
(Unmitigated Project)

12 Million Annual Passengers
181,000 Operations (over 70,000 lbs.)
80% Stage III Aircraft
1800' Easterly Runway Extension
Prado Departures Turn Left As Early As Possible
Modified Eastbound Departure

65 CNEL LAND USE IMPACT

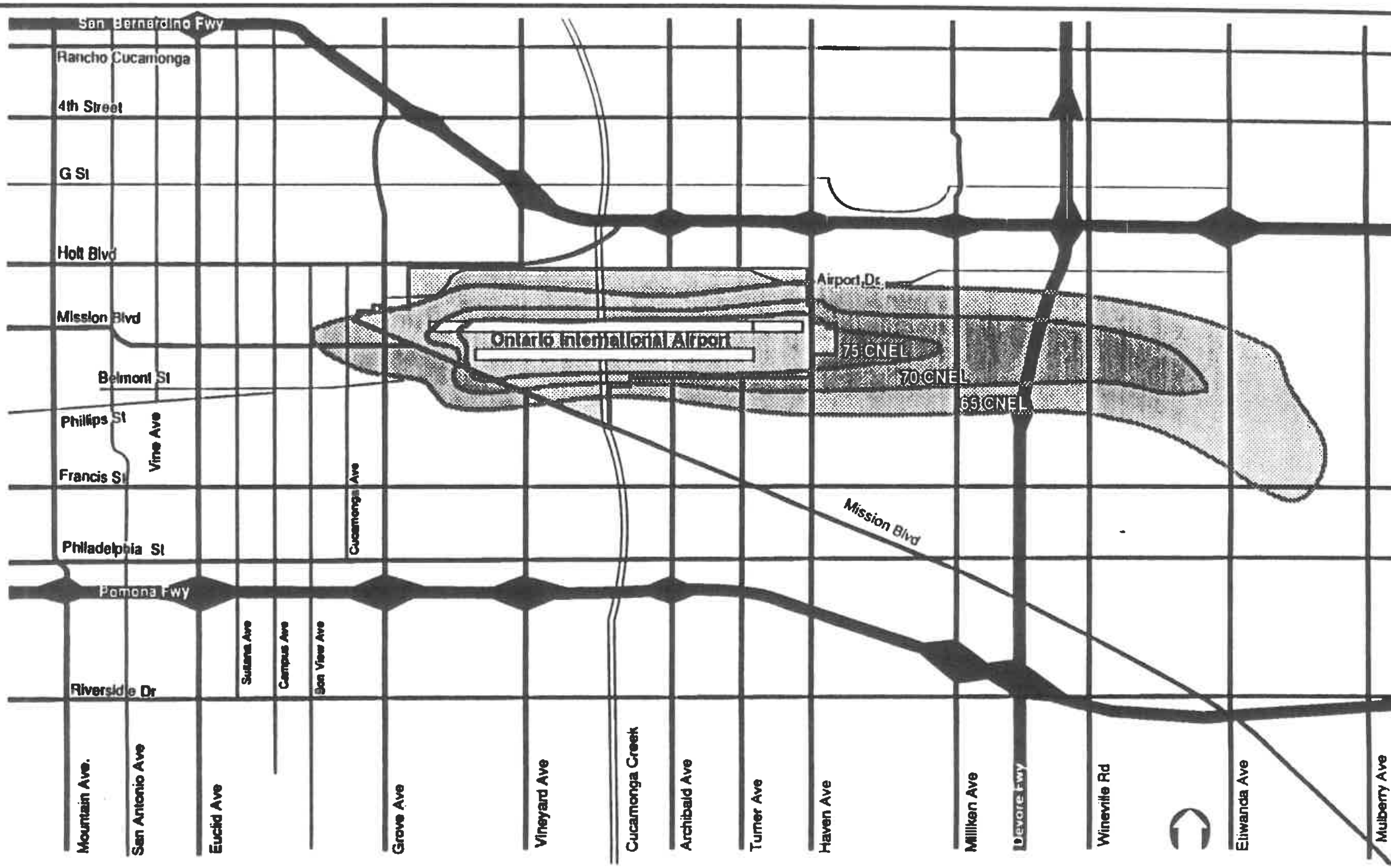
	Acres	Units	Pop
Single Family	282	960	2881
Duplex	20	166	499
Multi-Family	6	51	153
Mobile	0	0	0
Total	324	1177	3533

SCALE
0 2000 4000
Feet

SOURCE: LADOA, 1990

Figure 3.2-2 Unmitigated Project Noise Contours

OntarioAir



SCENARIO E
(Mitigated Project)

12 Million Annual Passengers
181,000 Operations (over 70,000 lbs.)
100% Stage III Aircraft
1800' Easterly Runway Extension
Prado Departures Turn Left As Early As Possible
Modified Eastbound Departure

65 CNEL LAND USE IMPACT

	Acres	Units	Pop
Single Family	91	96	288
Duplex	3	10	30
Multi-Family	1	4	12
Mobile	0	0	0
Total	95	110	330

SCALE
0 2000 4000
Feet

SOURCE: LADOA, 1990

Figure 3.2-3 Mitigated Project Noise Contours

OntarioAir

Sound pressure level measurements in octave bands of frequency have been made at various angles along a 100-foot radius from an APU. The average A-weighted sound pressure level at 100 foot was 95 dB (LADOA, 1988a).

Expected usage of APUs for the Proposed Project is approximately double that for the No Project scenarios. APUs are used for aircraft waiting on the ground for less than 1 hour, and are most appropriate for smaller aircraft.

It is expected that most of the additional APUs would be used in the northeast quadrant of ONT, in the vicinity of the proposed terminal expansion. The nearest noise-sensitive receptors would be located in the residential areas northwest of ONT. The closest residents are located approximately 9,000 ft from the rear of proposed terminal area. The average A-weighted sound level calculated for APU operations at this distance is 34 dBA, which is below the ambient noise level for the area. Hence, despite an increase in the usage of APUs, no significant impact to the noise environment is anticipated.

Ground Power Units (GPU). GPUs are used to supply power to aircraft waiting on the ground for more than one hour, and are most appropriate for larger aircraft. Anticipated GPU usage for the Proposed Project is approximately half compared to that of the No Project scenarios. Therefore, the Proposed Project would result in an incrementally-reduced impact.

Sound pressure level octave band measurements were made at various angles along a 100-ft radius from an operating GPU. At 100 ft, the average A-weighted sound level was 82 dB (LADOA, 1988a). At the nearest residential areas (approximately 9,000 ft distance), the sound level would be less than 30 dBA, or less than the ambient noise level for the area. No significant impact to the noise environment is anticipated.

Aircraft Taxi Noise. When taxiing on the ground, aircraft are operating at idle engine power. A typical taxi noise single event level (SEL) lasts about 30 seconds. The sound level rises to an L_{max} while the aircraft passes and then subsides into the background level as the aircraft moves away. Measurements of several aircraft taxi-bys were obtained at ONT. The average SEL for a DC8 at 200 ft was 110 dB with an L_{max} of 98 dB (LADOA, 1988a).

Due to the increased number of aircraft in the over 70,000-pound class associated with the proposed project, it is likely that there would be an incremental increase in potential impact. In the nearest residential areas, the noise levels would be approximately 40 dBA, or below the existing ambient noise level. No significant impact to the noise environment is anticipated.

3.2.2.5 Vehicular Traffic

The Proposed Project and the No Project scenarios, would all result in an increase in service to 12 MAP. Hence, noise impacts of any of these scenarios from vehicular traffic would not be significantly different. Noise impacts from 12 MAP vehicular traffic were investigated in a previous report, and were found to result in a minor impact that could be mitigated to a level of insignificance (LADOA, 1982).

The 20 MAP scenario would generate more traffic and would result in more congested intersections. As a result, noise levels with the 20 MAP scenario are expected to be higher than the noise levels under the Proposed Project.

3.2.2.6 Cumulative Impacts

The Proposed Project includes the additional aircraft associated with the UPS Air Cargo Hub Project. Other projects that have recently received approval or are currently under consideration, (including the Ontario Fuel Storage and Distribution Facility), have been reviewed, and have not been found to be cumulatively affected. No cumulative impacts are anticipated.

3.2.3 Mitigation Measures

The Proposed Project would provide a net benefit by reducing noise compared to the No Project and 20 MAP scenarios. Impacts due to engine run-ups, use of APUs and GPUs, aircraft taxi noise, and vehicular traffic were found to be insignificant, and would not require mitigation. Additional measures to mitigate predicted noise impacts are discussed below.

3.2.3.1 Recommended Mitigation Measures

The LADOA has investigated numerous mitigation scenarios to minimize potential noise impacts of ONT operating at 181,000 air carrier operations. One of these studies includes the noise control ordinance for ONT which will require an aircraft fleet mix change by airlines from mainly Stage II fleet now used at ONT to a much quieter Stage III fleet. The ordinance specifies a four-phase program of fleet conversions with full compliance to all Stage III by January 2000. The progressive compliance phases are outlined as follows:

- By July 1, 1991 - at least 25% of each airline's fleet must be Stage III.
- By January 1, 1994 - at least 50% of each airline's fleet must be Stage III.
- By January 1, 1996 - at least 75% of each airline's fleet must be Stage III.
- By January 1, 2000 - each airline's fleet must be 100% Stage III.

In the spring of 1991, the FAA was planning a Stage II phaseout policy for the summer.

3.2.3.2 Impacts Mitigated to Insignificance

The 100 Percent FAR Part 36 Stage III Mitigated Proposed Project would reduce potential noise impacts to a level lower than those of the Unmitigated and the No Project scenarios. Despite this reduction in noise impact, ONT will not be in compliance with State of California Noise Regulation of 65 dBA CNEL for incompatible land uses in the vicinity of the airport. Therefore, the noise impacts, although much reduced, will not be reduced to a level of insignificance, even with the mitigated project.

3.2.3.3 Mitigation Monitoring Program

ONT will be required to obtain a variance from the State to continue operations because it does not meet the above-mentioned Noise Regulation. ONT will be required to submit Quarterly Reports to the State which include noise contours and impact information.

3.2.4 Unavoidable Adverse Impacts

Selection of the 100 Percent FAR Part 36 Stage III Mitigated Proposed Project scenario would have the least noise impacts on ONT to the year 2000. This scenario would not meet the State of California Noise Regulation, since it would affect some incompatible land uses located within the 65 CNEL.

However, implementation of the recommended FAR Part 150 land use measures will result in no noise impact within the 65 CNEL.

3.3 TRANSPORTATION AND CIRCULATION

Existing transportation conditions in the area surrounding ONT are evaluated in this section. Available data and previous transportation studies were used to describe the ground transportation systems surrounding the airport facility.

3.3.1 Setting

Ontario International Airport serves the easterly portion of Los Angeles County, a large portion of Orange County, and most of San Bernardino and Riverside Counties. The airport is located approximately two miles east of Ontario's Central Business District. A study area around the airport was defined for detailed analysis of the traffic impacts. This area is bordered by Arrow Highway/Arrow Route to the north, Route 60 (Pomona Freeway) to the south, Euclid Avenue to the west, and Etiwanda Avenue to the east. Figure 3.3-1 shows the study area. There are currently two primary access routes to the airport terminal; Interstate 10 (San Bernardino Freeway, I-10) via Vineyard Avenue from the north, and Route 60 (Pomona Freeway) via Grove Avenue from the south.

3.3.1.1 Existing Transportation Conditions

On-Airport Parking. Currently, the terminal and auxiliary parking lots provide approximately 6,900 spaces for passenger and visitor parking. The main parking facilities cover 26 acres directly opposite the terminal building (north) and offer short-term parking for 2,400 automobiles. The remote parking lot (Lot A) is located at Airport Drive and Grove Avenue and has long-term reduced-rate parking for an additional 4,500 automobiles. Free shuttle service is provided from the remote parking lot to the front of the passenger terminal. The terminal area also features specially-designated parking and curb ramps for the handicapped.

Approximately 1400 feet of curb space is available on the loop road providing access to the terminal buildings and baggage areas. The southerly side of the street is reserved for passenger loading and unloading. Also, about 500 feet of a separated van and bus curb for pick-up and drop-off is now available in front of the main terminal building on the northerly side of the roadway.

On-Airport Roadway System. The present primary access point to this airport is Vineyard Avenue, a four-lane road which crosses the heavily-used Southern Pacific main line railroad track. The at-grade rail crossing has created traffic congestion, frequently blocking the main entrance intersection, increasing the frequency of train and vehicular collisions, and has severely limited access to the terminals for emergency vehicles (LADOA, May 1987).

Internal access to the terminal is via a one-way counter-clockwise loop around the public parking lot. Vineyard Avenue enters the terminal area by three southbound lanes, then merges to two through lanes with one curb lane and one

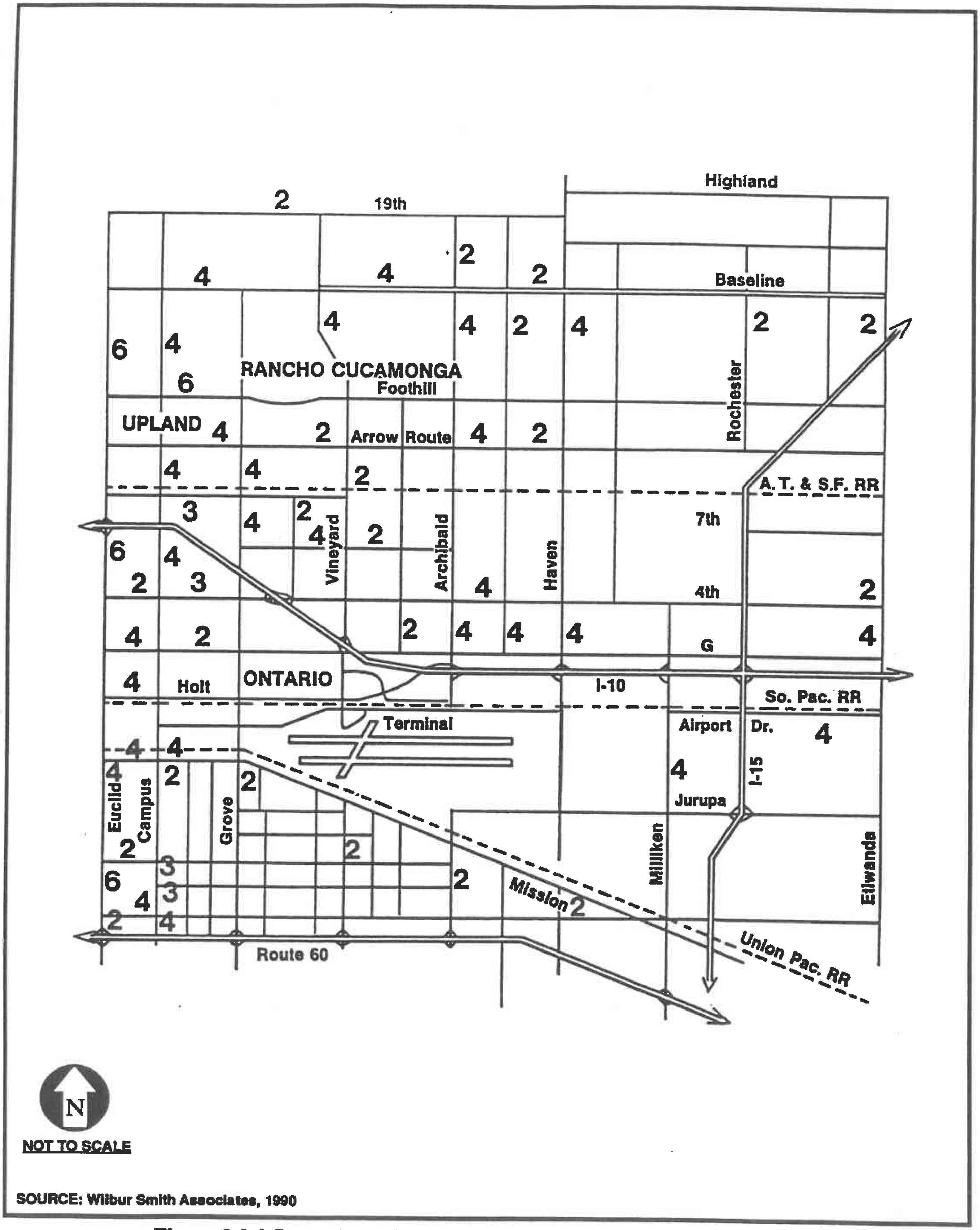


Figure 3.3-1 Study Area, Existing Arterials and Number of Lanes

The roadway system and traffic circulation are also affected by the availability of interchanges on I-10 and Route 60. To the west of the airport, Grove Avenue has a full diamond interchange on Route 60 but none on I-10. Vineyard Avenue has interchanges on both these freeways but there is no access to the airport from Route 60 to the south. Archibald Avenue has a diamond interchange on Route 60 and a newly completed eight-lane urban interchange on I-10. Haven Avenue has an interchange on I-10 and a grade separation with the Southern Pacific Railroad. A summary of the existing interchanges is shown on Table 3.3-1. Milliken Avenue, which is three miles east of the existing terminal, is the only arterial with good access from the I-10 and Route 60 freeways, and is in close proximity to the I-15 Freeway.

Off-Airport Traffic Conditions. Data regarding existing traffic conditions including daily and peak hour traffic volumes were derived from two sources. Ground counts for freeways were derived from Caltrans' annual traffic volumes publication for 1989 (Caltrans, 1989). Local traffic count data for arterials were obtained from the City of Ontario's Engineering Department. (Personal Contact, Cohoe, 1990). These were the latest counts available and ranged from 1982-1990, depending on the location. The existing peak-hour traffic volumes around the airport are shown in Figure 3.3-2. The existing peak hour traffic data was obtained by taking a percentage of the existing average daily traffic (ADT). Historic data on traffic counts of the major arterials in the vicinity of the airport between 1982 and 1990 were obtained from the City of Ontario's Traffic Engineering Department. The data contained peak hour and average daily traffic volumes. The percentage of peak hour volume to the average daily traffic ranged between 7.6 and 11.3 percent depending on the arterial being considered. In general, vehicular access to the airport is inadequate and sufficient roadway space is not available to adequately serve the existing airport.

To determine the adequacy of the existing roadways to accommodate the existing peak-hour traffic, the capacities of these roadways were obtained using the 1985 Highway Capacity Manual (National Research Council, 1985). The Highway Capacity Manual defines capacity as the maximum hourly rate at which vehicles can reasonably be expected to traverse a uniform section of roadway during a given time period under prevailing roadway, traffic, and control conditions. A roadway is considered to be operating at or near capacity when it is operating at Level of Service E (LOS E). For a freeway segment the capacity is 2,000 passenger cars per hour per lane (pcphpl) for 70 mph and 60 mph design speeds, all for ideal conditions. Considering that the traffic stream includes buses, trucks, and recreational vehicles which is not the ideal condition, a factor of 0.9 has been used to convert passenger cars to vehicles and to take into consideration other ideal conditions that are not met. Therefore, the capacity of the freeway segment has been adjusted downward and is assumed to be 1,800 vehicles per hour per lane.

Urban and suburban arterials are also assumed to be operating at or near capacity at Level of Service E. Thus, capacity per lane is 1,600 vehicles per hour multiplied by the g/C ratio (National Research Council, 1985). The g/C is the ratio of the green time to the cycle length (signal), and for planning purposes is assumed

Table 3.3-1

Existing Interchanges on I-10 and Route 60 Freeways

Freeway	Cross Street	Interchange Type
I-10	Euclid Avenue	diamond
	Grove Avenue	none
	Vineyard Avenue	diamond
	Archibald Avenue	diamond
	Haven Avenue	diamond
	Milliken Avenue	partial diamond
Route 60	Euclid Avenue	diamond
	Grove Avenue	diamond
	Vineyard Avenue	diamond
	Archibald Avenue	diamond
	Haven Avenue	none
	Milliken Avenue	diamond

Source: Wilbur Smith Associates, 1990

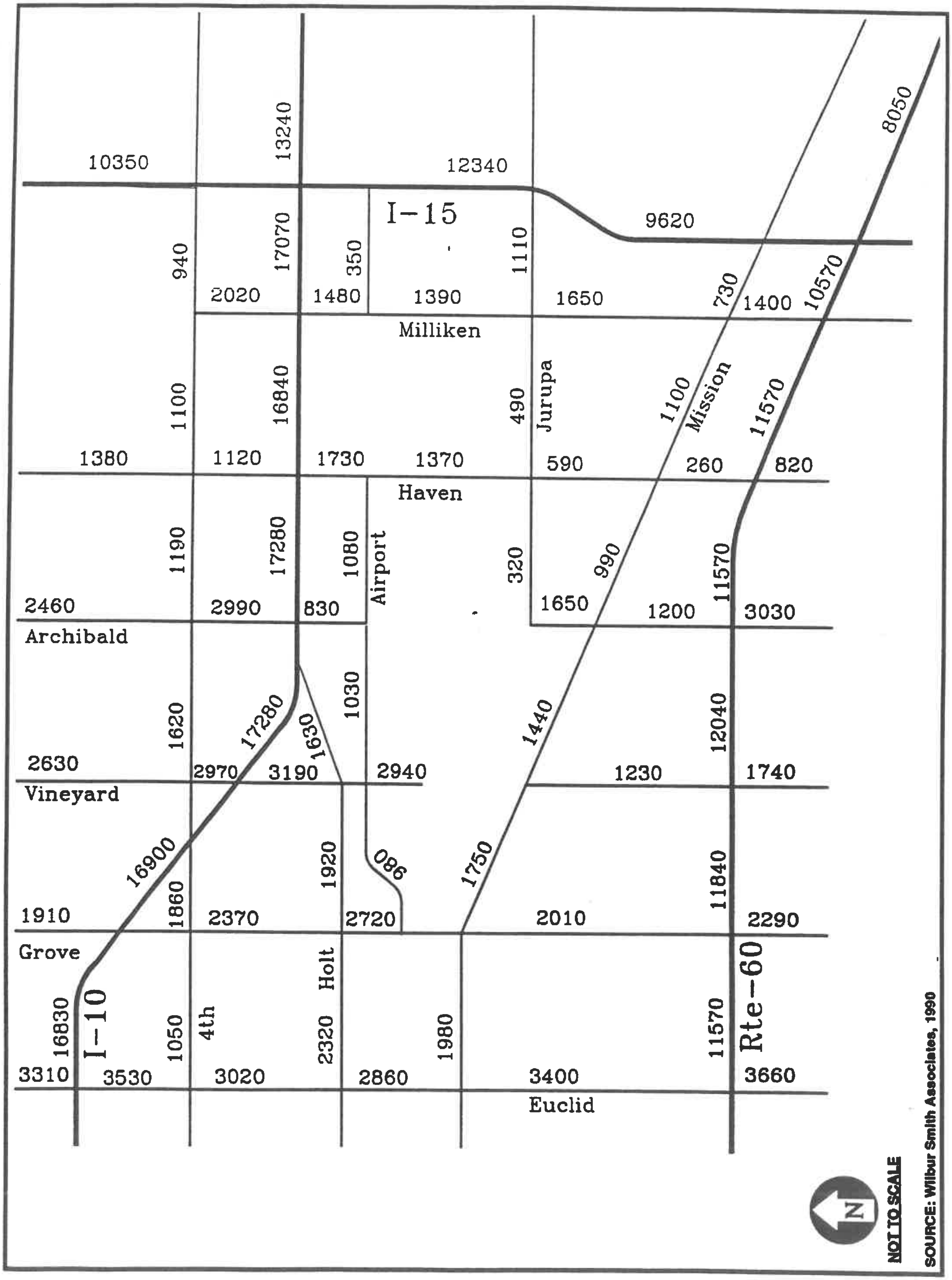


Figure 3.3-2 Existing 1990 Peak Hour Traffic

to be 0.5. Therefore, the capacity of an arterial is estimated to be 800 vehicles per hour per lane.

The analysis undertaken in this study compares the capacity of the network facilities to the volume of ground traffic allocated to them. The basic parameter of traffic conditions used is the volume/capacity (V/C) ratio. This ratio is used to assess the ability of a freeway or arterial to move a required amount of traffic at a satisfactory level. V/C ratios were calculated for the peak-hour conditions along the key street segments in the vicinity of the airport. A V/C ratio with a value of over 1.0 indicates that the volume of traffic exceeds the capacity of the facility. The V/C ratio is also associated with a set of commonly-used descriptors known as levels of service. They are designated by letters from A to F and are defined in the 1985 Highway Capacity Manual. The levels of service are used to assess the traffic conditions of the network, and Table 3.3-2 summarizes the level of service definitions for a freeway segment and for urban and suburban arterials. For CEQA purpose the threshold level of service is (D), i.e., any level of service better than D is considered adequate and anything below LOS D is considered congested and requires upgrading, where feasible.

Most of the east-west traffic through the study area is carried on the two freeways, I-10 and Route 60. East-west arterial movement is carried along Fourth Street, Holt Boulevard, and Mission Boulevard. Currently, during the peak hour, the east-west freeways traffic conditions run just over capacity, while arterials are below capacity. During peak hour operation, Holt Boulevard, Fourth Street, Mission Boulevard, Airport Drive, and Jurupa Avenue all have adequate levels of service. The major routes in the study area, their current peak hour volumes, capacities, and operating levels of service are shown on Table 3.3-3.

The north-south roadway system carries fewer trips than the east-west system; however, trips are distributed much more evenly among the arterials. I-15 provides eight lanes of freeway movement and has an adequate level of service. On the other hand, Euclid Avenue, which is the main commercial artery of both Ontario and Upland, is currently operating at level of service C. Grove, Campus, and Etiwanda Avenues are the only other streets in the study area currently providing through north-south movement. Each of these runs below capacity and has adequate levels of service. Peak hour volumes and capacities of these routes are listed on Table 3.3-3.

3.3.2 Environmental Impacts

Traffic projections were estimated for the year 2000, when the airport is expected to reach capacity, and transportation conditions were calculated from the baseline volume for the Proposed Project Condition. The Proposed Project Condition assumes a passenger volume of 12 Million Annual Passengers (MAP) and 181,000 annual air carrier operations. (This includes both the unmitigated and mitigated project scenarios). This increase in air carrier operations is due to two factors: the industry's practice of "hubbing", resulting in smaller rather than larger aircrafts operating more frequently; and, the increase in air freight aircraft movement taking place at the airport.

Table 3.3-2
Level of Service Definitions

Level of Service	V/C Ratios	Average Speed	Characteristiscs
FREEWAY SEGMENT			
A	0 - 0.35	60	Free flow
B	0.36-0.55	55	Stable flow (upper range)
C	0.56-0.75	45-50	Stable flow
D	0.76-0.90	35-40	Approaching unstable flow
E (capacity)	0.91-0.99	30-35	Unstable flow
F	1.00+	30	Forced flow
URBAN AND SUBURBAN ARTERIAL			
A	0 - 0.60	30	Free flow
B	0.61-0.70	25	Stable flow (slight delay)
C	0.71-0.80	20	Stable flow (acceptable delay)
D	0.81-0.90	15	Approaching unstable flow
E (capacity)	0.91-0.99	15	Unstable flow
F	1.00+	15	Forced flow

Sources: Southern California Association of Governments, 1989
National Research Council, 1985

Table 3.3-3

1990 Traffic Volumes on Major Routes in the Ontario Study Area

Roadway	No. of Lanes[1]	Peak Hour Volume[2]	Level of Capacity	Peak Hour V/C Ratio	Level of Service
I-10	8	17,280	14,400	1.20	F
R-60	6	12,040	10,800	1.11	F
I-15	8	9,620	14,400	0.67	C
Euclid	6	3,660	4,800	0.76	C
Campus	2	1,110	1,600	0.69	B
Grove	4	2,720	3,200	0.85	D
Vineyard	4	3,190	3,200	0.99	E
Archibald	4	3,030	3,200	0.95	E
Haven	4	1,730	3,200	0.54	A
Milliken	4	2,020	3,200	0.63	B
Etiwanda	4	2,070	3,200	0.64	B
Fourth	4	1,860	3,200	0.58	A
Holt	4	2,320	3,200	0.73	C
Airport	4	1,080	3,200	0.34	A
Jurupa	4	1,110	3,200	0.35	A
Mission	4	1,980	3,200	0.62	B

Source: Wilbur Smith Associates, 1990

[1] The number of lanes varies over the roadway. The numbers presented here at the location of the peak volume.

[2] Peak volume on roadway within segment.

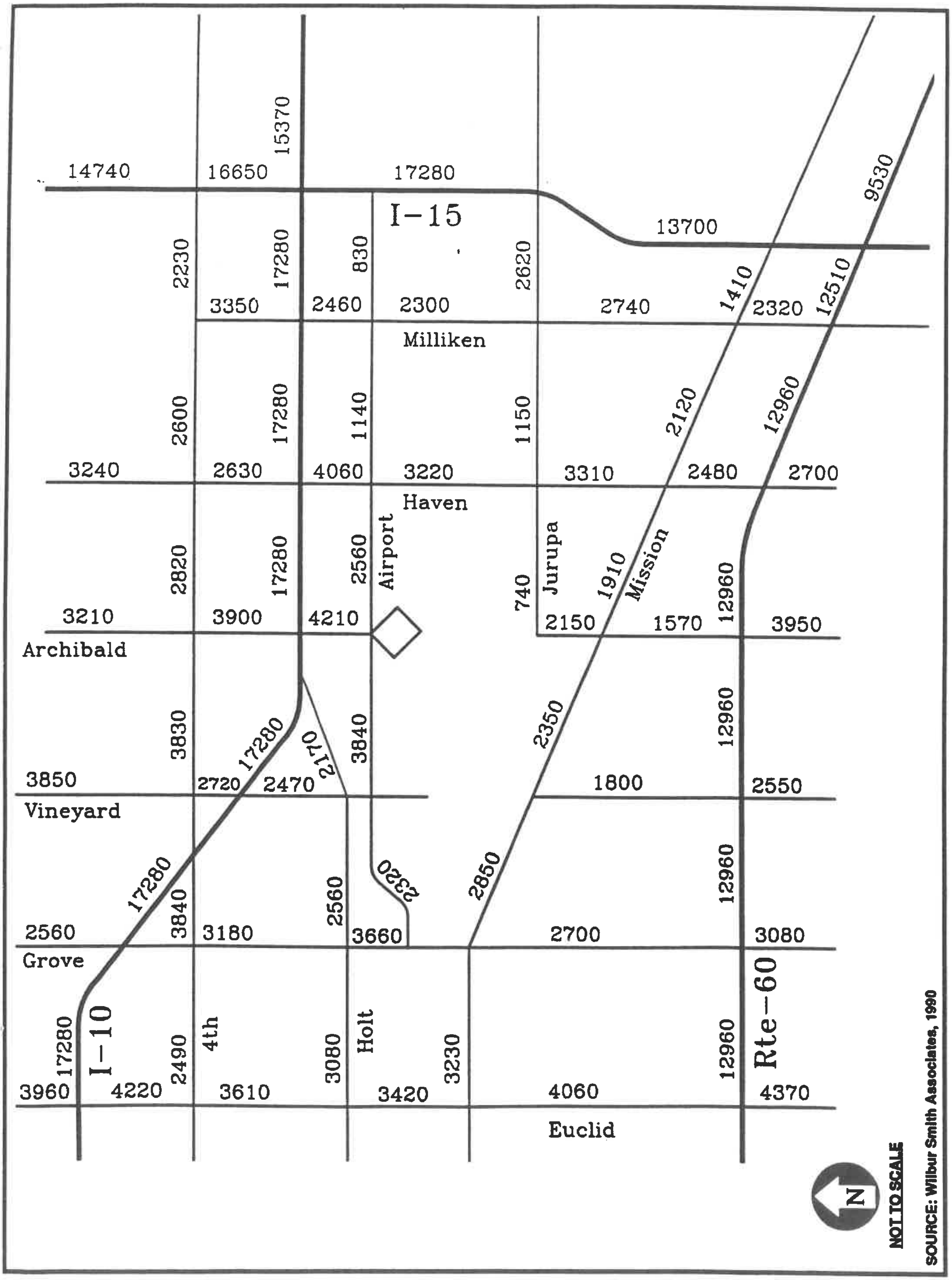
3.3.2.1 Projected Transportation Conditions for The Proposed Project

On-Airport Parking. The projected increase in passengers at ONT has initiated the need for development of a new terminal. The new terminal will be developed in two phases. The first phase will accommodate 9 MAP and the second phase will accommodate 12 MAP by the year 2000. Vehicular access to the terminal area will occur at three points along Airport Drive, providing counter-clockwise movement along the length of the terminal and around the parking areas. Once on Airport Drive, terminal area generated-traffic will be able to utilize Vineyard Avenue, Archibald Avenue, or Haven Avenue and Grove Avenue to access the regional transportation system as well as local arterials.

The amount of parking that is planned to be provided to accommodate passengers is approximately 13,000 spaces. The proposed parking for the expansion of the terminal to 12 MAP will be sufficient to meet the estimated needs. The Terminal Area Master Plan (1985), prepared by the Department of Airports, determined that 10,300 spaces would accommodate demand. Parking lots would be accessed by way of Archibald Avenue instead of the current access by way of Vineyard Avenue. A first increment of additional parking lot capacity will be the expansion of the remote parking lot A to provide an additional 2,580 parking spaces.

Off-Airport Traffic Conditions. The projected 2000 peak hour traffic volumes for all trips by road segment around the airport is shown in Figure 3.3-3. These volumes have been superimposed on the ground access system recommended in the ONT Environmental Impact Report for Ground Access and Terminal Expansion (LADOA, 1982). The improvements consist of a network of new roads, road widenings, and railroad grade separation projects. These include: (1) a new interchange at Haven Avenue on the Route 60 Freeway to be completed by 1993, (2) upgrading of the I-15/Jurupa existing interchange, (3) upgrading of the two interchanges on I-10 at Archibald Avenue and Haven Avenue of which the I-10 at Archibald upgrade has been completed, and various networking streets. The intent of these projects is to provide proper traffic circulation sequenced in conjunction with airport traffic growth and general area-wide development around the airport. The year 2000 peak hour traffic volumes projected in this study are higher than was previously estimated for some roadway segments in the ONT EIR Ground Access Study. These increases are due to the fact that existing peak hour traffic volumes have substantially increased due to development in the Ontario area and are currently at a higher level than the 1995 projections found in the ONT EIR Ground Access Study Report (LADOA, 1982).

The year 2000 peak- hour traffic projections were derived assuming that the roadway system of Ontario Ground Access Program would be completed before the year 2000. Projects that have already been constructed include: Jurupa Street, a four-lane facility between Archibald and I-15 with the Haven Avenue to Milliken Avenue segment being six lanes; Airport Drive, a four-lane facility between Haven



OntarioAir

Figure 3.3-3 Year 2000 Peak Hour Traffic

Avenue and Vineyard Avenue; Thomas Parkway a six-lane facility from I-15 to Airport Drive; the widening of Haven Avenue to an eight-lane facility from Airport Drive to Jurupa Street and a six-lane facility from Jurupa Street to Francis Avenue; and the widening of Milliken Avenue to a six-lane facility between Airport Drive and Mission Boulevard. Construction has also been completed for the grade separation between Haven Avenue and the Southern Pacific Railroad tracks and the upgrading of the I-10/Archibald Avenue interchange. Also, the rehabilitation and landscaping of Holt Boulevard and Vineyard Avenue have been completed. Other projects to be completed (LADOA, 1987) before the year 2000 include:

- widening of Archibald Avenue to a six-lane facility between I-10 and Airport Drive, including the construction of a grade separation at the Southern Pacific Railroad tracks;
- widening of Grove Avenue to a six-lane facility between the Route 60 Freeway and Airport Drive, including a grade separation at the rail tracks;
- upgrading of the Haven Avenue/I-10 Freeway interchange;
- widening of Vineyard Avenue to a six-lane facility from Holt Boulevard to Airport Drive;
- widening of Jurupa Street to a six-lane facility from Turner Avenue to Haven Avenue;
- construction of the Haven Avenue/Route 60 Freeway interchange;
- upgrading of the Jurupa Street/I-15 Freeway interchange;
- construction of the Haven Avenue/Union Pacific Railroad tracks grade separation.

The year 2000 projected traffic volumes on most north/south roadways will be at adequate levels of service (LOS D and above) after the completion of the improvements projected for completion before 2000. Euclid Avenue will be operating near capacity in the segment south of the Route 60 freeway. Grove Avenue, as a six-lane facility, will be able to carry the projected traffic volumes. Haven Avenue as a six-lane facility will also be able to carry the projected traffic volumes. Both Grove and Haven Avenues will bear the primary burden of carrying additional north/south traffic around the airport. The other major north/south arterials, Vineyard and Archibald Avenues, are interrupted by the airport and do not pass through or around it. Vineyard Avenue, when completed as a six-lane facility, will adequately carry the projected traffic volumes. Primary access to the new airport terminals will be from Archibald Avenue and Airport Drive. Thus, traffic volumes on Vineyard Avenue are expected to decline initially but will increase again as the number of passengers increases to approach the 12 MAP level. Archibald Avenue will become the primary access route to the airport. As a six-lane facility, Archibald Avenue will be able to carry the projected traffic volumes. Milliken Avenue will operate below capacity and will have an adequate level of service. Campus Avenue, Etiwanda Avenue and the I-15 freeway will operate over capacity causing significant delays. A summary of the projected number of lanes, peak hour volumes, capacities and levels of service is shown on Table 3.3-4.

The projected traffic volumes will produce congestion in most of the east/west roadway segments, even without the contribution of the airport-bound vehicles. The I-10 Freeway segment from Euclid Avenue to the I-15 Freeway will operate over capacity (LOS F) causing significant delays. Fourth Street will also experience peak hour volumes over capacity in the segment between Grove Avenue and Archibald Avenue. The remaining segment of Fourth Street from Archibald Avenue to the I-15 Freeway will operate below capacity. Holt Boulevard will operate at capacity and have level of service E in the segment between Euclid and Grove Avenues. Airport Drive will operate below capacity except for the segment between Vineyard Avenue and Archibald Avenue which will be over capacity. The segment of Mission Boulevard between Euclid and Grove Avenues will operate over capacity, but the rest of Mission Boulevard and all of Jurupa Street will operate below capacity. Finally, the roadway segment of the Route 60 Freeway between Euclid Avenue and the I-15 Freeway will operate over capacity, causing congestion and delays which will be critical to the airport trips (see Table 3.3-4). Thus, significant, adverse impacts are expected to occur with this scenario.

The largest single source of vehicular trips at the Ontario airport are air passenger trips. Cargo and general aviation activity also contribute to vehicular activity, as do employee trips, but to a much smaller degree. A special traffic count program conducted by the Department of Airports and the City of Ontario found the trip generation rate at the airport to be 1.7 trips per airline passenger. This rate includes all passenger activity, cargo activity, and employee trips. Of the 12 MAP, the Los Angeles Department of Airports air passenger projections assume 11.1 million (92.5 percent) to be origin and destination passengers, and the remaining 0.9 million would be connecting passengers who would not contribute to vehicular trips. At this level of demand, the origin and destination passenger volume will produce an estimated 51,700 vehicle trips per day (11.1 MAP multiplied by 1.7 trips per passenger divided by 365 days of operation). Daily trips are divided by 18, which is the number of hours of daily airport operations. On the basis of previous counts, it has been determined that 90 percent of all trips occur within 16 hours. Therefore, 18 hours is used as the number of hours of operation in a day in order to account for the remaining 10 percent. The resulting figure is multiplied by 1.45. This represents the ratio of the peak-hour to the average-hour, in the average day of the peak month (LADOA, 1982). Using this method of calculation, a peak-hour volume of 4,165 trips per hour is projected for a high volume (worst case) day. Assuming an average trip length of 20 miles for planning purposes (LADOA, 1982), a total of 1,503,000 vehicle miles traveled would occur during a worst case day (83,500 vehicle miles traveled during the peak hour). It is estimated that approximately sixty (60) percent of all peak-hour airport trips will access the airport from Archibald Avenue; about thirty (30) percent will utilize Airport Drive west of Archibald Avenue; and the remaining ten (10) percent will use Airport Drive east of Archibald Avenue. Airport Drive will function as a collector street with multiple access routes (Grove, Vineyard, Archibald and Haven).

Table 3.3-4

Projected Year 2000 Traffic Volumes on Major Routes in the Ontario Study Area

Roadway	No. of Lanes[1]	Peak Hour Volume	Level of Capacity	Peak Hour V/C Ratio	Level of Service	1990 Level of Service
I-10	8	17,280	14,400	1.20	F	F
R-60	6	12,960	10,800	1.20	F	F
I-15	8	17,280	14,400	1.20	F	C
Euclid	6	4,370	4,800	0.91	E	C
Campus	2	1,800	1,600	1.13	F	B
Grove	6	3,660	4,800	0.76	C	D
Vineyard	6	3,850	4,800	0.80	C	E
Archibald	6	4,210	4,800	0.88	D	E
Haven	6	4,060	4,800	0.85	D	A
Milliken	6	3,350	4,800	0.70	B	B
Etiwanda	4	3,360	3,200	1.05	F	B
Fourth	4	3,840	3,200	1.20	F	A
Holt	4	3,080	3,200	0.96	E	C
Airport	4	3,840	3,200	1.20	F	A
Jurupa	6	2,620	4,800	0.55	A	A
Mission	4	3,230	3,200	1.01	F	B

Source: Wilbur Smith Associates, 1990

1 The number of lanes varies over the roadway. The numbers presented here are at the location of the peak volume.

3.3.2.2 Cumulative Impacts

The impacts on the roadways from the projected traffic during the peak hour are mainly cumulative impacts and do not result from the increase in airport traffic. Cumulative impacts are mainly due to background traffic in the area and the anticipated growth on the east side of the study area, which is more critical than the growth due to the airport.

3.3.3 Mitigation Measures

Since the Proposed Project will not significantly alter traffic conditions, no mitigation measures are required. Measures listed below would reduce congested intersections and highway segments in the airport area.

3.3.3.1 Recommended Mitigation Measures

Mitigation measures are divided into specific recommendations and general recommendations. The specific recommendations concentrate on elements of the roadway system, while the general recommendations concentrate on the entire transportation system. It is assumed that the projects conducted under the Ontario Ground Access Program (widening and/or upgrading roadway facilities) will be completed by the year 2000.

The Highway Capacity Manual recommends that a significant impact be mitigated if the roadway is operating at LOS F. Most of the north/south roadway segments will be able to accommodate the projected peak-hour traffic volumes since they will be operating below or near capacity. It is suggested that Campus and Etiwanda Avenues be widened by two lanes. On the other hand, east/west roadway segments are more seriously congested. Suggested mitigation measures include the widening of I-10, Route 60, Fourth Street, Airport Drive, and Mission Boulevard by two lanes. These improvements are summarized on Table 3.3-5.

Currently, most freeway off ramps and some intersections are controlled by stop signs. At these locations, installation of synchronized signals is suggested to maintain a continuous traffic flow. Other mitigation measures to be considered might include employee management programs, carpooling/ridesharing programs, and a directional signage program.

3.3.3.2 Impacts Mitigated to Insignificance

Campus Avenue is currently a four-lane facility except for the segment between Mission Boulevard and Francis Avenue where it is two lanes. The City of Ontario has proposed widening Campus Avenue to four lanes, thereby improving the level of service from F to B. The widening improvements are to be conducted by the City of Ontario.

The City of Ontario has recommended that Etiwanda Avenue also be widened from a four-lane to a six-lane facility. This widening would alleviate congestion and reduce the level of service from E to B.

Table 3.3-5

Recommended Improvements to Major Routes in the Ontario Study Area

Roadway	No. of Lanes	Recommended Improvements
I-10	8	Widen to 10 lanes
R-60	6	Widen to 10 lanes
I-15	8	None
Euclid	6	None
Campus	2	Widen to 4 lanes
Grove	6	None
Vineyard	6	None
Archibald	6	None
Haven	6	None
Milliken	6	None
Etiwanda	4	None
Fourth	4	Widen to 6 lanes
Holt	4	None
Airport	4	Widen to 6 lanes
Jurupa	6	None
Mission	4	Widen to 6 lanes

Source: Wilbur Smith Associates, 1990

The Caltrans Route 60 Freeway Route Concept report calls for a widening of the freeway to ten lanes. This would improve the level of service from F to D, which is adequate for improved traffic operations. Widening improvements would be conducted by Caltrans.

Fourth Street, Airport Drive, and Mission Boulevard are currently each four lanes wide and are scheduled by the City of Ontario to be widened to six-lanes each. Fourth Street's level of service would be improved from F to E, nearing capacity and reducing the impacts. The level of service for Mission Boulevard would be improved from F to B, thus diminishing the impacts to an insignificant level. These street widenings would be conducted by the City of Ontario. The widening of Airport Drive would improve the level of service from F to E. Widening the segment between Haven Avenue and I-15 would also be conducted by the City of Ontario. The widening of the segment of Airport Drive between Vineyard and Haven Avenues would be conducted by the Department of Airports since it is under their jurisdiction.

The City of Ontario also plans to widen Holt Boulevard from four lanes to six, thereby improving its level of service from E to B. This widening will mitigate the impacts on Holt Boulevard to an insignificant level.

Another program the City of Ontario plans to conduct is the installation of traffic signals at intersections which are currently operating under two-way or four-way stop control and where signal warrants are met. Signals could be installed at the intersection of Grove Avenue and State Street including a separate, northbound right-turn pocket lane on Grove Avenue. Signal installations are planned at the intersections of Fourth/Milliken, Fourth/Turner, Jurupa/Etiwanda, Philadelphia/ Milliken, and at the intersections of Airport Drive with Grove, Vineyard, Archibald, and Haven Avenues. Protected left-turn lanes would also be provided at the above-mentioned intersections with Airport Drive. The City of Ontario plans to construct protected dual left-turns at the intersection of Holt and Euclid and signalize the intersections of the ramps from the I-10 Freeway with the arterials of Vineyard, Archibald, and Haven Avenues. These signals are required to prevent interruption of continuous traffic on the arterials due to the four-way stop control, and to accommodate the large number of left-turn movements required to access the airport from the freeway, especially on Archibald Avenue. The diamond interchange at Haven Avenue and Route 60 freeway would also be signalized and left turn lanes would be provided on Haven Avenue. Table 3.3-6 shows the recommended intersection improvements.

Caltrans plans to install ramp meters on the I-10 on-ramps to provide preferential treatment for High Occupancy Vehicles (HOVs) and to help maintain free flow conditions on the I-10 freeway.

Further mitigation could be achieved by implementing an employee management program providing staggered or flexible work hours for businesses located in the vicinity of the airport. Peak-hour congestion and delays in the vicinity of the airport would be reduced by this program.

Table 3.3-6

Recommended Intersection Improvements

Intersection	Signal	Channelization
Grove/State	Yes	Northbound right turn pocket lane
Fourth/Milliken	Yes	None
Fourth/Turner	Yes	None
Jurupa/Etiwanda	Yes	None
Philadelphia/Milliken	Yes	None
Grove/Airport	Yes	Protected left turn lanes
Vineyard/Airport	Yes	Protected left turn lanes
Archibald/Airport	Yes	Protected left turn lanes
Haven/Airport	Yes	Protected left turn lanes
Holt/Euclid	Yes	Protected left turn lanes
I-10 ramps/Vineyard	Yes	None
I-10 ramps/Archibald	Yes	None
I-10 ramps/Haven	Yes	None
Route 60/Haven	Yes	Left turn lanes on Haven

Source: Wilbur Smith Associates, 1990

South Coast Air Quality Management District (SCAQMD) Rule 15 requires that all businesses with more than 100 employees plan for trip-reduction measures, including providing a carpooling/ridesharing program for their employees, which would aim to eventually capture about 25 percent of all home-to-work trips. This would reduce the number of vehicles coming to the area during morning peak-hour and leaving during evening peak-hour, thereby reducing congestion and delays. Each employer would be required to prepare a program to encourage use of the carpool system by his employees. The Department of Airports and its major tenants are required to provide a trip-reduction program for its employees at Ontario under Rule 15.

It is also suggested that a signage program be developed by the City of Ontario to help distribute airport traffic evenly along the different arterials surrounding the airports. Northbound airport traffic on Route 57 and I-605 would be directed to use Route 60. Traffic on Route 60 would be directed to use Grove and/or Haven Avenue. Traffic on I-15 would be directed to use Jurupa Street to access the airport. Airport bound traffic on I-10 would be directed to use Vineyard, Archibald, and Haven Avenue depending on the airline location. Traffic leaving the airport for Orange and Riverside Counties would be directed to use the I-15 and Route 60 freeways.

3.3.4 Unavoidable Adverse Impacts

There are no unavoidable significant adverse impacts of the project on traffic.

3.4 ENERGY

3.4.1 Setting

Ontario International Airport is located in the city of Ontario in the South Coast Air Basin. The Basin is characterized by moderate winters and warm, dry summers. These climatic conditions result in a low-energy demand for structural heating and air conditioning. However, the relatively large population of the area causes a substantial energy demand for transportation and lighting purposes. There are a number of petroleum refineries located in the Basin and the majority of the fuel used at ONT is provided via pipeline directly from the major refineries in the Basin and supplemented by independent sources trucked to the airport.

3.4.2 Impacts

3.4.2.1 Significance Criteria

Significant impacts would occur if the project-related demand equaled or exceeded existing supplies, or reduced the level of service, thereby requiring the development of new facilities and sources in excess of those already planned.

3.4.2.2 Construction

Construction of the proposed project would require fossil fuels to power construction equipment, and for automobiles used by construction employees commuting to and from the work site. The methodology for estimating the energy consumption was taken from the construction machinery operations and by the construction activity identified for the proposed airport improvements in Section 3.1.

The total amount of diesel fuel used by construction equipment is estimated to be over 2.7 million gallons for all airport improvements. In 1985, the amount of diesel fuel consumed for on-highway uses in California was approximately 1.5 billion gallons (National Energy Information Center, 1988). The proposed project's construction diesel fuel requirement relative to California's fuel consumption is minimal and it is not expected to cause a significant impact.

The construction phase air quality impacts analysis for all construction activities estimates that 157 passenger vehicles will be used by construction workers in commuting to and from the project area. The estimated amount of gasoline required is 283,668 gallons for the entire project construction period. The increased fuel demand for construction workers is negligible in contrast to the daily fuel demand (10 million gallons) for Los Angeles County in 1988. The amount of gasoline expended for automobile use would be insignificant in the context of the total daily gasoline consumption in the region.

For these reasons, no significant impacts on fossil fuels are anticipated.

3.4.2.3 Operations

Operational phase energy requirements for the project would result from increased aircraft movement, aircraft ground support equipment, and the energy requirements of passenger vehicles. The energy requirements for cargo ground transportation were previously addressed in the UPS - Ontario Air Cargo Hub FEIR, (LADOA, 1988a) and are not considered in this analysis.

The fuel requirements for aircraft movement were analyzed, based on landing- takeoff cycle (LTO) data. Calculated data provided by the Department Of Airports (DOA) on fuel usage per LTO were used in conjunction with total daily aircraft operations to determine the total gallons required on a daily basis. Table 3.4-1 shows the fuel usage from both scenarios in the proposed project; the Unmitigated scenario (fleet mix at 80% Stage III aircraft) and the Mitigated scenario (fleet mix at 100% Stage III aircraft).

Energy requirements for ground support operations were calculated using the time required for each type of equipment per LTO, by each aircraft type; by the daily LTO's for each aircraft; and by the fuel consumption rates provided by the DOA (Table 3.4-2). Fuel usage data are separated into diesel and gasoline used by different types of support equipment.

The proposed project transportation analysis estimates that 51,972 daily vehicle trips would be generated from increased air and general aviation passengers. Assuming a travel distance of 20 miles per vehicle and 15 miles per gallon of gasoline, a total of 69,445 gallons of gasoline would be consumed per day. An additional 1 gallon of diesel would be required by buses transferring passengers to and from the Interim International Passenger Terminal.

A summary of the total fuel used by both project scenarios is provided on Table 3.4-3. Although aircraft jet fuel and aviation gas are different from either gasoline or diesel fuel, they are equivalent in terms of total energy provided per gallon, and therefore are combined to provide a basis of comparison for the project scenarios. Table 3.4-3 shows that the Mitigated scenario would result in approximately 3% decrease in aircraft fuel consumption and a decrease of approximately 14% for diesel.

3.4.3 Unavoidable Adverse Impacts

In general, unavoidable adverse impacts can be defined as the use of nonrenewable resources. The proposed project will require the use of fossil fuel, a nonrenewable natural resource. Energy supplies, although relatively small, will be committed to the proposed project and the energy will not be renewable after project completion. Conservation of energy by any amount is recognized as a mitigating measure which can be used to effectively delay the depletion of fossil fuels. Recommended energy conservation measures include those identified in the Air Quality and Transportation/Circulation mitigation sections of this report. These measures would reduce energy use as well.

Table 3.4-1

Daily Fuel Usage for Aircraft Movements from the Proposed Project

Aircraft	Unmitigated Scenario LTOs	Unmitigated Scenario Gal/day	Mitigated Scenario LTOs	Mitigated Scenario Gal/day
747200	2.28	2,383	2.28	2,383
74720B	-	-	5.93	6,137
74710Q	5.92	6,127	-	-
DC870	8.51	4,825	9.41	5,335
DC8QN	.90	549	-	-
BAE146	76.72	12,812	76.72	12,812
727Q9	3.66	1,581	-	-
727Q7	2.28	984	-	-
727Q15	7.74	3,343	-	-
727D17	1.78	769	-	-
767CF6	10.10	5,040	10.10	5,040
DC1010	1.78	1,053	2.22	1,314
DC1030	0.45	349	-	-
DC1040	3.07	2,407	3.07	2,407
L1011	0.50	364	0.51	371
737300	20.50	5,022	50.94	12,480
DC910	-	-	-	-
DC9Q7	3.46	996	-	-
737QN	17.02	4,901	-	-
737D17	1.93	556	-	-
737Q15	8.02	2,309	-	-
MD81	1.09	302	1.09	302
MD82	46.09	13,780	61.55	18,403
MD83	13.60	4,066	13.60	4,066
757PW	10.43	3,755	10.43	3,755
Aircraft below 70,000 lbs				
LEAR35	4.03	109	4.02	108
LEAR25	4.64	292	4.64	292
CNA500	2.58	72	2.58	72
GIIB	1.03	132	1.03	132
MU3001	1.02	29	1.03	29
DHC7	4.07	256	4.06	255
DHC6	39.31	1,219	39.31	1,219
DC3	0.46	14	0.46	14
CNA441	10.26	318	10.26	318
GASEPF	15.47	31	15.47	31
BEC58P	12.90	155	12.90	155
COMSEP	4.64	9	4.64	9
TOTAL FUEL USAGE		80,909		77,439

Source: Engineering-Science, Inc.

Table 3.4-2

Aircraft Support Equipment Fuel Usage for the Proposed Project

Aircraft	Tractor	Belt Loader	Container Loader	Cabin Service	Lavatory Truck	Water Truck	Food Truck	Fuel Truck	Tow Tractor	Conditioner	Air Start	Ground Power Units	Transporter	Auxiliary Power Units
Fuel Rate Gal/hour	1.80	0.70	1.75	1.50	1.50	1.50	2.00	1.70	2.35	1.75	1.80	1.80	1.50	1.00
Unmitigated Scenario														
Total Minutes	9,662	11,150	2,182	1,758	4,040	1,841	4,899	5,850	1,489	282	72	1.799	234	9,256
Total Gallons	290	134	63	44	101	46	162	164	58	8	2	54	6	157
DAILY TOTAL	816 Gallons Diesel Fuel			473 Gallons Gasoline										
Mitigated Scenario														
Total Minutes	9,587	2,973	2,090	1,625	4,041	1,961	4,848	5,727	1,411	282	72	1,567	187	9,486
Total Gallons	288	35	60	41	101	49	160	160	55	8	2	47	5	161
DAILY TOTAL	702 Gallons Diesel Fuel			470 Gallons Gasoline										

Source: Engineering-Science, Inc.

Table 3.4-3

Fuel Usage Summary for the Project Scenarios
(gallons/day)

	Fuel Type		
	Aircraft Fuel	Diesel	Gasoline
Unmitigated Scenario	80,909	816	69,918
Mitigated Scenario	77,439	702	69,445

Source: Engineering-Science, Inc.

3.4.4 Cumulative Impacts

Specific energy use estimates for related projects were not available. However, since potential project air emissions result primarily from energy use, the air quality cumulative impacts were reviewed for their applicability to potential cumulative energy impacts. This analysis indicates that there could be significant cumulative air quality impacts during the construction and operational phases. The analysis also indicates that these impacts would occur whether the proposed project is approved or not, and that the proposed project is expected to create a benefit for air quality during the project's operational phase when compared to the current situation. Therefore, project approval would not significantly impact energy supplies or infrastructure, and may result in more efficient energy use.

3.4.5 Mitigation Measures

Many of the mitigation measures recommended in the Air Quality and Transportation/Circulation sections of this report would reduce energy by controlling fuel use and using transportation facilities more efficiently. No additional specific energy use reduction measures are required.

SECTION 4

ALTERNATIVES

SECTION 4

ALTERNATIVES

4.1 NO PROJECT (SHORT-TERM)

This scenario means that the airport will be operating in the year 1995 similar to its current operating conditions, except for the increase in annual passengers projected at 8 MAP, with a 65 percent Stage III fleet mix, and 125,000 annual aircraft operations.

4.1.1 Air Quality

This alternative includes the construction of the proposed Interim International Terminal, airport roadways, parking spaces and taxiway airfield improvements. Projected daily emissions from the construction of these improvements are the same as those identified for the Proposed Project. The cumulative impacts and mitigation measures identified in Section 3.1 are also valid for each of the project's alternatives. Daily air emissions from the aircraft and ground service vehicles for this alternative, and the other alternatives identified below were calculated using the same procedures as for the Proposed Project. Vehicle-related emissions were derived from the Transportation analysis in Section 3.3.

Other than an increase in air passengers and related vehicles, this alternative represents the current operating conditions at ONT. Total daily air emissions are summarized on Table 4.1-1, and when compared with the other alternatives, daily emissions are the least for each pollutant category.

Table 4.1-1

Projected Daily Emissions Levels for No Project (Short-Term)
(lbs per day)

	CO	NO_x	ROG	SO_x	PM
Aircraft Movements	5,140	3,959	1,171	316	122
Aircraft Support	1,251	240	62	19	19
Vehicular Emissions	7,717	1,827	1,324	--	437
TOTAL	**14,108**	**6,026**	**2,557**	**335**	**578**

Source: Engineering-Science, Inc.

4.1.2 Noise

The 65 CNEL noise contour for this scenario covers a much-affected area on both the eastern and western portions of the airport vicinity. The land use impacts under this scenario are greater than under any other scenario. The easterly extension of the 65 CNEL contour covers residential areas generally bounded by

Holt Boulevard to the north, Francis Street to the south, Campus Avenue to the east and Vine Avenue to the west. The westerly extension of the 65 CNEL contour is much more extensive, stretching southeasterly from Etiwanda Avenue to Mulberry Avenue. This area generally includes industrial and research and development uses. Figure 4.1-1 shows the noise contours and the 65 CNEL land use impacts.

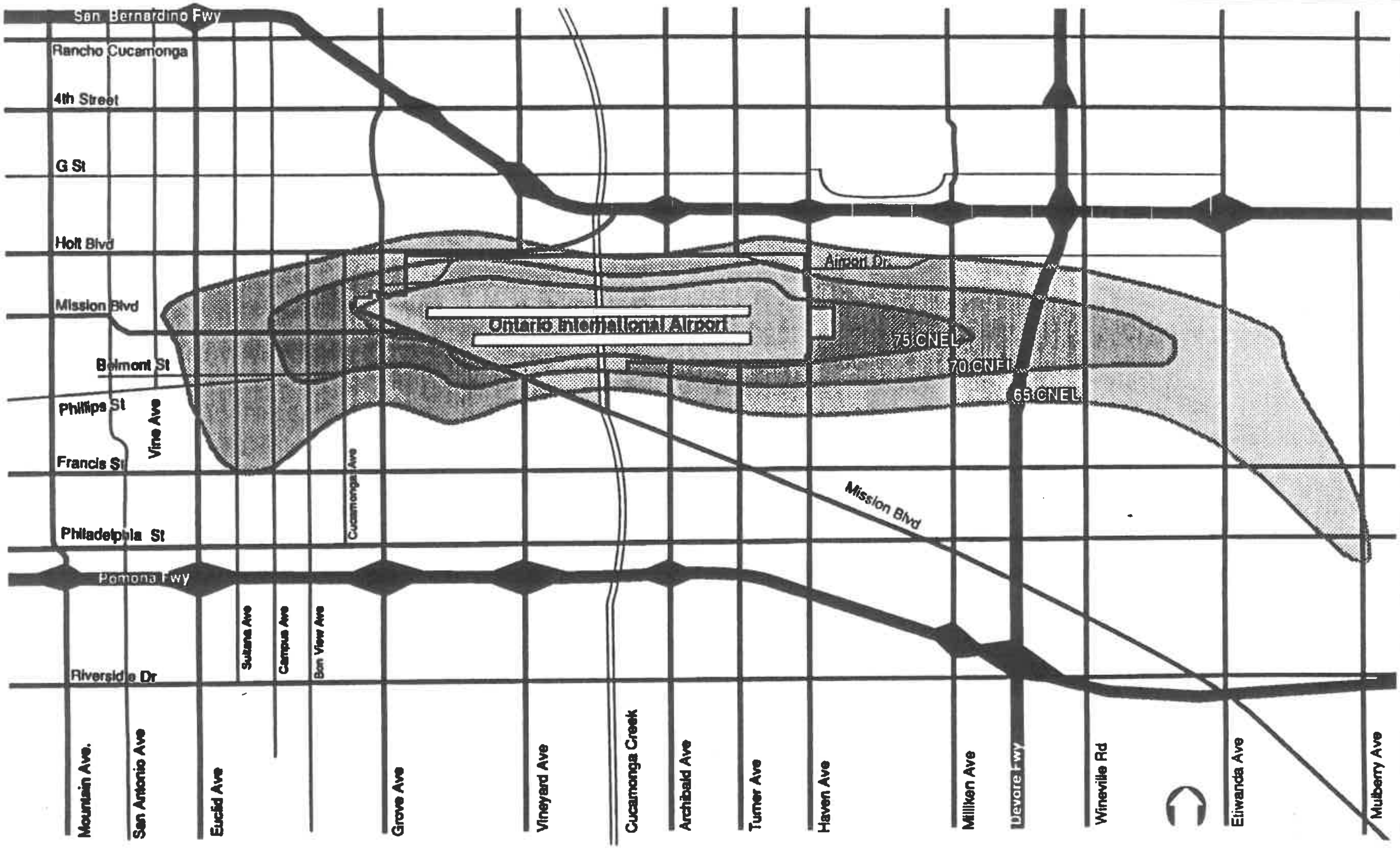
4.1.3 Transportation and Circulation

The only difference for this scenario from the transportation point of view is the increase in the annual passengers to 8 MAP. Using the same method of calculation previously described, the origin and destination passenger volume will produce an estimated 34,500 vehicle trips per day. A peak-hour volume of 2,780 trips per hour is projected for a high-volume (worst-case) day. Background traffic on the roadway system around the airport will increase due to growth and development within the surrounding area.

The projected year 1995 peak-hour traffic volumes around the airport are shown in Figure 4.1-2. Improvements to the existing roadway network to be completed by the year 1995 will include the widening of Jurupa Street to six lanes, the widening of Haven Avenue to six lanes, the construction of the Haven/Route 60 interchange and the Haven/Union Pacific railroad grade separation. Most of the north/south roadways will be operating at levels of service D, E or F except Haven Avenue (LOS A) due to its improvement. Euclid Avenue will operate at LOS D south of the Route 60 freeway. Milliken and Etiwanda Avenues will also operate at LOS D. Both Campus and Grove Avenues will operate at capacity (LOS E) while Archibald Avenue will operate above capacity (LOS F). Vineyard Avenue will remain the primary access to the airport parking and passenger terminals, operating over capacity (LOS F), and becoming fully saturated with traffic. A summary of the projected number of lanes, peak-hour volumes, capacities, and levels of service is shown on Table 4.1-2.

Most of the east/west roadways will operate at level of service D or E, with the exception of Airport Drive and Jurupa Street (LOS A). Fourth Street will operate at capacity (LOS E) in the segment between Grove Avenue and Archibald Avenue, while the remaining segment from Archibald Avenue to the I-15 freeway will operate below capacity. Both Holt and Mission Avenues will operate below capacity (LOS D) while Airport and Jurupa will have ample capacity (LOS A). Finally, all three freeways in the study area (I-10, Route 60, and I-15) will operate over capacity causing significant delays.

The impacts on the roadways from the projected traffic during the peak-hour are mainly cumulative impacts and do not result from increases in airport traffic. The impacts are due to background traffic in the area and the anticipated growth on the east side of the study area. Mitigation measures discussed in Section 3.3.3 are valid and would reduce congested intersections and highway segments in the airport area.



SCENARIO A
(No Project Short-Term)

8 Million Annual Passengers
125,000 Operations (over 12,500 lbs.)
65% Stage III Aircraft
Prado Departures Turn Left As Early AS Possible
Modified Eastbound Departure

65 CNEL LAND USE IMPACT

	Acres	Units	Pop
Single Family	491	2035	6107
Duplex	43	388	1168
Multi-Family	122	311	936
Mobile	9	84	259
Total	665	2818	8470

SCALE
0 2000 4000
Feet

SOURCE: LADOA, 1990

Figure 4.1-1 Scenario A (No Project Short-Term)

OntarioAir

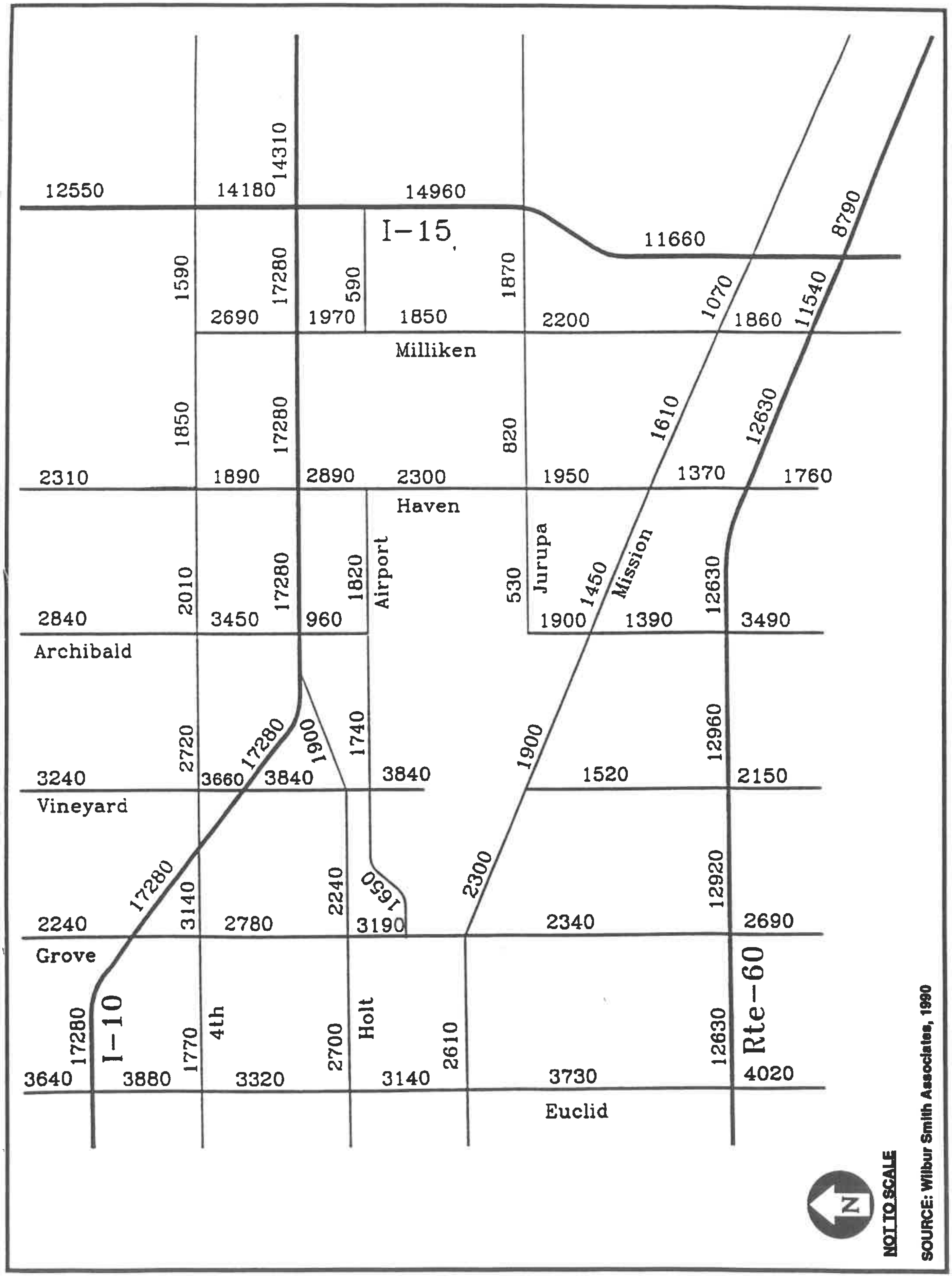


Figure 4.1-2 Year 1995 Peak-Hour Traffic

Table 4.1-2

Projected Year 1995 Traffic Volumes on Major Routes in the Ontario Study Area

Roadway	No. of Lanes[1]	Peak Hour Volume	Level of Capacity	Peak Hour V/C Ratio	Level of Service	1990 Level of Service
I-10	8	17,280	14,400	1.20	F	F
R-60	6	12,960	10,800	1.20	F	F
I-15	8	14,960	14,400	1.04	F	C
Euclid	6	4,020	4,800	0.84	D	C
Campus	2	1,460	1,600	0.91	E	B
Grove	4	3,190	3,200	0.99	E	D
Vineyard	4	3,840	3,200	1.20	F	E
Archibald	4	3,490	3,200	1.09	F	E
Haven	6	2,890	4,800	0.60	A	A
Milliken	4	2,690	3,200	0.84	D	B
Etiwanda	4	2,720	3,200	0.85	D	B
Fourth	4	3,140	3,200	0.98	E	A
Holt	4	2,700	3,200	0.84	D	C
Airport	4	1,820	3,200	0.57	A	A
Jurupa	6	1,870	4,800	0.40	A	A
Mission	4	2,610	3,200	0.82	D	B

Source: Wilbur Smith Associates, 1990

4.1.4 Energy

This alternative includes the construction of the Interim International Passenger Terminal, airport roadways, parking spaces and taxiway airfield improvements. Total projected fuel usage for these construction activities is estimated at 1.3 million gallons of diesel fuel and 0.13 million gallons of gasoline. Daily fuel consumption estimate for aircraft, ground service vehicles and vehicular traffic for this alternative, and the other alternatives discussed below, were calculated using the same procedures as developed in Section 3.4. Additionally, the recommended energy conversation measures identified in the air quality and transportation mitigation sections of this report are valid for all alternatives in reducing energy use.

Other than an anticipated increase in air passengers and related vehicle use, this alternative represents the current operating conditions at ONT. Fuel consumption for this alternative is summarized on Table 4.1-3.

Table 4.1-3

Operational Phase Energy Consumption for No Project (Short-Term)

		Fuel Type (gallon/day)	
	Aircraft Fuel	Diesel	Gasoline
Aircraft Movements	56,882	-	-
Aircraft Support	-	575	293
Passenger Vehicles	-	1	13,558
TOTAL	56,882	576	13,851

Source: Engineering-Science, Inc.

4.2 NO PROJECT (LONG-TERM)

This scenario shows the airport operating at 12 MAP in the year 2015, with a 100 percent Stage III fleet mix, and 125,000 annual aircraft operations. Preferential runway use is reduced by two hours due to lack of terminal capacity.

4.2.1 Air Quality

This alternative would involve the same construction activities as the Proposed Project, except for the runway improvements and the new terminal complex. Daily construction-related air emissions for all other airport improvements are the same as identified for the proposed project. The increased aircraft annual operation are reflected in the daily level of each pollutant category for both aircraft movement and aircraft support. Vehicle emission levels are the same as the Proposed Project.

Table 4.2-1 shows the daily air emissions from this alternative.

Table 4.2-1

No Project (Long Term) Alternative Emissions (lbs per day)

	CO	NO_x	ROG	SO_x	PM
Aircraft Movements	9,244	6,167	8,187	401	188
Aircraft Support	1,740	329	85	27	27
Vehicular Emissions	9,204	2,428	1,603	-	616
TOTAL	20,188	8,924	9,875	428	831

Source: Engineering-Science, Inc.

4.2.2 Noise

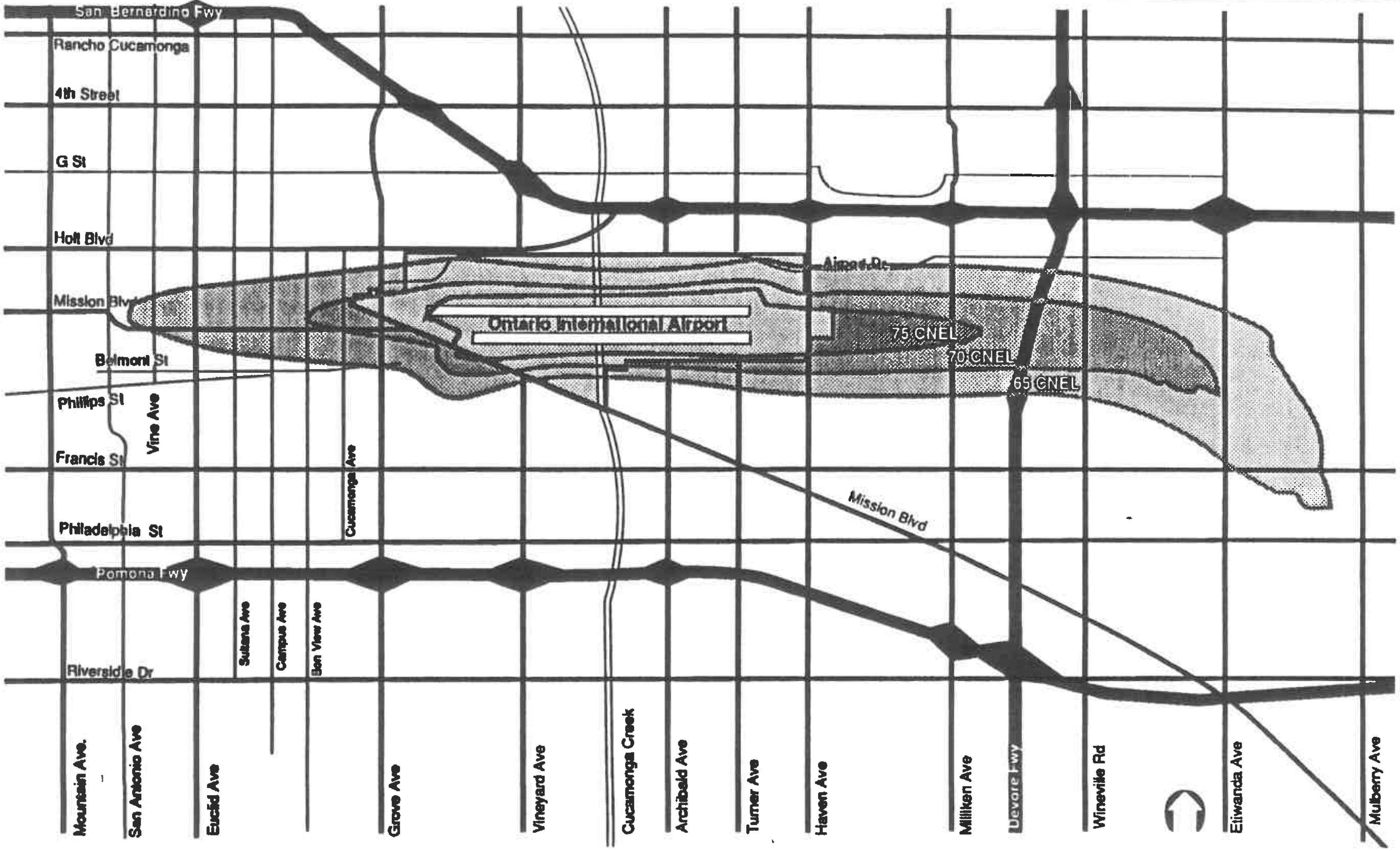
The 65 CNEL noise contour for this scenario covers an extensive area on both the western and eastern surroundings of the airport. Residential land uses affected by this scenario are significant. On the west, the 65 CNEL contour extends along Mission Boulevard from Bon View Avenue to San Antonio Avenue. This area generally includes a mix of residential and commercial uses. To the west of the airport, the 65 CNEL contour runs southeasterly between Etiwanda Avenue and Mulberry Avenue. This area generally includes industrial and research and development uses. Figure 4.2-1 shows the noise contours and the 65 CNEL land use impacts.

4.2.3 Transportation and Circulation

The No Project (Long-Term) alternative shows the airport operating at 12 MAP in the year 2015. The airport traffic generated by 12 MAP is the same as previously discussed under Section 3.3.2.1, with the exception being that the year of operation is 2015 instead of the year 2000. The anticipated roadway network in the year 2015 will include all improvements previously discussed and completed before the year 2000. Additional completed improvements will include the widening of the I-10 and Route 60 freeways to ten lanes, the widening of Haven Avenue to eight lanes, and the widening of Fourth Street to six lanes. The anticipated buildout year in the City of Ontario's Master Plan is 2010 and so growth of background traffic in the year 2015 will be minimal.

The projected year 2015 peak-hour traffic volumes around the airport are shown in Figure 4.2-2. All of the north/south roadways including the I-15 freeway will operate over capacity, causing congestion and significant delays. The only exception will be Grove Avenue which will operate at capacity (LOS E). Again, all of the east/west roadways will operate over capacity (LOS F) with the exception of the Route 60 freeway and Jurupa Street, both of which will operate at capacity (LOS E). A summary of the projected number of lanes, peak-hour volumes, capacities and levels of service is shown on Table 4.2-2.

The impacts on the roadways from the projected traffic during the peak-hour are due to background traffic and do not result from increases in airport traffic.



SCENARIO B
(No Project Long-Term)

12 Million Annual Passengers
125,000 Operations (over 12,500 lbs.)
100% Stage III Aircraft
Prado Departures Turn Left As Early AS Possible
Modified East Bound Departure
Reduced Preferential Runway Use

65 CNEL LAND USE IMPACT

	Acres	Units	Pop
Single Family	245	1061	3184
Duplex	17	162	487
Multi-Family	4	53	159
Mobile	0	0	0
Total	266	1276	3830

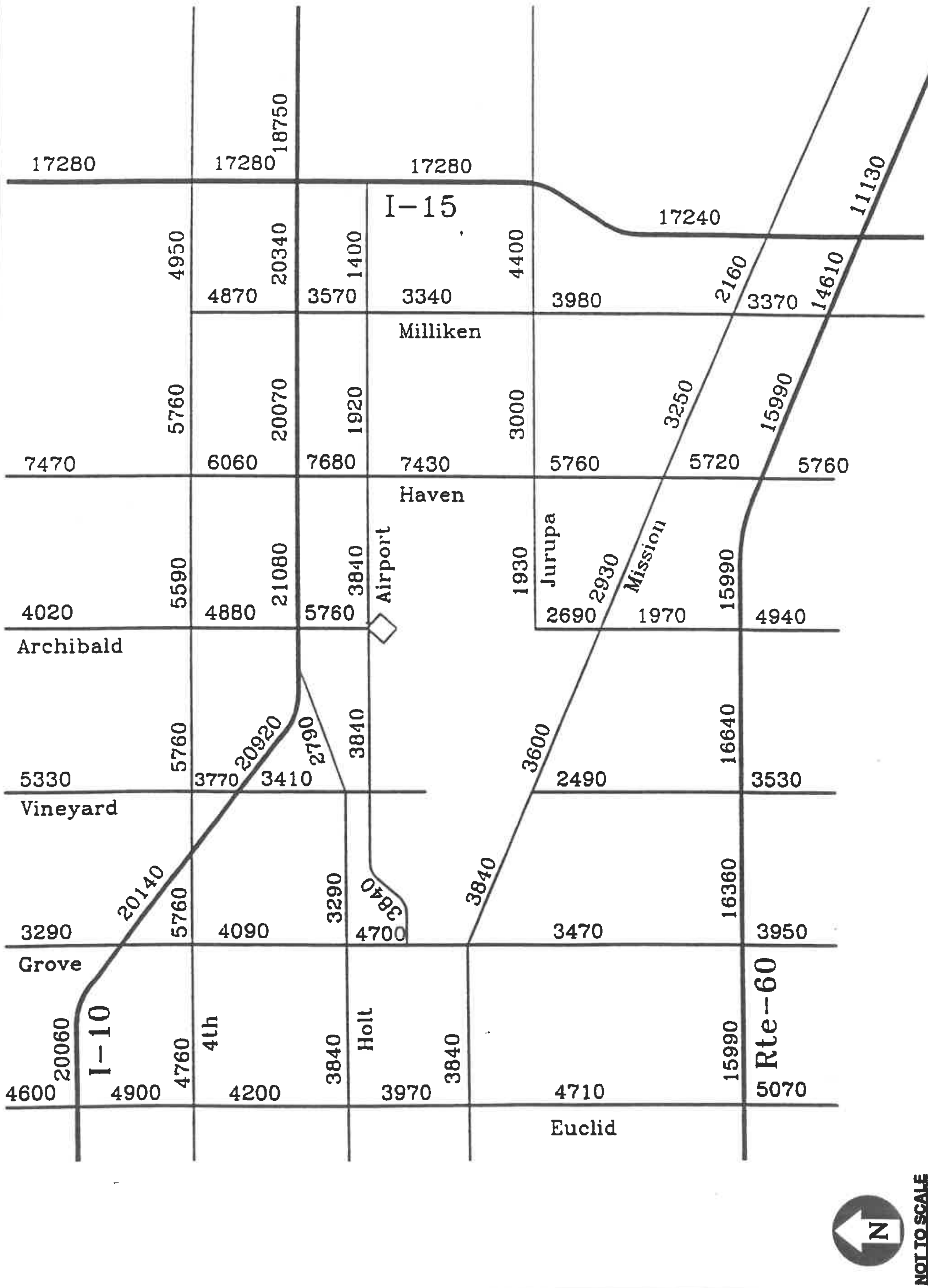
SCALE

0 2000 4000
Feet

SOURCE: LADOA, 1990

Figure 4.2-1 Scenario B (No Project Long-Term)

OntarioAir



NOT TO SCALE

SOURCE: LADOA, 1990

Figure 4.2-2 Year 2015 Peak-Hour Traffic

Table 4.2-2

Projected Year 2015 Traffic Volumes on Major Routes in the Ontario Study Area

Roadway	No. of Lanes[1]	Peak Hour Volume	Level of Capacity	Peak Hour V/C Ratio	Level of Service	1990 Level of Service
I-10	10	21,080	18,000	1.17	F	F
R-60	10	16,640	18,000	0.92	E	F
I-15	8	17,280	14,400	1.20	F	C
Euclid	6	5,070	4,800	1.06	F	C
Campus	2	1,920	1,600	1.20	F	B
Grove	6	4,700	4,800	0.98	E	D
Vineyard	6	5,330	4,800	1.11	F	E
Archibald	6	5,760	4,800	1.20	F	E
Haven	8	7,680	6,400	1.20	F	A
Milliken	6	4,870	4,800	1.01	F	B
Etiwanda	4	3,840	3,200	1.20	F	B
Fourth	6	5,760	4,800	1.20	F	A
Holt	4	3,840	3,200	1.20	F	C
Airport	4	3,840	3,200	1.20	F	A
Jurupa	6	4,400	4,800	0.92	E	A
Mission	4	3,840	3,200	1.20	F	B

Source: Wilbur Smith Associates, 1990.

[1] The number of lanes over the roadway. The numbers presented here are at the location of the peak volume.

4.2.4 Energy

This alternative would involve the same construction activities (except for the runway improvements and the new terminal complex) and vehicular travel as all of the 12 MAP alternatives. Total construction phase fuel would be 1.3 million gallons of diesel and 0.15 million gallons of gasoline. The energy required for the alternative changes and increased annual aircraft operations are reflected in the higher fuel consumption as shown on Table 4.2-3

Table 4.2-3

Operational Phase Energy Consumption for No Project (Long-Term) Alternative

	Fuel Type (gallon/day)		
	Aircraft Fuel	**Diesel**	**Gasoline**
Aircraft Movements	75,225	-	-
Aircraft Support	-	787	408
Passenger Vehicles	-	1	69,445
TOTAL	75,225	788	69,853

Source: Engineering-Science, Inc.

4.3 TERMINAL WITHOUT AIR QUALITY CERTIFICATE

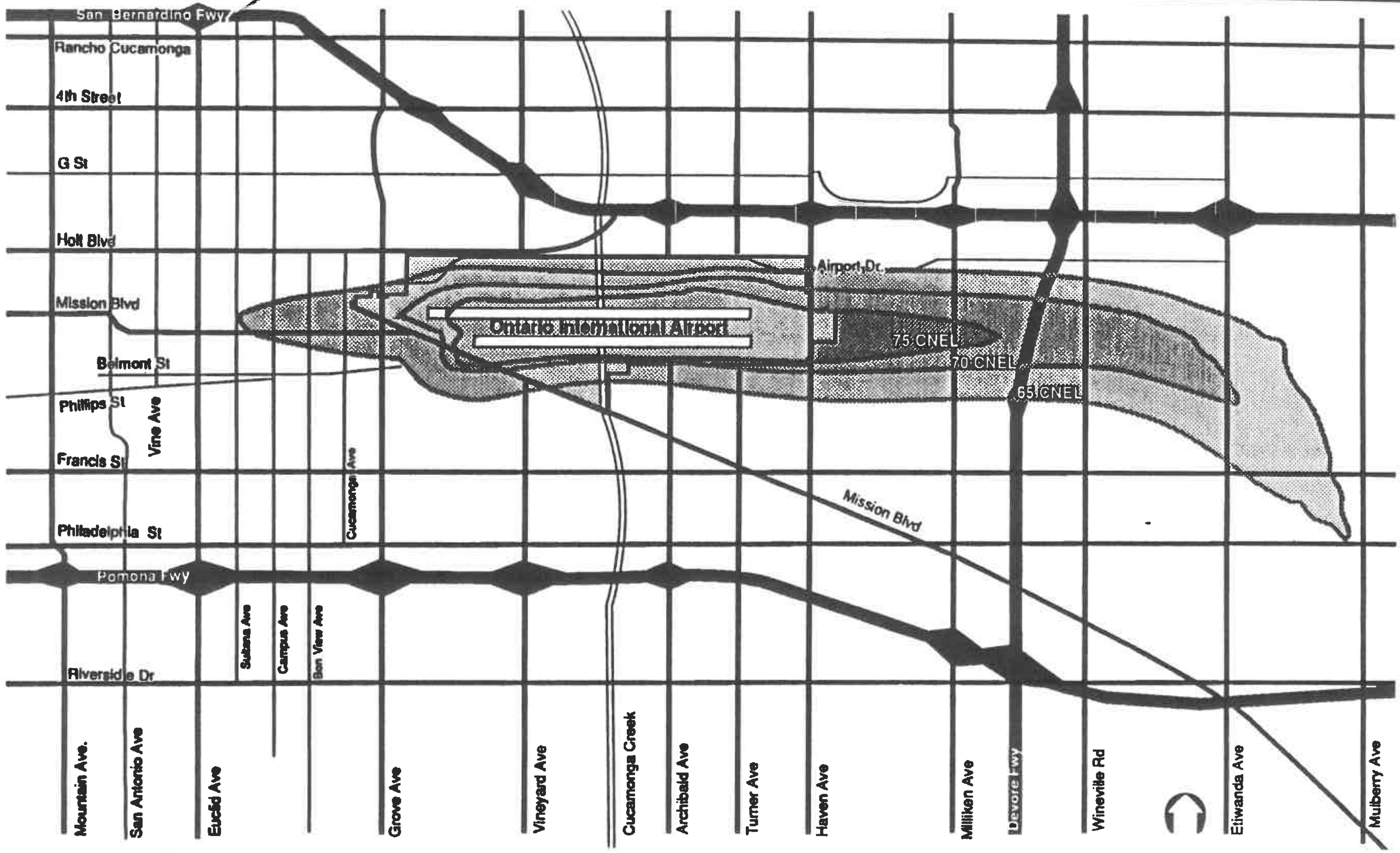
This scenario means that the airport will operate at 12 MAP in the year 2010, with a 100 percent Stage III fleet mix, and 125,000 annual aircraft operations. It will also include an 1800-foot easterly runway extension.

4.3.1 Air Quality

Daily operational air emissions from this alterative are the same as for the No Project (Long-Term) Alternative. Construction-related emissions are the same as for the Proposed Project.

4.3.2 Noise

The 65 CNEL Contour under this scenario covers a smaller area than the No Project and the Unmitigated Project scenarios. The residential land use impacts are less significant, covering the area bounded by Sultana Avenue on the west, Belmont Street on the south, Grove Avenue on the east and the Southern Pacific Railroad on the north. The westerly extension of the 65 CNEL contour stretches southwesterly to Mulberry Avenue on the east and Philadelphia Street on the south. This area generally includes industrial and research and development uses. Figure 4.3-1 shows the noise contours and the 65 CNEL land use impacts.



SCENARIO C
(Terminal w/o Air Quality Certificate)

12 Million Annual Passengers
125,000 Operations (over 12,500 lbs.)
100% Stage III Aircraft
1800' Easterly Runway Extension
Prado Departures Turn Left As Early As Possible
Modified Eastbound Departure

65 CNEL LAND USE IMPACT

	Acres	Units	Pop
Single Family	116	265	795
Duplex	5	22	67
Multi-Family	0	7	21
Mobile	0	0	0
Total	121	294	883

SCALE
0 2000 4000
Feet

SOURCE: LADOA, 1990

Figure 4.3-1 Scenario C (Terminal Without Air Quality Certificate)

4.3.3 Transportation and Circulation

The airport traffic generated by 12 MAP was previously discussed under Section 3.3.2.1. The difference is that the year of operation is 2010 instead of the year 2000 which affects only the background traffic. Additional improvements to the year 2000 roadway network to be completed by the year 2010 include the widening of the I-10 and Route 60 freeways to ten lanes, the widening of Haven Avenue to eight lanes and the widening of Fourth Street to six lanes.

The projected year 2010 peak-hour traffic volumes on the roadway network around the airport are shown in Figure 4.3-2. The north/south roadways including the I-15 freeway will operate over capacity (LOS F) causing congestion and delays. The only exceptions are Grove and Milliken Avenues which will operate at capacity (LOS E). The east/west roadways will operate over capacity except for the Route 60 freeway and Jurupa Street, both of which will operate below capacity and have adequate level of service (LOS D). A summary of the projected number of lanes, peak-hour volumes, capacities and levels of service is shown on Table 4.3-1.

Once again, the impacts on the roadways from the projected traffic during the peak-hour are due to background traffic and do not result from increases in airport traffic.

4.3.4 Energy

Construction equipment fuel consumption (2.4 million gallons of diesel and 283,668 gallons of gasoline) is the same as for the Proposed Project. Fuel consumption from airport operations and passengers vehicles for this alternative is the same as the No Project (Long-Term).

4.4 TWENTY (20) MILLION ANNUAL PASSENGERS

This scenario has the airport operating at 20 MAP in the year 2020, with a 100 percent Stage III fleet mix, 215,000 annual aircraft operations, and a 20 MAP Terminal.

4.4.1 Air Quality

All airport improvements identified in the Proposed Project are included in this alternative, with the same level of construction-related emissions. Table 4.4-1 summarizes the daily operational emissions resulting from a near doubling the MAP and annual operations for the Ontario Airport in 2020.

Table 4.4-1

20 Million Annual Passengers Alternative Emissions
(lbs per day)

	CO	NO	ROG	SO	PM
Aircraft Movements	9,816	10,398	2,821	822	190
Aircraft Support	2,621	519	130	42	41
Vehicular Emissions	14,598	3,993	2,585	-	1,019
TOTAL	**42,148**	**14,910**	**5,536**	**864**	**1,250**

Source: Engineering-Science, Inc.

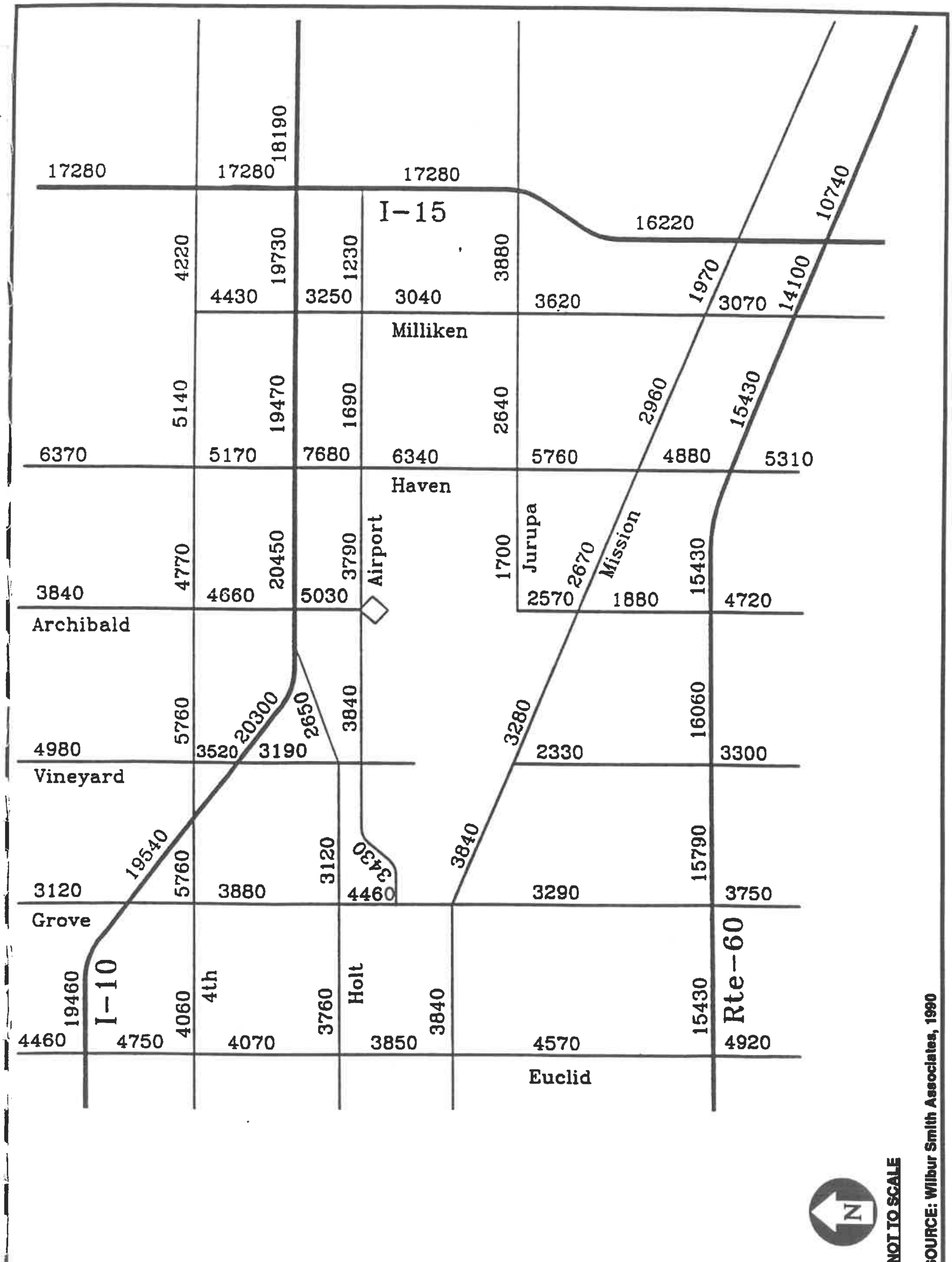


Figure 4.3-2 Year 2010 Peak Hour Traffic

Table 4.3-1
Projected Year 2010 Traffic Volumes
on Major Routes in the Ontario Study Area

Roadway	No. of Lanes[1]	Peak Hour Volume	Level of Capacity	Peak Hour V/C Ratio	Level of Service	1990 Level of Service
I-10	10	20,450	18,000	1.14	F	F
R-60	10	16,060	18,000	0.89	D	F
I-15	8	17,280	14,400	1.20	F	C
Euclid	6	4,920	4,800	1.03	F	C
Campus	2	1,920	1,600	1.20	F	B
Grove	6	4,460	4,800	0.93	E	D
Vineyard	6	4,980	4,800	1.04	F	E
Archibald	6	5,030	4,800	1.05	F	E
Haven	8	7,680	6,400	1.20	F	A
Milliken	6	4,430	4,800	0.92	E	B
Etiwanda	4	3,840	3,200	1.20	F	B
Fourth	6	5,760	4,800	1.20	F	A
Holt	4	3,760	3,200	1.18	F	C
Airport	4	3,840	3,200	1.20	F	A
Jurupa	6	3,880	4,800	0.81	D	A
Mission	4	3,840	3,200	1.20	F	B

Source: Wilbur Smith Associates, 1990.

4.4.2 Noise

The 65 CNEL land use impacts under this scenario are less significant than under the No Project scenarios (Short-Term and Long-Term) and the Unmitigated Project scenario. The area generally affected runs parallel to Mission Boulevard, stretching from Sultana Avenue to the west, to Grove Avenue to the east. This area generally includes a mix of commercial and industrial uses. The easterly extension of the 65 CNEL stretches southwesterly from Etiwanda Avenue to Mulberry Avenue. The land use in this area is generally composed of industrial and research and development uses. Figure 4.4-1 shows the noise contours and the 65 CNEL land use impacts.

4.4.3 Transportation and Circulation

Using the same method of calculation previously described, the origin and destination passenger volume will produce an estimated 86,200 vehicle trips per day. A peak-hour volume of 6,940 trips per hour is projected for a high-volume (worst-case) day.

The projected year 2020 peak-hour traffic volumes around the airport are shown in Figure 4.4-2. Improvements to the roadway network after the year 2010 are the same as those previously discussed in Sections 4.2.3 and 4.3.3. All the roadway network will be oversaturated with traffic and will operate over capacity (LOS F) except for the Route 60 freeway which operates at capacity (LOS E). A summary of the projected number of lanes, peak-hour volumes, capacities, and levels of service is shown on Table 4.4-3. The impacts on the roadways from the projected traffic during the peak hour are due to background traffic and do not result from increases in airport traffic. In all of the above alternatives, there are no unavoidable significant adverse traffic impacts from this project.

4.4.4 Energy

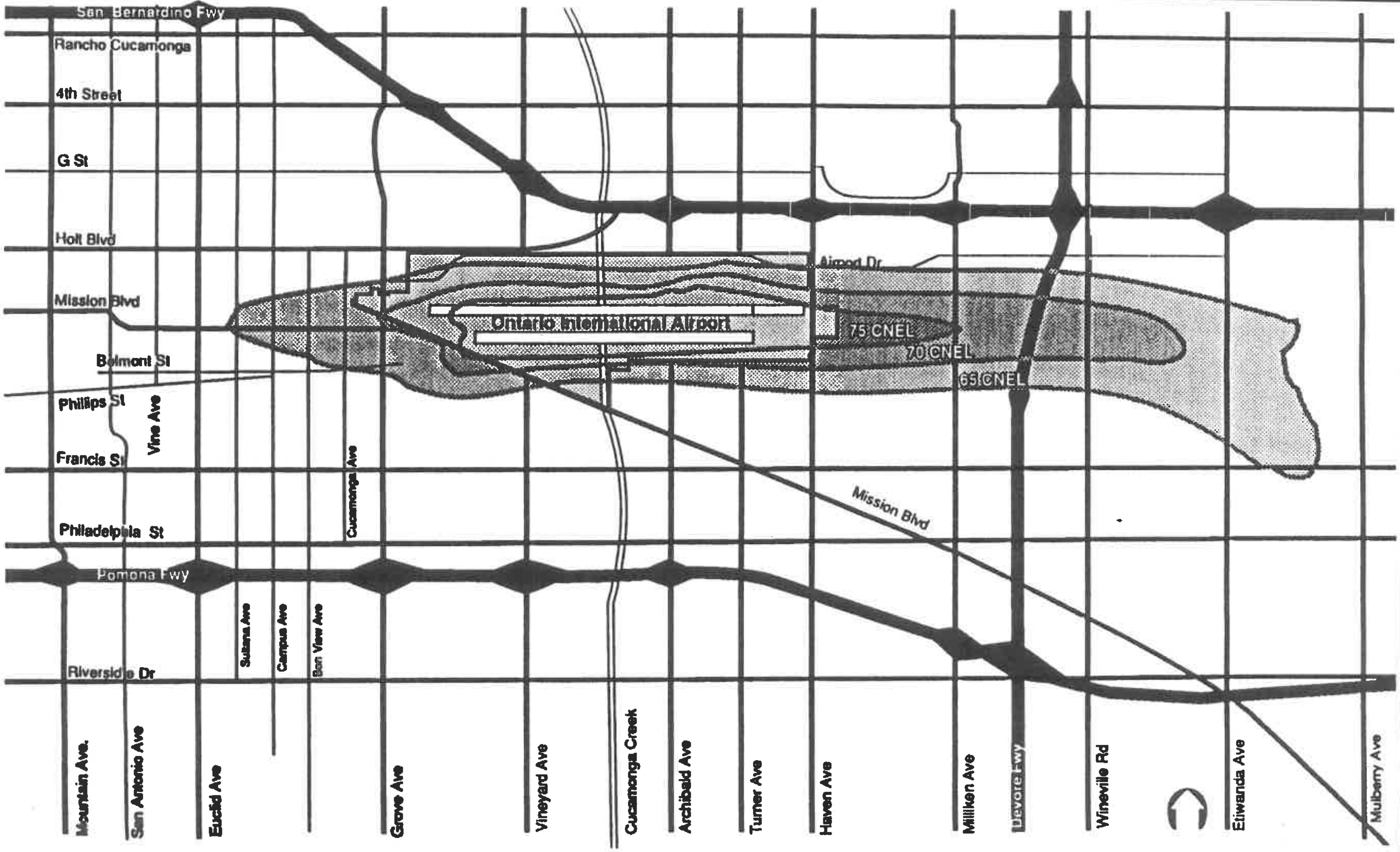
All airport improvements are included in this alternative. Therefore, fuel consumption for construction equipment would be the same as for the Proposed Project. Energy used for aircraft and ground support vehicles would almost double the amount estimated in the 12 MAP Proposed Project. Table 4.4-2 shows the energy usage for ONT at 20 MAP.

Table 4.4-2
Operational Phase Energy Consumption
for 20 Million Annual Passengers Alternative

	Fuel Type (gallons/day)		
	Aircraft Fuel	Diesel	Gasoline
Aircraft Movements	111,628	-	-
Aircraft Support	-	1,236	613
Passenger Vehicles	-	1	86,572
TOTAL	111,628	1,237	87,185

Source: Engineering-Science, Inc.

In all of the above alternatives, there are no anticipated adverse significant impacts on energy.



SCENARIO F
(20Map Alternative)

20 Million Annual Passengers
215,000 Operations (over 70,000 lbs.)
100% Stage III Aircraft
1800' Easterly Runway Extension
Prado Departures Turn Left As Early As Possible
Modified Eastbound Departure

65 CNEL LAND USE IMPACT

	Acres	Units	Pop
Single Family	147	408	1224
Duplex	6	34	103
Multi-Family	2	20	60
Mobile	0	0	0
Total	154	462	1387

SCALE
0 2000 4000
Feet

SOURCE: LADOA, 1990

Figure 4.4-1 Scenario F (20 MAP Alternative)

OntarioAir

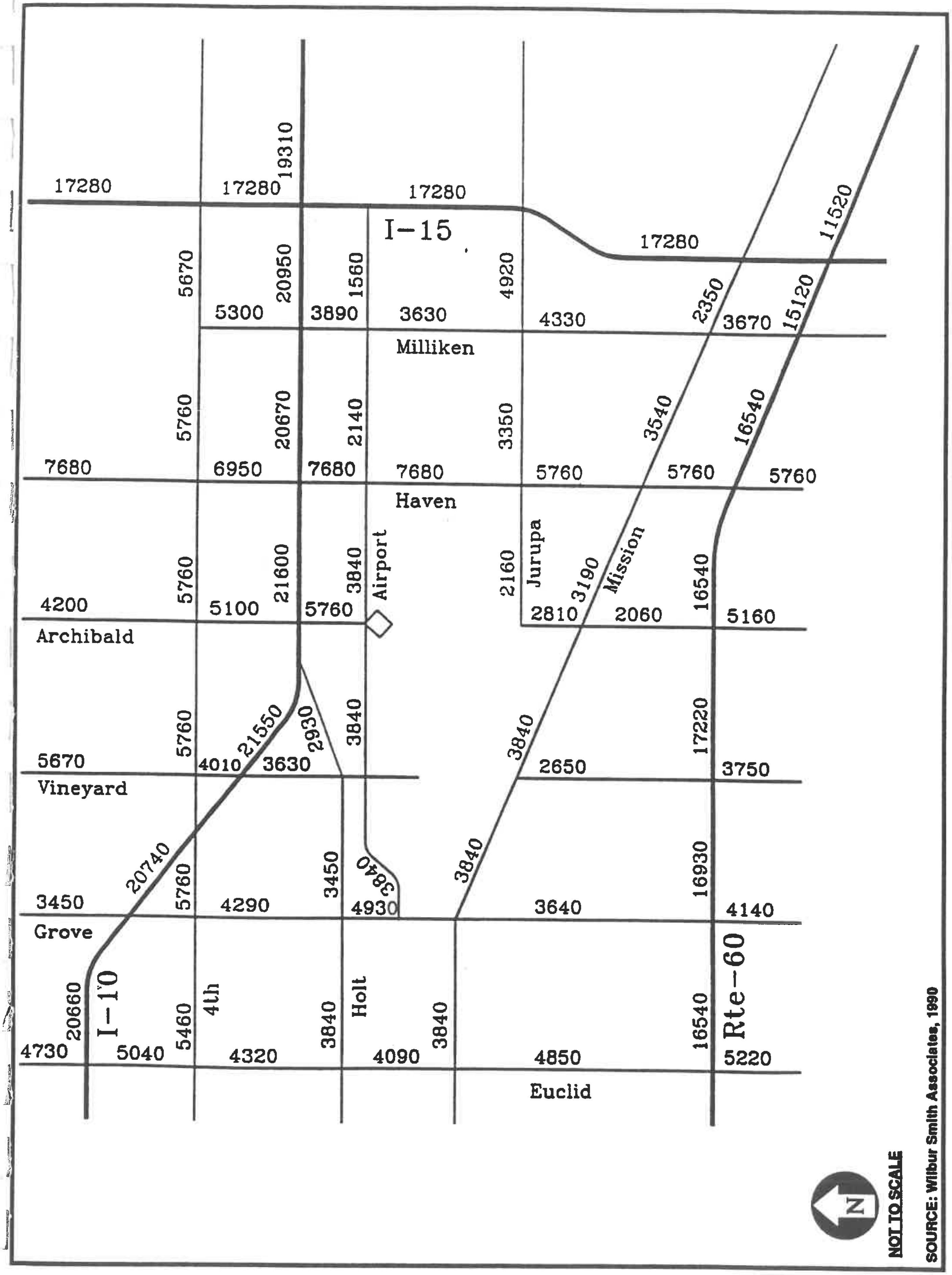


Figure 4.4-2 Year 2020 Peak Hour Traffic

Table 4.4-3
Projected Year 2020 Traffic Volumes
on Major Routes in the Ontario Study Area

Roadway	No. of Lanes[1]	Peak Hour Volume	Level of Capacity	Peak Hour V/C Ratio	Level of Service	1990 Level of Service
I-10	10	21,600	18,000	1.20	F	F
R-60	10	17,220	18,000	0.96	E	F
I-15	8	17,280	14,400	1.20	F	C
Euclid	6	5,220	4,800	1.09	F	C
Campus	2	1,920	1,600	1.20	F	B
Grove	6	4,930	4,800	1.03	F	D
Vineyard	6	5,670	4,800	1.18	F	E
Archibald	6	5,760	4,800	1.20	F	E
Haven	8	7,680	6,400	1.20	F	A
Milliken	6	5,300	4,800	1.10	F	B
Etiwanda	4	3,840	3,200	1.20	F	B
Fourth	6	5,760	4,800	1.20	F	A
Holt	4	3,840	3,200	1.20	F	C
Airport	4	3,840	3,200	1.20	F	A
Jurupa	6	4,920	4,800	1.03	F	A
Mission	4	3,840	3,200	1.20	F	B

Source: Wilbur Smith Associates, 1990

SECTION 5

LONG-TERM IMPLICATIONS OF THE PROJECT

SECTION 5

LONG-TERM IMPLICATIONS OF THE PROJECT

5.1 IRREVERSIBLE ENVIRONMENTAL CHANGES

The Proposed Project would change the number of anticipated annual air carrier operations to 181,000 from the earlier projected number of 125,000. The revised number of air carrier operations reflects changes in the passenger airline industry, trends in general aviation usage, and the proposed development of a major air cargo facility adjacent to ONT.

It is not anticipated that the Proposed Project would result in the use of non-renewable resources during the initial and continued phases of the project that are not already permitted by earlier environmental documents. The environmental impacts associated with the terminal expansion, expected to occur as an indirect result of the approval of the Proposed Project, were investigated in a 1982 study (LADOA, 1982). In the 1982 study, it was found that the roadway construction and widening projects would require the irretrievable commitment of land, and natural and biotic resources. However, the land commitment was not found significant in terms of expected future land use, and would not threaten any endangered species or unusual wildlife habitat. The Proposed Project would require an irreversible commitment of open space resources.

Therefore, no significant, irreversible environmental changes are expected to occur were the Proposed Project to be implemented.

5.2 SHORT-TERM USES VERSUS LONG-TERM PRODUCTIVITY

The Proposed Project would make it possible for ONT to transport 12 MAP as envisioned in earlier environmental and planning documents (LADOA, 1975, 1982, and 1985). Phase I of the ONT expansion is anticipated to occur by 1995, and Phase II by 2000, both five years later than originally predicted. The environmental impacts of the airport expansion have been documented by these earlier studies.

Thus, the change in the aircraft fleet mix or increase in aircraft carrier operations would not narrow the range of beneficial uses of ONT. The Proposed Project is needed at this time to allow for the expansion of the airport to proceed. The project is expected to enhance the long-term growth in the area.

5.3 GROWTH-INDUCING IMPACTS

Although the Proposed Project is anticipated to increase the number of air carrier operations involving aircraft weighing over 70,000 pounds, the total number of aircraft operations is expected to decline. The number of employees required to operate the expanded facilities, and the number of passengers expected to use ONT, are consistent with earlier studies (LADOA, 1975 and 1982) and are not expected to change.

The increased number of air carrier operations using aircraft weighing over 70,000 pounds may require more personnel than originally estimated (the 1975 fleet mix assumed larger aircraft, which would have larger crews; however, this may not completely offset the higher number of small-to medium-sized aircraft and their staffing requirements). However, the difference in the number of aircraft personnel is not believed to be great.

The significance of this minor increase of aircraft personnel is slight. Aircraft crew members are likely to be from a number of different departure/destination points, and not all would reside in the Ontario area. Therefore, it is not expected that the Proposed Project would significantly affect the population growth of Ontario.

Project implementation would have short-term impacts involving construction of the airport facilities and related projects. ONT surrounding is already planned for mixed-uses, including commercial, industrial and office parks. The implementation of the proposed project is expected to promote hotel and lodging facilities in the vicinity of the airport. Other airport related businesses such as travel agencies, restaurants, speciality shops and transportation services would increase as the passenger traffic increases.

APPENDIX A

REFERENCES

REFERENCES

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Environmental Protection Agency, 1985. *Computation of Air Pollutant Emission Factors(AP-42)*, September.

Federal Highway Administration (FHWA), 1982. Federal Aid Highway Program Manual, Volume 7, Right-of-way and Environmental; Chapter 7, Environment; Section 3, Procedures for Abatement of Highway Traffic Noise and Construction Noise (FHPM 7-7-3).

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-----, 1988-1990. *Air Quality Data Summaries.*

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APPENDIX B

PERSONS CONSULTED

PERSONS CONSULTED

Lead Agency

City of Los Angeles
Department of Airports
Environmental Management Bureau

EMB No. 911023
APPROVED BY:
Maurice Z. Laham
OCT 23 1991
Final
Environmental Mgt. Bureau
Department of Airports

Project Manager:

Gary Brown

Gary Brown
City Planning Associate

Reviewed by:

Steven L. Crowther

Steven L. Crowther
City Planner

Organizations and Individuals Consulted

City of Ontario
Ontario, California
Gary Cohoe, Traffic Engineer
Personal communication with Farrid Naguib, Wilbur Smith Associates, during the period of November 1990 to February 1991.

California Air Resources Board
El Monte, California
Marsha McDonald
Telephone conversation with Nancie Parker, February 5, 1991.

APPENDIX C

PREPARERS OF THE EIR

APPENDIX C

PREPARERS OF THE EIR[a]

Name	Professional Discipline	Experience	Document Responsibility
Burke, Richard	Environmental Planning	16 yrs. Environmental Management	Project Manager
Janneh, Mustaph	Planning/Noise	5 yrs. Planning	Task Manager
Goldman, Lawrence H.[b]	Transportation and Circulation		Traffic
McBride, Sylvia	English	29 yrs. Business 5 yrs. Technical Editing	Technical Editor
Maguib, Farib S.[b]	Transportation and Circulation		Traffic
Parker, Nancie	Planning/Socioeconomics	14 yrs. Air Quality Analysis	Air Quality and Energy Resources

[a] Staff members of Engineering-Science except when noted
[b] WSA - Wilbur Smith & Associates

APPENDIX D

NOTICE OF PREPARATION, INITIAL STUDY AND ENVIRONMENTAL CHECKLIST

CITY OF LOS ANGELES
OFFICE OF THE CITY CLERK
ROOM 395, CITY HALL
LOS ANGELES, CALIFORNIA 90012

CALIFORNIA ENVIRONMENTAL QUALITY ACT

NOTICE OF PREPARATION

(Article VI, Section 2 — City CEQA Guidelines)

TO: RESPONSIBLE OR TRUSTEE AGENCY	FROM: LEAD CITY AGENCY
State Clearinghouse	Los Angeles Department of Airports
ADDRESS (Street, City, Zip)	ADDRESS (Street, City, Zip)
Office of Planning Research 1400 Tenth Street Sacramento, California 95814	Environmental Management Bureau #1 World Way Los Angeles, California 90009

SUBJECT: Notice of Preparation of a Draft Environmental Impact Report

PROJECT TITLE	CASE NO.
Ontario Airport Supplemental EIR	074-88

PROJECT APPLICANT, IF ANY
Los Angeles Department of Airports

The City of Los Angeles will be the Lead Agency and will prepare an environmental impact report for the project identified above. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by this City when considering your permit or other approval for the project.

The project description, location and the probable environmental effects are contained in the attached materials.

☒ A copy of the Initial Study is attached.

☐ A copy of the Initial Study is not attached.

Due to the time limits mandated by state law, your response must be sent at the earliest possible date but not later than 45 days after receipt of this notice.

Please send your response to Maurice Z. Laham, Airport Environmental Coordinator at the address of the lead City Agency as shown above. We will need the name of a contact person in your agency.

Note: If the Responsible or trustee agency is a state agency, a copy of this form must be sent to the State Clearinghouse in the Office of Planning and Research, 1400 Tenth Street, Sacramento, California 95814. A state identification number will be issued by the Clearinghouse and should be thereafter referenced on all correspondences regarding the project, specifically on the title page of the draft and final EIR and on the Notice of Determination.

SIGNATURE	TITLE	TELEPHONE NUMBER	DATE
Maurice Z Laham	Environmental Coordinator	(213) 646-3853	1-3-89

Form Gen. 154 (8-80) (Appendix E)

CITY OF LOS ANGELES
OFFICE OF THE CITY CLERK
ROOM 395, CITY HALL
LOS ANGELES, CALIFORNIA 90012

CALIFORNIA ENVIRONMENTAL QUALITY ACT

INITIAL STUDY AND CHECKLIST

(Article IV — City CEQA Guidelines)

LEAD CITY AGENCY	COUNCIL DISTRICT	DATE
Department of Airports	N/A	1-3-89

PROJECT TITLE/NO.	CASE NO.
Ontario Airport Supplemental EIR	074-88

PREVIOUS ACTIONS CASE NO.	
Ontario Airport EIR	☒ DOES have significant changes from previous actions. ☐ DOES NOT have significant changes from previous actions.

PROJECT DESCRIPTION:

Update of the forecasted aircraft fleet mix at Ontario Airport

PROJECT LOCATION

Ontario Airport

PLANNING DISTRICT	STATUS:
N/A	☐ PRELIMINARY ☐ PROPOSED ______ ☐ ADOPTED ______ date

EXISTING ZONING	MAX. DENSITY ZONING	PROJECT DENSITY
N/A	N/A	
PLANNED LAND USE & ZONE	MAX. DENSITY PLAN	☐ DOES CONFORM TO PLAN ☐ DOES NOT CONFORM TO PLAN ☒ NO DISTRICT PLAN
N/A	N/A	
PLAN DENSITY RANGE	PROJECT DENSITY	
N/A	N/A	

DETERMINATION (to be completed by Lead City Agency)

On the basis of the attached initial study checklist and evaluation:

NEGATIVE DECLARATION	☐ I find the proposed project COULD NOT have a significant effect on the environme[nt] and a NEGATIVE DECLARATION will be prepared.
CONDITIONAL NEGATIVE DECLARATION	☐ I find that although the proposed project could have a significant effect on the enviro[n]ment, there will not be a significant effect in this case because the mitigation measur[es] described on an attached sheet have been added to the project. A CONDITION[AL] NEGATIVE DECLARATION WILL BE PREPARED. (See attached condition(s))
ENVIRONMENTAL IMPACT REPORT	☒ I find the proposed project MAY have a significant effect on the environment, and a SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT is required.

SIGNATURE	TITLE
[signature]	City Planner

Form Gen 159 — Page 2

INITIAL STUDY CHECKLIST (To be completed by Lead City Agency)

BACKGROUND

PROPONENT NAME
STEVEN L. CROWTHER

PHONE
(213) 646 3853

PROPONENT ADDRESS
#1 WORLD WAY CA. 90009

AGENCY REQUIRING CHECKLIST
L.A. CITY DEPT. OF AIRPORTS

DATE SUBMITTED
JAN - 3 - 1989

PROPOSAL NAME (If applicable)
12 MAP- ONT SUPPLEMENTAL EIR

ENVIRONMENTAL IMPACTS

(Explanations of all "yes" and "maybe" answers are required to be attached on separate sheets.)

1. EARTH. Will the proposal result in:	YES	MAYBE	NO
a. Unstable earth conditions or in changes in geologic substructures?			X
b. Disruptions, displacements, compaction or overcovering of the soil?			X
c. Change in topography or ground surface relief features?			X
d. The destruction, covering or modification of any unique geologic or physical features?			X
e. Any increase in wind or water erosion of soils, either on or off the site?			X
f. Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?			X
g. Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards?			X

2. AIR. Will the proposal result in:	YES	MAYBE	NO
a. Air emissions or deterioration of ambient air quality?		X	
b. The creation of objectionable odors?			X
c. Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?			X
d. Expose the project residents to severe air pollution conditions?		X	

3. WATER. Will the proposal result in:	YES	MAYBE	NO
a. changes in currents, or the course or direction of water movements, in either marine or fresh waters?			X
b. Changes in absorption rates, drainage patterns, or the rate and amounts of surface water runoff?			X
c. Alterations to the course or flow of flood waters?			X
d. Change in the amount of surface water in any water body?			X
e. Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?			X
f. Alteration of the direction or rate of flow of ground waters?			X
g. Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?			X
h. Reduction in the amount of water otherwise available for public water supplies?			X
i. Exposure of people or property to water related hazards such as flooding or tidal waves?			X
j. Changes in the temperature, flow, or chemical content of surface thermal springs.			X

4. PLANT LIFE. Will the proposal result in:	YES	MAYBE	NO
a. Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops and aquatic plants)?			X
b. Reduction of the numbers of any unique, rare or endangered species of plants?			X
c. Introduction of new species of plants into an area, or is a barrier to the normal replenishment of existing species?			X
d. Reduction in acreage of any agricultural crop?			X

	YES	MAYBE	NO
5. ANIMAL LIFE. Will the proposal result in:			
a. Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms or insects)?			X
b. Reduction of the numbers of any unique, rare or endangered species of animals?			X
c. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?			X
d. Deterioration to existing fish or wildlife habitat?			X
6. NOISE. Will the proposal result in:			
a. Increases in existing noise levels?		X	
b. Exposure of people to severe noise levels?		X	
7. LIGHT AND GLARE. Will the proposal			
a. Produce new light or glare from street lights or other sources?			X
b. Reduce access to sunlight of adjacent properties due to shade and shadow			X
8. LAND USE. Will the proposal result in an alteration of the present or planned land use of an area?			X
9. NATURAL RESOURCES. Will the proposal result in:			
a. Increase in the rate of use of any natural resources?			X
b. Depletion of any non-renewable natural resource?			X
10. RISK OF UPSET. Will the proposal involve:			
a. A risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?			X
b. Possible interference with an emergency response plan or an emergency evacuation plan.			X
11. POPULATION. Will the proposal result in:			
a. The relocation of any persons because of the effects upon housing, commercial or industrial facilities?			X
b. Change in the distribution, density or growth rate of the human population of an area?			X
12. HOUSING. Will the proposal:			
a. Affect existing housing, or create a demand for additional housing?			X
b. Have an impact on the available rental housing in the community?			X
c. Result in demolition, relocation or remodeling of residential, commercial, or industrial buildings or other facilities?			X
13. Transportation/Circulation. Will the proposal result in:			
a. Generation of additional vehicular movement?			X
b. Effects on existing parking facilities, or demand for new parking?			X
c. Impact upon existing transportation systems?			X
d. Alterations to present patterns of circulation or movement of people and/or goods?			X
e. Alterations to waterborne, rail or air traffic?			X
f. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?			X
14. PUBLIC SERVICES. Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
a. Fire protection?			X
b. Police protection?			X
c. Schools?			X
d. Parks or other recreational facilities?			X
e. Maintenance of public facilities, including roads?			X
f. Other governmental services?			X
15. ENERGY. Will the proposal result in:			
a. Use of exceptional amounts of fuel or energy?		X	
b. Increase in demand upon existing sources of energy, or require the development of new sources of energy?			X

	YES	MAYBE	NO
16. ENERGY. Will the proposal result in:			
a. Use of exceptional amounts of fuel or energy?		X	
b. Significant increase in demand upon existing sources of energy, or require the development of new sources of energy?			X
17. UTILITIES. Will the proposal result in a need for new systems, or alterations to the following utilities:			
a. Power or natural gas?			X
b. Communications systems?			X
c. Water?			X
d. Sewer or septic tanks?			X
e. Storm water drainage?			X
f. Solid waste and disposal?			X
18. HUMAN HEALTH. Will the proposal result in:			
a. Creation of any health hazard or potential health hazard (excluding mental health)?			X
b. Exposure of people to potential health hazards?			X
19. AESTHETICS. Will the proposed project result in:			
a. The obstruction of any scenic vista or view open to the public?			X
b. The creation of an aesthetically offensive site open to public view?			X
c. The destruction of a stand of trees, a rock outcopping or other locally recognized desirable aesthic natural feature?			X
d. Any negative aesthetic effect?			X
20. RECREATION. Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?			X
21. CULTURAL RESOURCES:			
a. Will the proposal result in the alteration of or the destruction of a prehistoric or historic archaeological site?			X
b. Will the proposal result in adverse physical or aesthetic effects to a prehistoric or historic building, structure, or object?			X
c. Does the proposal have the potential to cause a physical change which would affect unique ethnic cultural values?			X
d. Will the proposal restrict existing religious or sacred uses within the potential impact area?			X
22. MANDATORY FINDINGS OF SIGNIFICANCE.			
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X
b. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals.			X
c. Does the project have impacts which are individually limited, but cumulatively considerable?*			X
d. Does the project have environmental effects which cause substantial adverse effects on human beings, either directly or indirectly?		X	

* "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

DISCUSSION OF ENVIRONMENTAL EVALUATION

(Attach additional sheets if necessary)

A change in the forecasted fleet mix could change the impacts identified in the previous EIR on air, noise and energy.

PREPARED BY	TITLE	TELEPHONE	DATE
Steven Crowther	City Planner	646-3853	1-3-89

APPENDIX E

TECHNICAL SUPPORT DOCUMENTATION

Table E-1

Original 12 Map Aircraft Fleet Mix

Aircraft Type	Number of Daily LTO's
Supersonic transport	0.0
Jumbo-jet transport	28.2
Long-range jet transport	0.0
Medium-range jet transport	137.6
Turboprop transport	0.0
Business jet	12.0
Piston-engine utility	175.0
Military	17.5
Total LTO's per day	**370.3**
Total operations per day	**740.6**
Total operations per year	**270,319.0**

Appendix B is taken from the 1975 EIR and quantifies forecasted activity level based on daily LTO's. An LTO is a landing takeoff cycle. It includes two operations, one landing and one takeoff (see the Air Quality section for more information on landing takeoff cycles).

Table E-2

Existing Fleet Mix for 4.2 Map
(3rd Quarter 1986 through 4th Quarter 1987)

Aircraft Type	Daily LTOs
747200	1.87
DC870	4.65
BAE146	5.95
DC8QN	0.08
727Q9	4.51
727Q7	6.90
727Q15	9.50
727D17	2.18
767CF6	2.13
737300	2.28
DC910	1.16
DC9Q7	5.60
737QN	25.13
737D17	2.85
737Q15	11.86
MD81	0.41
MD82	13.22
MD83	5.24
757RR	2.26
LEAR35	4.50
LEAR25	1.97
CNA500	1.96
GIIB	0.98
MU3001	0.49
DHC7	0.93
SD330	0.45
DHC6	23.48
DC3	3.18
CNA441	4.48
GASEPF	12.85
BEC58P	16.06
COMSEP	5.39
Total LTO's per day	**184.5**
Total operations per day	**369.0**
Total operations per year	**134,685.0**

PSR58.10

Table E-3

Emissions from Aircraft Movements at Ontario International Airport 100% Stage III at 181,000 Operations

Aircraft	LTO's	CO	NOx	HC	SOx	PM
		Emissions (lbs per day)				
70,000 lbs or more						
747200	2.28	380.72	176.02	139.19	13.34	8.52
747200B	5.93	604.62	671.78	232.26	34.40	1.56
DC870	9.41	289.03	337.84	13.10	29.88	12.07
DC8QN	0.00	0.00	0.00	0.00	0.00	0.00
BAE146	76.72	983.23	572.96	118.36	71.75	48.95
727Q9	0.00	0.00	0.00	0.00	0.00	0.00
727Q7	0.00	0.00	0.00	0.00	0.00	0.00
727Q15	0.00	0.00	0.00	0.00	0.00	0.00
727D17	0.00	0.00	0.00	0.00	0.00	0.00
767CF6	10.10	216.96	510.11	22.51	28.22	1.33
DC1010	2.22	129.66	135.43	44.56	7.35	0.44
DC1030	0.00	0.00	0.00	0.00	0.00	0.00
DC1040	3.07	384.48	177.75	140.57	13.48	8.60
L1011	0.51	67.40	30.52	45.62	2.08	1.43
737300	50.94	729.78	748.18	41.00	69.89	30.94
DC910	0.00	0.00	0.00	0.00	0.00	0.00
DC9Q7	0.00	0.00	0.00	0.00	0.00	0.00
737QN	0.00	0.00	0.00	0.00	0.00	0.00
737D17	0.00	0.00	0.00	0.00	0.00	0.00
737Q15	0.00	0.00	0.00	0.00	0.00	0.00
MD81	1.09	9.54	21.28	2.98	1.83	0.40
MD82	61.55	506.38	1419.81	153.68	103.06	22.77
MD83	13.60	111.89	313.72	33.96	22.77	5.03
757PW	10.43	152.68	364.59	14.95	21.03	1.34
less than 70,000 lbs						
LEAR35	4.02	21.63	4.89	7.39	0.60	0.53
LEAR25	4.64	190.98	2.72	19.20	1.64	2.15
CNA500	2.58	23.43	1.92	8.58	0.41	0.32
GIIB	1.03	9.36	0.77	3.43	0.17	0.13
MU3001	1.03	9.36	0.77	3.43	0.17	0.13
DHC7	4.06	40.60	8.19	25.75	1.45	3.63
SD330	0.00	0.00	0.00	0.00	0.00	0.00
DHC6	39.31	196.54	39.67	124.67	7.04	16.15
DC3	0.46	2.30	0.46	1.46	0.08	0.19
CNA441	10.26	51.30	10.35	32.54	1.84	4.22
GASEPF	15.47	222.50	0.44	3.97	0.03	0.47
BEC58P	12.90	371.07	0.74	6.63	0.05	0.78
COMSEP	4.64	66.74	0.13	1.19	0.01	0.14
TOTAL EMISSIONS						
lbs per day		**5772**	**5551**	**1241**	**433**	**172**
tons per year		**1053**	**1013**	**226**	**79**	**31**

Passengers - 1990 ONT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AVG.	TOTAL
Passengers	398,337	376,185	435,534	441,502	454,968	487,839	506,975	532,444	433,587	435,777	446,743	448,485	449,865	5,398,376
Passenger AC Ops	7,058	6,564	7,344	7,116	7,420	7,280	7,622	7,534	7,038	7,324	7,406	8,428	7,345	88,134
Passengers per AC Op	56	57	59	62	61	67	67	71	62	59	60	53	61	61
Load Factor	47%	49%	51%	54%	52%	57%	57%	60%	51%	48%	50%	48%	52%	52%
% of All Revenue Ops	81%	82%	83%	83%	82%	82%	82%	80%	80%	78%	80%	81%	81%	81%
AC Ops over 70,000lbs	6,382	5,720	6,384	6,196	6,492	6,286	6,446	6,446	6,160	6,550	6,298	6,688	6,337	76,048
Cargo														
Tons	21,508	19,276	24,031	20,293	22,466	21,941	21,238	27,880	22,297	22,741	22,106	27,658	22,786	273,435
Cargo AC Ops	1,664	1,404	1,482	1,460	1,672	1,570	1,672	1,920	1,762	2,060	1,798	2,016	1,707	20,480
Tons per AC Op	13	14	16	14	13	14	13	15	13	11	12	14	13	13
% of All Revenue Ops	19%	18%	17%	17%	18%	18%	18%	20%	20%	22%	20%	19%	19%	19%
AC Ops over 70,000lbs	870	690	892	808	960	916	860	986	912	1,084	890	1,136	917	11,004
% of All Revenue Ops	12%	11%	12%	12%	13%	13%	12%	13%	13%	14%	12%	15%	13%	13%
Total														
Ops over 70,000lbs	7,252	6,410	7,276	7,004	7,452	7,202	7,306	7,432	7,072	7,634	7,188	7,824	7,254	87,052
Ops over 12,500lbs	7,974	7,298	8,246	7,918	8,384	8,196	8,512	8,578	7,998	8,460	7,646	9,860	8,256	99,070
Revenue Operations	8,722	7,968	8,826	8,576	9,092	8,850	9,294	9,454	8,800	9,384	9,204	10,444	9,051	108,614
Non Revenue Ops	3,512	3,343	4,276	3,686	4,123	3,917	3,526	4,336	3,953	4,073	3,711	2,707	3,764	45,163
All Aircraft Ops	12,234	11,311	13,102	12,262	13,215	12,767	12,820	13,790	12,753	13,457	12,915	13,151	12,815	153,777
% of Stage III(> 70,000)	58.1%	58.0%	57.2%	55.5%	55.8%	56.3%	55.6%	56.5%	58.4%	62.6%	61.2%	61.9%	58.1%	

Wts.
>70
Wts. Wts.
>12.5 <>0

TYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL	AVG	Stage III	Avg Seats
727D17	29	22	29	27	28	47	61	59	56	63	10	77	508	1.39		129
727Q15	231	170	173	156	250	189	229	256	271	289	312	307	2,833	7.76		144
727Q7	151	136	140	164	157	190	181	189	210	129	124	79	1,850	5.07		55
727Q9	64	52	60	60	57	87	94	91	94	54	2	4	719	1.97		146
737D17	204	191	191	183	140	169	188	167	74	66	58	64	1,695	4.64		109
737Q15	308	281	290	286	298	306	251	199	182	199	198	181	2,979	8.16		118
737300	628	632	688	664	756	739	775	798	923	1045	978	1054	9,680	26.52	9680	135
737QN	491	458	626	642	611	511	561	573	488	518	592	685	6,756	18.51		115
747200	64	50	65	58	64	63	63	55	49	50	47	83	711	1.95	711	0
747SP	0	0	0	0	0	0	0	0	1	0	0	0	1	0.00	1	243
757PW	38	26	38	52	66	80	77	89	71	122	125	104	888	2.43	888	43
757RR	30	27	27	29	26	30	1	1	0	0	0	1	172	0.47	172	190
767CF6	62	57	63	58	60	60	60	64	60	64	79	62	749	2.05	749	228
BAE146	61	56	65	60	0	0	0	0	1	2	0	0	245	0.67	245	85
DC1010	0	2	1	0	0	1	30	31	30	36	86	7	224	0.61	224	280
DC1030	0	0	0	0	0	0	0	0	0	3	0	29	32	0.09	32	8
DC870	223	167	219	193	211	213	206	244	201	280	208	245	2,610	7.15	2610	0
DC8QN	20	24	24	0	26	7	24	37	44	48	40	62	356	0.98		0
DC910	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00		0
DC9Q7	20	11	25	39	79	69	33	44	53	62	56	30	521	1.43		104
DC9Q9	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00		0

Table E-3 (Continued)

L1011	0	0	0	0	0	0	0	0	0	1	2	0	3	0.01	3		275
MD81	32	17	4	0	29	28	31	31	32	25	25	16	270	0.74	270		146
MD82	667	555	607	568	598	532	510	508	485	548	538	592	6,708	18.38	6708		142
MD83	303	271	303	263	270	280	278	280	211	213	113	230	3,015	8.26	3015		137
BEC58P	4	3	0	2	1	2	0	0	4	2	0	1	19	0.05			0
CNA441	258	229	170	245	262	215	285	326	295	338	307	289	3,219	8.82			0
DC3	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00			0
DHC6	443	517	593	531	547	598	692	645	538	505	679	866	7,154	19.60			16
DHC7	0	0	0	0	0	0	13	24	20	22	20	21	120	0.33			0
GIIB	0	0	0	0	0	0	1	0	0	0	0	0	1	0.00			0
LEAR25	5	5	5	4	3	1	2	6	4	6	2	2	45	0.12			0
LEAR35	4	7	7	3	6	5	0	9	3	2	0	131	177	0.48			2
SD330	21	18	0	1	1	3	1	1	0	0	0	0	46	0.13			5
DC1040	0	0	0	0	0	0	0	0	0	0	1	0	1	0.00	1		284
													54,307		25309	43526	
	4361	3984	4413	4288	4546	4425	4647	4727	4400	4692	4602	5222	AVG STAGE III	58.1%			

Table E-3 (Continued)

Table E-4
Aircraft Fleet Mix for Alternatives

Aircraft Type	Scenario A 65% Stage 3 125,000 ops 8 MAP LTO's	Scenario B & C 100% Stage 3 125,000 ops 12 MAP LTO's	Scenario D 80% Stage 3 181,000 ops 12 MAP LTO's	Scenario E 100% Stage 3 181,000 ops 12 MAP LTO's	Scenario F 100% Stage 3 225,000 Ops 20 MAP LTO's
747200	2.13	10.00	2.28	2.28	10.00
74710Q	0.00	5.00	5.92	0.00	5.00
74720B	3.33	7.00	0.00	5.93	10.00
DC870	5.67	6.00	8.51	9.41	8.00
DC8QN	1.26	0.00	0.90	0.00	0.00
DC1010	1.17	6.00	1.78	2.22	8.00
DC1030	0.67	0.00	0.45	0.00	1.00
DC1040	1.68	8.00	3.07	3.07	5.00
L1011	0.33	3.00	0.50	0.51	2.00
767CF6	6.05	11.00	10.10	10.10	20.00
A300	0.00	5.00	0.00	0.00	10.00
727Q9	4.37	0.00	3.66	0.00	0.00
727Q7	3.00	0.00	2.28	0.00	0.00
727Q15	6.00	0.00	7.74	0.00	0.00
727D17	2.26	0.00	1.78	0.00	0.00
737300	30.00	20.00	20.50	50.94	60.00
DC9Q7	2.51	0.00	3.46	0.00	0.00
737QN	20.00	0.00	17.02	0.00	0.00
737D17	2.83	0.00	1.93	0.00	0.00
MD81	0.72	2.00	1.09	1.09	5.00
MD82	25.48	28.00	46.09	61.55	50.00
MD83	9.06	13.00	13.60	13.60	24.00
757RR	7.00	16.00	10.43	10.43	45.00
737Q15	11.75	0.00	8.02	0.00	0.00
BAE146	9.00	15.00	76.72	76.72	31.00
LEAR35	2.68	4.02	4.02	4.02	7.00
LEAR25	3.09	4.64	4.64	4.64	0.00
CNA500	1.72	2.58	2.58	2.58	4.00
GIIB	0.69	1.03	1.03	1.03	0.00
MU3001	0.69	1.02	1.02	1.02	1.00
DHC7	2.70	4.07	4.07	4.07	2.00
SD330	0.00	0.00	0.00	0.00	0.00
DHC6	26.17	23.72	39.31	39.31	14.00
DC3	0.30	0.46	0.46	0.46	0.00
CNA441	6.83	25.00	10.26	10.26	10.00
GASEPF	10.30	51.69	15.47	15.47	10.00
BEC58P	8.58	25.00	12.90	12.90	15.00
COMSEP	3.09	50.00	4.64	4.64	10.00
Daily LTO's	223	348	348	348	367
Yearly Ops	162,870	254,215	254,215	254,223	267,910

Table E-5
Average Aircraft Seating Configuration
By Aircraft Type (1991)

EQUIPMENT	SEATS	EQUIPMENT	SEATS
AEROSPATIALE/AERITALIA ATR42	- 46	DORNIER DO28 SKYSERVANT	- 9
AEROSPATIALE-BAC CONCORDE	-100	DORNIER 228-100	- 19
AEROSPATIALE CORVETTE	- 14	EMBRAER EMB/120 BRASILIA	- 30
AEROSPATIALE DAUPHIN 360 HEL	- 9	EMBRAER EMB 110 BANDEIRANTE	- 18
AEROSPATIALE ECUREUIL 350 HE	- 6	FAIRCHILD-HILLER FH227	- 44
AEROSP. CARAVELLE (ALL SERIE	- 96	FAIRCHILD (SWEARINGEN) MERLI	- 9
AEROSP. CARAVELLE 3	-140	FOKKER-VFW-FAIRCHILD F27 FRI	- 44
AIRBUS INDUSTRIE (ALL SERIES	-250	FOKKER-VFW-FAIRCHILD F27 FRT	- 48
AIRBUS INDUSTRIE A300CB MIXE	-336	FOKKER-VFW F28 FELLOWSHIP (A	- 70
AIRBUS INDUSTRIE A310 (ALL S	-200	FOKKER VFW FAIRCHILD F27 FRI	- 43
AIRBUS INDUSTRIE A320	-179	FOKKER VFW F28 FELLOWSHIP (A	- 67
ANTONOV AN-24	- 50	FOKKER 100	- 85
ANTONOV AN22	- 50	FOKKER 50	- 50
ANTONOV AN26	- 50	GAF N22/N24 NOMAD	- 12
ANTONOV AN26	- 50	GATES LEARJET	- 10
ARAVA 101/102	- 19	GRUMMAN G-111 ALBATROSS	- 28
AUGUSTA A109 HELICOPTER	- 5	GRUMMAN G-21A GOOSE	- 9
AVRO ANSON	- 6	GRUMMAN GULFSTREAM I	- 28
BAC 111 (ALL SERIES)	- 84	GRUMMAN MALLARD	- 14
BEECHCRAFT (ALL SERIES)	- 11	HANDLEY PAGE HERALD	- 48
BEECHCRAFT (ALL SERIES TURBO	- 14	HANDLEY PAGE JETSTREAM	- 14
BEECHCRAFT BARON	- 5	HUGHES 500 HELICOPTER	- 4
BEECHCRAFT TWIN BONANZA	- 11	ILLYUSHIN IL-14	- 36
BEECHCRAFT 1900	- 19	ILLYUSHIN IL-18	-100
BEECHCRAFT 99	- 15	ILLYUSHIN IL-62	-164
BEECH QUEEN AIR	- 10	ILLYUSHIN IL-76	- 30
BELL 206A JET RANGER HELICOP	- 4	ILLYUSHIN IL-86	-316
BELL 212 HELICOPTER	- 4	ISRAEL ARCFT INDUST WESTWIND	- 9
BOEING 707-320/320B/320C PAS	-154	LET L410 TURBOLET	- 19
BOEING 707 (MIXED PASSENGER/	- 72	LET L410	- 17
BOEING 707 PASSENGER	-158	LIGHT PROPELLER AIRCRAFT-TYP	- 6
BOEING 720/720B	-134	LOCKHEED CONSTELLATION L-49	-109
BOEING 727-100/100QC PASSENG	-112	LOCKHEED ELECTRA L188 MIXED	- 70
BOEING 727-100 MIXED PASSENG	- 84	LOCKHEED ELECTRA L188	- 82
BOEING 727-200 (ADVANCED)	-156	LOCKHEED HERCULES L100	-232
BOEING 727-200	-158	LOCKHEED L1011-500	-228
BOEING 727 FREIGHTER (ALL SE	-189	LOCKHEED L1011 (ALL SERIES)	-292
BOEING 727 PASSENGER JET (AL	-128	MARTIN 404	- 42
BOEING 737-200 ADVANCED PASS	-122	MCDONNELL DC9 SUPER 80	-138
BOEING 737-200 MIXED PASSENG	- 76	MCDONNELL DOUGLAS DC-8 (MIXE	-118
BOEING 737-200	-112	MCDONNELL DOUGLAS DC-8 ALL 6	-194
BOEING 737-300	-136	MCDONNELL DOUGLAS DC10 (ALL	-282
BOEING 737-400	-146	MCDONNELL DOUGLAS DC10 (MIXE	-195

Table E-5 (Continued)
Average Aircraft Seating Configuration
By Aircraft Type (1991)

EQUIPMENT	SEATS	EQUIPMENT	SEATS
BOEING 737-500	-132	MCDONNELL DOUGLAS DC10 FREIG	-270
BOEING 737 PASSENGER JET (AL	-114	MCDONNELL DOUGLAS DC3/DAKOTA	- 28
BOEING 747-300 SUD (STRETCHE	-420	MCDONNELL DOUGLAS DC3 MIXED	- 27
BOEING 747-300 SUD MIXED CON	-250	MCDONNELL DOUGLAS DC4/SKYMAS	- 60
BOEING 747-400 MIXED CONFIGU	-412	MCDONNELL DOUGLAS DC6 (ALL S	- 66
BOEING 747-400	-412	MCDONNELL DOUGLAS DC8 ALL SE	-166
BOEING 747 MIXED PASSENGER/F	-270	MCDONNELL DOUGLAS DC9-10]20	-100
BOEING 747 PASSENGER JET (AL	-400	MCDONNELL DOUGLAS DC9-30/30C	-108
BOEING 747 SP	-280	MCDONNELL DOUGLAS DC9-30+40	-116
BOEING 757-200PF FREIGHTER	-224	MCDONNELL DOUGLAS DC9-50	-126
BOEING 757 (ALL SERIES)	-224	MCDONNELL DOUGLAS DC9 SUPER	-155
BOEING 767-300/300ER	-290	MCDONNELL DOUGLAS MD-11	-405
BOEING 767 (ALL SERIES)	-290	MCDONNELL DOUGLAS MD-87	-155
BOEING 767 FREIGHTER	-216	MIKHAIL MIL	- 11
BRITISH AEROSPACE(BAC VICKER	-135	MITSUBISHI MU2	- 10
BRITISH AEROSPACE ATP	- 64	NIHON (NAMCO) YS-11	- 56
BRITISH AEROSPACE ATP	- 64	NORD-AVIATION-FRAKES MOHAWK	- 15
BRITISH AEROSPACE JETSTREAM	- 19	NORD AVIATION 262	- 28
BRITISH AEROSPACE 146 (ALL S	- 75	PARTENAVIA P68	- 5
BRITTEN NORMAN ISLANDER	- 9	PILATUS TURBO-PORTER PC-6	- 10
BRITTEN NORMAN TRISLANDER	- 15	PIPER (ALL SERIES)	- 9
BRIT AERO. (HAWKER SID) ARGO	- 30	PIPER AZTEC	- 5
BRIT AERO (BAC-VICK) VISCOUN	- 68	PIPER CHEROKEE	- 6
BRIT AERO (HAWKER SID) TRIDE	-120	PIPER CHIEFTAIN	- 9
BRIT AERO (HAWKER SID) 748 (	- 44	PIPER CHIEFTAIN	- 8
BUS	- 50	PIPER COMANCHE	- 9
CANADAIR CL-44	-214	PIPER NAVAJO	- 9
CASA/NUSANTARA CN-235	- 38	PIPER SENECA	- 5
CASA AVIOCAR C-212	- 20	PIPER T-1040	- 9
CESSNA (ALL SERIES)	- 8	ROCKWELL AERO COMMANDER	- 8
CESSNA CITATION	- 8	ROCKWELL AERO COMM. 680U	- 9
CESSNA STATIONAIR 206	- 5	SAAB/FAIRCHILD 340	- 33
CESSNA STATIONAIR 207	- 6	SAUNDERS ST-27-ST2	- 18
CESSNA 402 TWIN TURBO SYSTEM	- 8	SHORTS SKYLINER	- 18
CONVAIR (ALL SERIES)	- 50	SHORTS SKYVAN	- 18
CONVAIR 240/340/440/580/600/	- 50	SHORTS 330	- 30
CONVAIR 600	- 50	SHORT BROS. 360	- 36
CONVAIR 990 CORONDO	-121	SIKORSKY S-76	- 13
CURTISS-WRIGHT COMMANDO C-46	- 62	SIKORSKY S58 HELICOPTER	- 14
DASSAULT-BREGUET MERCURE	-150	SIKORSKY S61 HELICOPTER	- 24
DASSAULT-BREGUET MYST-FALCON	- 14	SWEARINGEN METRO	- 18
DE HAVILLAND CANADA BEAVER	- 7	TED SMITH AEROSTAR 601	- 5
DE HAVILLAND CANADA DHC-6 TW	- 19	TUPOLEV TU-134	- 72
DE HAVILLAND CANADA DHC-7 DA	- 50	TUPOLEV TU-144 (SUPERSONIC)	-150
DE HAVILLAND CANADA DHC-7 DA	- 50	TUPOLEV TU-154	-151
DE HAVILLAND CANADA OTTER	- 10	TWIN BEECH 18	- 9
DE HAVILLAND CANADA TURBO BE	- 8	WESTLAND W30 HELICOPTER	- 15
DE HAVILLAND COMET 4	- 91	YAKOVLEV YAK42	-120
DE HAVILLAND DOVE	- 9	YAKOVLEV YAK 40	- 32
DE HAVILLAND HERON	- 16	YUNSHUJI TYPE 5	- 12
DE HAVILLAND OF CANADA DHC-4	- 30	YUNSHUJI TYPE 7	- 48
DE HAVILLAND OF CANADA DHC8	- 37		- 44
DE HAVILLAND RILEY	- 17		-133

Table E-6
FAR Part 36 Stage Catagory By Aircraft Type

Aircraft Type	FAR Part 36 Catagory
747-200	2/3
747-200B	3
DC8-70	3
DC8-QN	2
BAE146	3
727-Q9	2
727-Q7	2
727-Q15	2
727-D17	2
767-CF6	3
DC10-10	3
DC10-30	2/3
DC10-40	3
L1011	3
737-300	3
A300	3
DC9-Q7	2
737-QN	2
737-D17	2
737-Q15	2
MD81	3
MD82	3
MD83	3
757-PW	3
LEAR 35	3
LEAR 25	2/3
CNA500	3
GIIB	2
MU3001	3
DHC7	NA
SD330	NA
DHC6	NA
DC3	NA
CNA441	NA
GASEPF	NA
BEC58P	NA
COMSEP	NA

APPENDIX F

FORECAST ASSUMPTIONS AND METHODOLOGIES

APPENDIX F

FORECAST ASSUMPTIONS AND METHODOLOGIES

PASSENGER FORECASTS

The passenger forecast is based on a simple model which relates passenger growth to employment development in San Bernardino and Riverside counties. The employment forecast used was developed by SCAG and predicts employment growth averaging 3.5% per year through 2010. The table below shows the passenger forecast for ONT.

ONT PASSENGER FORECAST

YEAR	MAP	%/YR
1988 (Act.)	4.8	5.0
1989 (Act.)	5.2	8.0
1990	5.3	2.0
1995	7.3	5.0
2000	12.0	10.5

By the use of this type of model for forecasting, it is assumed that the current relationship between economic and passenger growth will extend into the future, and the economic forecast on which the model is based is accurate. The model primarily predicts passenger growth that would result from growth within the airport's own market area. The impact of regional capacity shortfalls or additional capacity at other area airports is not directly considered.

It is assumed that Phase I of the ONT terminal facilities expansion will not be completed until early 1995, and that prior to that, enough capacity will be available through off peak scheduling of operations, higher load factors, or interim facilities to allow constrained passenger growth.

PASSENGER FLEET MIX

ONT will remain primarily a regional airport with short-range direct service and feeder flights to large mid-country hubs. The aircraft mix will, therefore, remain predominantly narrow body short-range aircraft, with limited nonstop medium-range and long-range service provided by DC 10 and 767 aircraft. Some charter 747 operations are also expected.

Many short-range 80-120 seat aircraft will reach retirement age in the early 1990s, particularly 727-100, 737-100 and DC10 aircraft. Since there is a limited choice of new aircraft in this class, replacements will largely be in the short-range 120-180 seat class, particularly the MD80 and its derivatives. Although the BAE 146 will continue in popularity due to its quiet engines, the small seating capacity will put airlines at a disadvantage at ONT where gate space may be too limited in the absence of terminal expansion to allow for increased operations in peak hours. The new aircraft available in the larger seating class offer better fuel efficiency and quieter engines than the smaller aircraft being replaced and may, therefore, have the same or better operating economics despite the larger capacity. This should make the larger seating class a more likely choice for short-range service at Ontario.

Commuters will maintain nearly their current share of the air carrier operations due to their use by the major carriers for connecting service. The aircraft will largely be medium weight, twin engine turboprop aircraft.

CARGO FLEET MIX

Cargo operations currently comprise about 19% of all air carrier operations at ONT. Until the terminal is finally constructed, cargo operations, as a percentage of total operations, will continue to grow due to terminal space deficiency. The cargo fleet mix will, therefore, have a greater affect on the total fleet mix during this period. By the year 2000, cargo operations are forecast to comprise 15% of total air carrier operations.

The primary sources of growth in cargo operations will be UPS and the other small package carriers. UPS is planning a large sorting center at ONT. Their forecast of operations and fleet mix for 1995 was integrated into our cargo fleet mix forecast. The other carriers are assumed to grow with their Riverside and San Bernardino County markets.

In contrast to passenger carriers, cargo carriers will use primarily long-range aircraft, particularly 747, DC10 and DC8 aircraft. DC8 aircraft will continue to be re-engined and overhauled and will remain in cargo service to the year 2000. Although in the past, cargo carriers have relied on conversion of old passenger aircraft for cargo, in the future they will make limited purchases of new aircraft specifically designed for cargo used including the 757, 767, and MD11.

Large volume international and traditional (not small package) domestic freight movement is not expected. It is unlikely that traditional freight carriers, particularly foreign flag, which rely heavily on belly capacity of passenger aircraft, as well as freighters, will be interested in ONT before the year 2000, in the absence of passenger volumes and routes to support the cargo operations.

Commuters will continue to be used as feeder service for the major cargo carriers and growth in cargo traffic will increase commuter operations. There will be some tendency towards the use of larger commuter aircraft to accommodate additional volume.

The total fleet mix was calculated by weighing the passenger and cargo fleet mix by the percentage each contributes to total operations in each year.

OPERATIONS FORECAST

Air carrier operations are defined as revenue operations by air carrier and commuters having Department of Airports operating agreement. These operations correspond to those reported in the DOA revenue landing statistics. Passenger and cargo air carrier operations were calculated separately and combined to yield total air carrier operations.

An average seating for each aircraft range/seating class was used to calculate an average seats per operation ratio from the passenger fleet mix forecast. Load factors were forecast based on trend. The product of these load factors and the average operations ratio were used to convert the passenger forecast to passenger operations. Load factors used are 52% currently and 58% by the year 2000.

Average daily cargo air carrier operations were estimated based on air carrier plans for future expansion and past trends. Average daily operations were converted to annual operations by multiplying by 365. The operations forecast is not related to the cargo volume forecast.

Cargo operations were not separated out from passenger aircraft operations in the 1975 EIR. Assuming the same percentage of cargo operations as forecasted in the revised fleet mix, there would be about 50 daily cargo operations of aircraft 70,000 pounds or heavier. Thus, ten additional cargo operations of aircraft 70,000 pounds or heavier are forecasted in the revised fleet mix as compared to the original fleet mix.

General aviation operations (GA) were forecast using past trend information. Included in general aviation are unscheduled, on demand, air taxi operations. The trend shows severely decreasing GA activity in the last five years. It is assumed that despite this decrease, general aviation will continue to comprise a minimum of 12 percent of total operations as it does even at large hub airports.

Military was assumed to remain stable at 1,000 operations per year.

APPENDIX G

AIR EMISSION TABLES

Table G-1
Fugitive Dust Emissions By Construction Activity

Construction Activity	Acres	Dust Factor (lbs./acre)	Total Dust (lbs.)	Const. Period (days)	25% of Const. Period (days)	25% Period Dust (lbs./day)
Phase I						
Terminal Complx	40	110	4400	900	225	19.56
Int'l Terminal I	.48	"	53	360	90	.59
Int'l Terminal II	4.52	"	497	390	97.5	5.10
Airport Roadwys	20	"	2200	1020	225	8.63
Parking Lot	80	"	8800	210	52.5	167.62
Taxiway S	17.22	"	1894	390	97.5	9.43
Taxiway 22U	77	"	85	390	97.5	.87
Taxiway 42	2.92	"	321	390	97.5	3.29
Cargo Apron	8.95	"	985	210	52.5	18.76
Service Road	6.02	"	662	480	120	5.52
Phase II						
Terminal Complx	13	"	1430	750	187.5	7.63
Int'l Terminl L-T	NA	NA	NA	NA	NA	NA
Runwy Imprvmts	15	"	1650	390	97.5	16.92
Taxiway N	14.63	"	1609	390	97.5	16.50
Total	**223.51**		**25,586**	**6270**	**1372.5**	**290.42**

Table G-2
Total Daily Air Emission Pollutants from Overlapping Construction Equipment Operations
(Exhaust Emissions)

Pollutants (lbs./day)

Construction Activity	CO	NOx	ROG	SOx	PM	Fug. Dust
Phase I						
10 mos.						
Int'l Terminal I	186.0	148.9	16.6	13.7	12.9	.59
Airport Roadway	139.8	108.9	15.1	8.3	8.0	8.63
Taxiway S	137.2	73.0	12.4	6.4	6.5	23.59
Taxiway 22U	137.2	73.0	12.4	6.4	6.5	.87
Taxiway 42	137.2	73.0	12.4	6.4	6.5	3.29
Service Roads	137.2	73.0	12.4	6.4	6.5	5.52
Total	**874.6**	**549.8**	**81.3**	**47.6**	**46.9**	**42.49**
2 mos.						
*Term. Complex I	146.4	143.8	17.0	13.8	14.5	19.56
Interim Int'l Term II	186.0	148.9	16.6	13.7	12.9	5.10
Airport Roadway	139.0	108.9	15.1	8.3	8.0	8.63
Taxiway S	137.2	73.0	12.4	6.4	6.5	23.39
Taxiway 22U	137.2	73.0	12.4	6.4	6.5	.87
Taxiway 42	137.2	73.0	12.4	6.4	6.5	3.29
Service Roads	137.2	73.0	12.4	6.4	6.5	5.52
Total	**1020.2**	**693.6**	**98.30**	**61.4**	**61.4**	**66.56**
12 mos.						
*Terminal Complex I	146.4	143.8	17.0	13.8	14.5	19.56
Interim Int'l Term II	186.0	148.9	16.6	13.7	12.9	5.10
Airport Roadway	139.8	108.9	15.1	8.3	8.0	8.63
Service Roads	137.2	73.0	12.4	6.4	6.5	5.52
Total	**609.4**	**474.6**	**61.10**	**42.2**	**41.9**	**38.81**
3 mos.						
*Terminal Complex I	146.4	143.8	17.0	13.8	14.5	19.56
Airport Roadway	139.8	108.9	15.1	8.3	8.0	8.63
Parking Lot	134.8	101.7	14.9	8.3	8.1	167.62
Service Roads	137.2	73.0	12.4	6.4	6.5	5.52
Total	**558.2**	**427.4**	**59.4**	**36.8**	**37.10**	**201.33**

Table G-2 (Continued)
Total Daily Air Emission Pollutants from Overlapping Construction Equipment Operations
(Exhaust Emissions)

Construction Activity	Pollutants (lbs./day)					
	CO	NOx	ROG	SOx	PM	Fug. Dust
Phase I						
2 mos.						
*Terminal Complex I	146.4	143.4	17.0	13.8	14.5	19.56
Airport Roadway	139.8	108.9	15.1	8.3	8.0	8.63
Service Roads	137.2	73.0	12.4	6.4	6.5	5.52
Total	**423.4**	**325.3**	**44.5**	**28.5**	**29.0**	**33.71**
1 mos.						
*Terminal Complex I	146.4	143.8	17.0	13.8	14.5	19.56
Airport Roadway	139.8	108.9	15.1	8.3	8.0	8.63
Parking Lot	134.8	101.7	14.9	8.3	8.1	167.62
Total	**421.0**	**354.4**	**47.0**	**30.4**	**30.6**	**195.81**
1 mos.						
*Terminal Complex I	146.4	143.8	17.0	13.8	14.5	19.56
Airport Roadway	134.8	101.7	14.9	8.3	8.1	167.62
Total	**281.2**	**245.5**	**31.9**	**22.1**	**22.6**	**187.18**
Phase II						
6 mos.						
*Terminal Complex II	47.9	143.8	17.0	13.8	14.5	7.63
Long-Term Int'l Terminal	109.5	20.8	5.6	1.2	1.7	0.0
Runway Improvements	155.7	138.2	18.4	12.9	12.4	16.92
Taxiway N	137.2	73.0	12.4	6.4	6.5	16.50
Total	**450.3**	**375.8**	**53.4**	**34.30**	**35.10**	**41.05**
1 mos.						
*Terminal Complex II	47.9	143.8	17.0	13.8	14.5	7.63
Long-Term Int'l Terminal	109.5	20.8	5.6	1.2	1.7	0.0
Runway Improvements	155.7	138.2	18.4	12.9	12.4	16.92
Total	**313.1**	**302.8**	**41.0**	**27.9**	**28.6**	**24.55**
2 mos.						
Runway Improvements	155.7	138.2	18.4	12.9	12.4	16.92
Taxiway N	137.2	73.0	12.4	6.4	6.5	16.50
Total	**292.9**	**211.2**	**30.8**	**19.3**	**18.9**	**33.42**

* Pollutant emission estimates for Termional Complex Phase I and II are based on interpolation of data for construction activities and equipment required for New Passenger Terminal shown in Table 3.1-5 of EIR.

APPENDIX H

ONTARIO MAILING LIST

ONTARIO MAILING LIST

Public Review Locations:

Head Librarian Ontario City Library
215 East "C" Street
Ontario, CA 91762

Ontario International Airport
Public Relations Office
Terminal Building, Room 200
Ontario, CA 91761

City of Los Angeles
Department of Airports
Environmental Management Bureau
#1 World Way, Room 219
Los Angeles, CA 90045

Local Groups and Organizations:

Friends of Ontario International Airport
Post Office Box 31
Ontario, CA 91761

Air Transport Association
8939 Sepulveda Boulevard
Los Angeles, CA 90045

City of Ontario:

Mayor's Office
City of Ontario
303 East "B" Street
Ontario, CA 91764

City Council
City of Ontario
303 East "B" Street
Ontario, CA 91764

Ontario Planning Commission
City of Ontario
303 East "B" Street
Ontario, CA 91764

City Manager
City of Ontario
303 East "B" Street
Ontario, CA 91764

City of Ontario (Continued):

Department of City Planning
City of Ontario
303 East "B" Street
Ontario, CA 91764

Ontario Chamber of Commerce
Post Office Box 31
Ontario, CA 91762

City of Los Angeles:

Executive Assistant to Mayor Tom Bradley
Room 305, City Hall
Los Angeles, CA 90012
Mail Stop 370

City Clerk's Office
Environmental Notices Desk
Room 395, City Hall
Mail Stop 160

County of San Bernardino:

Planning Director
316 North Mountain View Avenue
San Bernardino, CA 92415

Director
Department of Airports
825 East Third Street
San Bernardino, CA 92415

Board of Supervisors
County Civic Building
175 West Fifth Street
San Bernardino, CA 92415

Economic Development Department
175 West Fifth Street
San Bernardino, CA 92415

Chairman
West Valley Airport Land Use Commission
Planning Department
316 North Mountain View Avenue
San Bernardino, CA 92415

County of San Bernardino (Continued):

South Coast Air Quality Management District
9150 East Flair Drive
El Monte, CA 91731

Department of Environmental Health Services
385 North Arrowhead Avenue
San Bernardino, CA 92415-0160

Environmental Public Works Agency
Transportation/Flood Control/Airports
825 East 3rd Street
San Bernardino, CA 92415-0835

Regional Water Quality Control Board
6809 Indiana Avenue
Suite 200
Riverside, CA 92506

Governmental Agencies:

Richard Spicer
A95 Clearinghouse Section
Southern California Association of Governments
818 West 7th Street, 12th Floor
Los Angeles, CA 90017-3407

Office of the Governor
State Clearinghouse
Office of Planning and Research
1400 Tenth Street, Room 121
Sacramento, CA 95814

Air Traffic Chief
TRACON
1130 South Archibald
Ontario, CA 91761

Citizens:

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Post Office Box 943
West Covina, CA 91793

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2117 South Vine Avenue
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Citizens (Continued):

Irene Rice
1150 Columbia
Ontario, CA 91764

Alan Sette
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9061 Santa Monica Boulevard
Los Angeles, CA 90069

Hubert Tutty
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Ontario, CA 91762

Los Angeles Department of Airports:

Clifton A. Moore
Executive Director

Donald A. Miller
Deputy Executive Director

William M. Schoenfeld
Deputy Executive Director

Gary R. Netzer
City Attorney's Office

Jerald K. Lee
Director of Airports Administration

James R. Norville
Director of Airports Operations

Stephen Yee
LAX Airport Manager

Charles D. Zeman
Ontario Airport Manager

Robert Beard
Noise Abatement Officer

George Clovis
Ontario Noise Abatement Officer

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Los Angeles Department of Airports (Continued):

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Secretary, Board of Airport Commissioners
(10 copies)

Dennis Green
Airports Administrative Assistant

APPENDIX I

HEARING OFFICER'S REPORT
WITH PUBLIC COMMENTS AND RESPONSES

Comments of the City of Ontario regarding mitigation monitoring, the relationship between aircraft fleet mix weight class and noise impact, infrastructure improvements and traffic/circulation by Joyce I. Babicz, City Planner, and Richard Dinkelman, City Engineering.

Response

Appendix J of the Draft EIR was revised to include the mitigation monitoring program for the proposed project. The mitigation measures identified in this Final EIR will be incorporated in the construction contracts with the Department of Airports (DOA). DOA inspectors will perform routine inspections on all phases of the projects construction activity to insure contract compliance with all measures stipulated in the construction contracts, while reviewing work progress on the proposed project.

The Airport Improvement Plan on page 3.1-7 of the Final EIR outlines all construction activities scheduled for each airport improvement proposed during phase I and II of the project. Five airport improvements are listed in the Airport Improvement Plan; including, the Terminal Complex, Airport Roadways, Parking lot, Runway Improvements and Taxiway/Airfield Improvements. Listed below the Terminal Complex and the Taxiway/Airfield improvements is a breakdown and time schedule of all component projects and/or construction activities associated with each improvement. The International Terminal is listed as one of the component projects associated with Terminal Complex Improvements. All construction activities related to the International Terminal are provided directly below this component project; along with a time schedule of the activity/phase provided on the same row of the respective construction activity.

Page 1-9 of this Final EIR provides a discussion on differences in the types and sizes of aircraft comprising the fleet mix for 12 MAP at 125,000 operations and 12 MAP at 181,000 operations. The important distinction in aircraft weight class differences between the two fleet mix forecast is that larger aircraft generally make more noise and air pollution than smaller aircraft. Since the Air Quality Certificate limits the number of commercial air carrier operations to 125,000 operations, larger aircraft are needed to transport 12 MAP. The proposed project represents more operations (181,000 ops.) with a greater mix of smaller aircraft carrying the same 12 MAP. The EIR analyses both types of aircraft fleets needed to transport 12 MAP.

Scenario C, Terminal without Air Quality Certificate, used the same assumptions as the proposed project at 100% Stage 3. Both Scenarios assume 100% Stage 3 fleet mix, new Terminal facilities, and a 1,800 foot easterly runway extension. The difference is in the type of aircraft needed to carry 12 MAP. Scenario C assumes a limit of 125,000 annual air carrier operations. This means more wide body aircraft are needed to carry 12 MAP than the proposed project. Types and numbers of operations for each of these scenarios are shown in Table E-4 in Appendix E. While annual air carrier operations are greater with the proposed project, fewer wide body aircraft are needed to carry 12 MAP. Less noise and air quality impacts result. Restricting airport operations to 125,000 annual air carrier operations to serve 12 MAP has greater environmental consequences than increasing the operations to 181,000. Comparison of these scenarios clearly show that type of aircraft can have more of an affect than total numbers of operations.

There is a trend to larger aircraft. Forecasts used in this EIR have considered this trend. The forecast used for the project assumes larger aircraft will operate at ONT than operated in 1990. Greater number of passengers than the 12 MAP planning level was evaluated as an alternative. Affects from a 20 MAP operational level are in the alternative section of the EIR. The DOA is seeking an amendment to the Air Quality Certificate to permit increased operations and not an increase in MAP level.

Comments regarding DOA's role in the review and correction of possible deficiencies in the waste distribution and sewage collection system surrounding the airport are acknowledged and will be considered during the design/review and construction phase of the new terminal. Comments regarding the City of Ontario's current plans to develop a computer based model to project future traffic volumes and measure traffic resulting from airport operations are also acknowledged.

ONTARIO INTERNATIONAL AIRPORT (ONT) DRAFT EIR FOR TERMINALS, OTHER FACILITIES AND OPERATIONS TO SUPPORT 12 MAP

PUBLIC HEARING

A Public Hearing on this matter was held in the Ontario City Hall Council Chambers on July 24, 1991, at 7:00 p.m. There were approximately 30 persons in the audience. Six individuals made comments on the adequacy of the draft EIR.

1. James Fatland, Mayor, City of Ontario advised that Faye Myers Dastrup could not attend, but that the Mayor supports the project which will result in noise reduction over time and encourage positive economic development and growth. The Mayor also pointed out that air quality would be improved with the project as compared to without it. He further advised that the entire City Council supports ONT and when the project is completed, it will better serve the Ontario City residents.

2. Dr. Irene Rice, a local resident, advised that she is in favor of retaining the 125,000 annual operational limit for ONT. She does not want more air and noise pollution. She also advised, in her opinion, proposing alternatives without a new terminal is not realistic. She also advised that if the airlines could get a 70% load factor in narrow-bodied aircraft, then 12 MAP could be accommodated with 125,000 operations. In her opinion, air travellers should learn to experience inconvenience and perhaps even airline ticket rationing.

3. Mr. Hubert Tutty recently attended an FAA Noise Capacity Workshop in Newport Beach, and advised that neither the FAA nor the Department of Airports appears to be making progress rapid enough to reduce noise at impacted airports like ONT. He was concerned where the money would come from to construct all the necessary facilities. His main point was so-called progress should not be allowed at a cost to the existing environment.

4. Yvonne Madsen, though she lives outside the 65 CNEL, advises that when UPS airplanes overfly her home, sometimes car alarms go off in the neighborhood because the aircraft are so low and it is very noisy where she lives. According to Ms. Madsen, there would be a total of 254,000 annual operations at ONT with 12 MAP; including the aircraft that weigh less than 12,500 pounds. Accordingly, she advises there will be one aircraft operation every two minutes. She feels that the 65 CNEL is not an adequate noise descriptor and that the airport should not be allowed to continue to make more noise. Her last statement was that people are more important than airports and in the reconciliation of competing objectives people should be given more consideration.

5. Herbert Moraga advised that he is against allowing the airport to go to 180,000 annual operations. He used to work for Kaiser Steel and they were much more sensitive to air quality conditions than airport and aircraft operators. In his opinion, airplanes are little more than flying incinerators, spewing out particulate matter. He feels that more emphasis should be given to health, safety, and general welfare issues.

6. Kate Nunez objected to the new terminal on the basis it would create more air pollution, noise, and set off car alarms. Car alarms are being set off in her neighborhood at 5:00 a.m. Her hearing is getting worse, to the point that she cannot watch television or talk on the telephone in the early evening hours. She suggests that the airport consider buying television and telephone headsets so that people living near the airport could effectively use their telephones or enjoy television.

Comments of the South Coast Air Quality Management District regarding the adequacy of the Draft EIR's assessment of adverse air quality concerns by Cindy S. Greenwald, Planning Manager.

Response

Based on SCAQMD comments, many revisions to the Air Quality Analysis were made to include ozone and particulate matter pollutants, that exceeded state standards during 1990.

Moreover, additional analysis is contained in this Final EIR on fugitive dust emission levels produced during the site preparation stage for each construction activity. Site preparation activities (such as grading) is now confined to 25 percent of the total project construction period (see page 3.1-29 of the Final EIR). Daily fugitive dust emissions produced by each construction activity was based on the dust emission factor of 110 lbs. per acre, as noted in Table 3.1-4 of the EIR and referenced in AP-42, 11.2.1. Site preparation work associated with the installation of a vehicle parking lot on an 80-acre site was the only construction activity that will produce daily fugitive dust emissions in excess of the AQMD threshold amounts. Daily fugitive dust emissions that will be produced during construction activity is aggregated in Table G-1 in Appendix G.

Table G-2 in Appendix G contains aggregates of the emission levels by phase and construction activities for times during the construction period where two or more construction activities overlap. Overlapping of construction activities is expected to occur 11 times during the project construction period. Quantities of daily fugitive dust emissions and other pollutants produced during the overlapping of construction activity are now shown in Table G-2. During the overlapping of construction activities emission peaks were noted. NO_x emission will exceed AQMD threshold levels 11 times whenever construction activities have to overlap; CO will exceed the standard four times; and, ROG and fugitive dust exceed the standard twice. Parking lot site grading activities are the highest producer of daily fugitive dust emissions within the group of overlapping activities.

Page 3.1-29 of the Final EIR was revised to include additional mitigation measures to reduce construction related air quality impacts.

Comments regarding the operational air quality impacts of the project were considered and the Draft EIR revised to include additional mitigation measures determined feasible. The Unavoidable Adverse Impacts section on page 3.1-30 of the Dráft EIR was revised to include a discussion of impacts associated with the operational phase of the project.

The Cumulative Impact Section of this Final EIR on page 3.1-30 contains a discussion of cumulative air quality impacts produced from the proposed project and other related projects. The section also indicates that considerable combustion emissions may result from construction activity associated with these related projects occurring during the same time frame as the proposed project. The scope and purpose of this EIR is to address all environmental and air quality impacts connected with the construction and operational activities of the proposed project, and to provide feasible mitigation measures to eliminate or reduce potential impacts associated with the project. Separate EIRs are or will be prepared on each of the other related projects. These individual EIRs will include quantification of each projects' impacts, and also provide appropriate measures to mitigate potential impacts identified for each related project.

All potential environmental and air quality impacts associated with both current and future operations at ONT are evaluated in this Final EIR. Based on the environmental findings and impacts evaluated, all appropriate mitigation measures determined to be feasible for implementation with this project are identified and included on pages 3.1-29 and 3.1-30 of the Air Quality Section of the EIR.

Comments by Ontario City residents Joe and Eloise Davis, regarding difficulty in understanding the EIR and the impacts of the proposed project on noise, traffic circulation and air quality.

Response

The Department of Airports appreciates concerns regarding understanding some of the subject matter in the Draft EIR due to the complexity of some issues. During the preparation of this Final EIR, a special effort was made to communicate a clear understanding of the full scope and environmental impacts associated with the project and various alternatives. Additional charts and revisions to the Executive Summary section were included in the Final EIR in an effort to clarify and make the environmental document more understandable. EIR's are technical documents. However, an Executive Summary is provided at the beginning of the document, which provides a brief description of the project and a simplified evaluation of its impacts. A Public Hearing was also conducted for the purpose of providing opportunity for public comments and questions on the project to further clarify the scope and environmental implications of the proposed project. Table ES-1 and ES-2 in the Executive Summary provides a brief evaluation of the projects impacts. Measures to be undertaken to mitigate noise, air quality and traffic impacts are listed in Table ES-2.

Aircraft load factors are determined by passenger demand for given destinations during certain time periods and is influenced by market conditions. The statement by Mr. Laham concerning an increase in future load factor to 60% or higher is based on future projections by the passenger air carriers. A higher load factor means more passengers per flight and fewer aircraft operations are needed. The Airport Department has no control over load factors.

It is acknowledge that aircraft noise at ONT continues to be a concern to residents living near the airport. Through noise compatibility planing at ONT a number of airport operational program measures and land use strategies are underway or are in the planning stages to respond to both existing and future noise impacts anticipated with future growth at Ontario. These noise abatement programs and strategies are well documented in the ONT Part 150 Study. Some of the noise abatement programs and strategies are incorporated in the proposed project and included in the EIR assessment. With the implementation of program measures, such as the phase out of Stage 2 aircraft, the residential sound insulation and home purchase assurance programs in noise impacted areas, etc., noise conditions in residential areas near the airport are expected to improve despite the future growth at ONT. Details on these programs are discussed in the findings of the ONT Part 150 Study and/or the EIR assessment. Approval of the ONT Part 150 Noise Compatibility Program (NCP) by the FAA occurred in October 1991. FAA funds allocated for the ONT NCP can now begin to implement program strategies outlined in the FAA Part 150 Study.

The 65 CNEL terminology is a noise rating method adopted by the State of California and used to describe long term annoyance from environment noise averaged over a 24 hour period. Existing residential uses located within airport noise impacted areas greater than 65 CNEL would be eligible for assistance. It is expected that certain program elements of the NCP, such as the residential sound insulation program and the home purchase assurance program will be administrated by the City of Ontario on a priority basis according to the amount of grant funds available. Additional issues raised in your comments concerning the implementation of the ONT NCP measures fall outside the scope of the project and this environmental assessment.

Alternatives evaluated in this EIR represent plausible options to the proposed project. According to CEQA guidelines, an EIR should discuss a range of reasonable alternatives to the project which could feasibly attain the basic objectives of the project. The specific alternative of a "No Project" is required to be evaluated.

Construction of a new passenger Terminal can be undertaken by the DOA without the Air Resource Board's (ARB) approval of the Air Quality Certificate at ONT, as noted in Mrs. Rice's statements. However, financial considerations could affect the construction of the new Terminal. If a new Air Quality Certificate is not issued and airport operation restrictions remain in place, airlines may be reluctant to make the necessary financial committments for the construction of a major Terminal and other improvements.

If it becomes infeasible to expand Terminal facilities at ONT because of the current restrictions on air carrier operations, anticipated growth in passenger traffic would continue and the environmental impacts described in the "No Project" alternatives would result. The "No Project" alternatives address the environmental impacts alluded to in Mr. Zeman's statement.

With regard to your comments concerning the discrepancies on current Million Annual Passengers (MAP) levels and aircraft operations noted between the articles published in the Daily Bulletin on two separate dates, it is difficult to respond to or explain estimates quoted from a source other than our own. However, it appears that both articles may have been approximating gross numbers of MAP in a reasonable range between 5 1/2 to 6 MAP. For 1990 there were 5.3 MAP and 80,742 air carrier operations, or 135,709 total operations, including general aviation, business jets, and military operations at ONT. The discrepancy in annual air carrier operations noted between both articles is likely due to general aviation, business jets, and military operations included in one article and not in the other.

Comments of the Concerned Citizens of Ontario, regarding the reasonableness of some of the alternatives evaluated in the EIR assessment presented by Irene Rice.

Response

According to Section 15126(d)(1) of the State CEQA Guidelines, the only alternative specifically named as requiring evaluation is the "No Project" alternative. Airport facilities are now overcrowded and cannot serve 12 MAP. If no additional facilities were constructed, a tremendous negative impact on the travelling public would result.

It is DOA's judgement that by including the "No Project" alternative and the "20 MAP" alternative in the scope of the EIR assessment, the full range of alternatives were set forth in the EIR that are "necessary to permit a reasoned choice" as required by CEQA.

In 1990, aircraft load factors at ONT were 53%. Forecasts used in the EIR assumed future aircraft load factors of 60 to 65 percent depending upon the scenario. There is certainly a profit motive for the airline industry to do whatever is reasonably possible to influence higher load factors. Through these efforts the industry anticipates future improvements and greater efficiency in their airline passenger scheduling methods. Appendix E in the EIR was revised to include two additional data tables. Table E-5 shows average aircraft seating configurations for each aircraft, and Table E-6 identifies FAR Part 36 Stage catagory for each aircraft.

The DOA acknowledges your comment regarding airline industry options to hushkit older Stage 2 aircraft to achieve 100% Stage 3 compliance. In the air quality analysis of the 100% Stage 3 fleet mix it was difficult, if not impossible, to forecast what percentage of the total fleet would be achieved with the use of hushkits. However, the total difference in air emission pollutant levels between the 80% and 100% Stage 3 fleet were minimal. The net reduction in daily pollutant levels between the two fleet mixes is less than 10% in all of the pollutant categories, except ROG at 19%. The 19% reduction in ROG pollutants for the 100% Stage 3 fleet amounts to 297 pounds per day. If the assumption were made that 80% of all Stage 3 fleet were achieved by the use of hushkits, then a conservative estimate of emission reduction in the ROG category would be approximately 59 pounds per day or 11 tons per year.

The DOA acknowledges your comment that the scope of the EIR assessment is limited in its ability to forecast changes in future trends and conditions. However, the information gathered, reviewed and analyzed in this Final EIR represent the most reliable data source available to evaluate, draw conclusions and make projections on future trends.

Comments of Ontario City resident regarding concerns about the environmental impacts of the proposed Terminal Expansion Project presented by Eva F. Castaneda.

Response

Mr. Zeman's statement pertain to a combination of airport improvements related to this facility expansion project, and noise abatement program strategies proposed by the ONT Part 150 Noise Compatibility Program.

With regard to the timing of project activities and program measures discussed in the Final EIR, it is anticipated that airport improvements and mitigation measures associated with the terminal expansion at ONT will commence soon after the new Air Quality Certificate is issued by the ARB. It is difficult at this stage of the project to determine how soon or even whether this project will be approved by the ARB for an Air Quality Certificate. However, it is anticipated this will occur in 1992.

Approval by the FAA of the ONT Part 150 Noise Compatibility Program (NCP) occurred in October 1991. FAA funds will now be allocated to the ONT NCP. The DOA and the City of Ontario now can begin to implement the program strategies outlined in the Part 150 Study.

Some elements of the ONT NCP provide for residential uses located within the the 65 CNEL to be eligible for sound insulation treatment or purchase assurance programs. Details and logistics on how these particular programs will be administered have not been determined. Therefore, comments and questions concerning program policies and provisions for special circumstances or disabled persons cannot be addressed in the scope of this document.

Comments of Ontario City resident regarding ideas and suggestions to improve airport complaint reporting methods presented by Joe Bartholay.

Response

The Department of Airports (DOA) acknowledges your comments and suggestions. The "Tax For Noise" concept appears to be similar to the noise budget concept reviewed by the DOA in the past. Imposing penalties and fines on pilots who violate aircraft flight rules and procedures such as the ones mentioned in your comments have been suggested, discussed and considered among Federal, State and local airport officials in the past. The FAA has jurisdiction and enforcement control over aircraft operations once the aircraft leaves the ground. Because of FAA rules and regulations governing aircraft flight procedures in the interest of National Air Safety, local airport officials have limited authority on these issues.

As airlines convert to Stage 3 aircraft, the 65 CNEL noise contour will decrease. Full implementation of the proposed ONT Part 150 program will ultimately result in just a few dwelling units being located in the 65 CNEL.

The term MAP is an acronym used in the aviation industry to indicate passenger volumes in million annual passengers. The Community Noise Equivalent level (CNEL) is a rating method adopted by the State of California and used to describe long-term annoyance from environmental noise averaged over a 24-hour period. Residential properties located in areas around the airport with CNEL levels of 65 dB or higher are considered to be noise impacted. A detailed discussion of the noise terminology used in the EIR assessment is provided on page 3.2-3 of the EIR.

Comments of the Mayor of the City of Ontario, James R. Fatland, regarding support for the proposed airport improvement project with the recommended mitigations.

Response

The Department of Airports (DOA) acknowledges the comments by the Mayor of the City of Ontario in support of the proposed project.

Comments of Rancho Cucamonga resident John Wang regarding support for airport expansion at ONT.

Response

The Department of Airports (DOA) acknowledges your comments in support of airport expansion at ONT.

APPENDIX J

MITIGATION MEASURES AND MONITORING PROGRAM

Recommended Mitigation Measures and Monitoring Program

MITIGATION MEASURES	RESPONSIBLE PARTY	MITIGATION PROCESS	MONITORING MILESTONE	VERIFICATION BY CITY
3.1 AIR QUALITY				
1. Prepare a Comprehensive Dust Control Plan for the site prior to the issuance of a grading permit by the City of Ontario Building and Safety Officials. The Plan will conform to all San Bernardino County and South Coast Air Quality Management District Regulations regarding dust control (including SCAQMD Rule 403), and will include, but not be limited to: * Regular watering of cleared areas to prevent dust generation. Care will be taken not to over-water cleared areas to prevent runoff and soil erosion. * Grading operations will be suspended during second stage smog alerts, or when winds exceed 30 mph. * A flag person will be used to guide traffic properly and to ensure safety at construction sites. * Construction operations affecting offsite road ways will be scheduled for off-peak hours to minimize obstruction of through traffic lanes. * Configure construction parking to minimize traffic interference.	Contractor	City of Ontario grading plan check	Prior to the issuance of each grading permit	
2. Utilize existing power sources and avoid on-site power generation whenever possible.	"	Contractor and DOA Engineering Inspections	Throughout each construction activity phase	

Recommended Mitigation Measures and Monitoring Program (Continued)

MITIGATION MEASURES	RESPONSIBLE PARTY	MITIGATION PROCESS	MONITORING MILESTONE	VERIFICATION BY CITY
3.1 AIR QUALITY (Continued)				
3. Use unleaded or low sulfer fuel, and catalytic converters, or propane fuel, on all welding machines, reducing NOx and CO emissions.	Contractor	Contractor and DOA Engineering Inspections	Throughout each construction activity phase	
4. Maintain construction equipment engines in proper tune and retard diesel engine timing to minimize NOx emissions.	"	"	"	
5. Encourage ride sharing and the use of urban mass transit by construction personnel to reduce motor vehicle emissions.	"	"	"	
6. Develop a public transit transfer station, including shuttle service facilities.	City of Los Angeles Department of Airports	City of Ontario plan check	December 2000	
7. Set price structures for parking areas to promote transit use.	"	LA Board of Airport Commission Approval	Periodically during contract renegotiations with parking concessionaires	
8. Identify and evaluate remote terminal opportunities to reduce motor vehicle emissions.	"	Department of Airports Facilities Planning	December 1996	

Recommended Mitigation Measures and Monitoring Program (Continued)

MITIGATION MEASURES	RESPONSIBLE PARTY	MITIGATION PROCESS	MONITORING MILESTONE	VERIFICATION BY CITY
3.2 NOISE				
1. Enforcement of a Noise Control Ordinance requiring the phasing in of Stage 3 operations by January 2000, according to the following schedule: • By July 1, 1991, at least 25% of each airline's operations must be Stage 3. • By January 1, 1994, at least 50% of each airline's operations must be Stage 3. • By January 1, 1996, at least 75% of each airline's operations must be Stage 3. • By January 1, 2000, each airline's operations must be 100% Stage 3.	City of Los Angeles Department of Airports	LA City Council adoption by Ordinance	January 1991, 1994, 1996, 2000	
Or, a preemptive National Aviation Noise Policy will be implemented by the Federal Aviation Administration, as mandated by the Aviation Noise and Capacity Act of 1990.	Department of Transportation, Federal Aviation Administration	Congress	December 1994, 1996, 1998 , 2005	

Recommended Mitigation Measures and Monitoring Program

MITIGATION MEASURES	RESPONSIBLE PARTY	MITIGATION PROCESS	MONITORING MILESTONE	VERIFICATION BY CITY
3.3 TRANSPORTATION/CIRCULATION				
1. Airport roadway system projects proposed under the Ontario Ground Access Program as described on page 3.3-10 and 3.3-12 of the EIR.	City of Los Angeles Department of Airports and City of Ontario	City of Ontario plan check	December 2000	
2. The north/south roadway segments of Campus and Etiwanda Avenues are to be widened from two to four lanes.	City of Ontario and CalTrans	"	"	
3. The east/west roadway segments of the I-10, Route 60, Fourth Street and Airport Drive are to be widened by two lanes.	"	"	"	
4. Install synchronized signals at freeway off ramps and intersections near the airport to maintain continuous traffic flows.	"	"	"	
5. Develop a directional signage program at Ontario.	City of Los Angeles Department of Airports, City of Ontario and CalTrans	"	December 1996	
6. Organize airport employee carpooling or ridesharing programs at Ontario.	City of Los Angeles Department of Airports	Program approval by SCAQMD	"	

Recommended Mitigation Measures and Monitoring Program (Continued)

MITIGATION MEASURES	RESPONSIBLE PARTY	MITIGATION PROCESS	MONITORING MILESTONE	VERIFICATION BY CITY
3.4 ENERGY All mitigation measures identified under the Air Quality, Noise and Transportation/Circulation sections of this monitoring program are also energy conservation measures which can be used to effectively delay the depletion of fossil fuels.				