DRAFT
ENVIRONMENTAL IMPACT REPORT
FOR THE RELOOC STRATEGIC PLAN-OLINDA ALPHA LANDFILL IMPLEMENTATION

VOLUME I

State Clearinghouse Number 2004011055

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June 2004

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GLOSSARY

GLOSSARY OF ACRONYMS

A	drainage area
AB	Assembly Bill
ACOE	United States Army Corps of Engineers
AADT	annual average daily traffic
AAQS	Ambient Air Quality Standards
ADC, ADCs	Alternative daily cover, covers
ADT	Average daily traffic
AES	Advanced Engineering Software
AMSL	Above mean sea level
App.	Appeals
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
AST	aboveground storage tank
BAS	Bryan A. Stirrat and Associates
Basin	South Coast Air Basin
BMP, BMPs	Best Management Practice, Practices
BOS	Board of Supervisors
C	Centigrade
C	runoff coefficient
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAGN	coastal California gnatcatcher
Cal.	California
Cal-OSHA	California Occupational Health and Safety Administration
Caltrans	California Department of Transportation
CAP	Corrective Action Program
CAS	Corrective Action System
CCAA	California Clean Air Act
CCR	California Code of Regulations
CCSP	Carbon Canyon Specific Plan
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CDWR	California Department of Water Resources
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CFS	cubic feet per second
CGS	California Geological Survey
CIP	Community Involvement Program
CIWMB	California Integrated Waste Management Board
CMP	Congestion Management Plan
cm/sec	centimeters per second

CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon monoxide
CSC	California Species of Concern
COC	Constituent of Concern
CSE	County-wide Siting Element
CSP	corrugated steel pipe
CSS	coastal sage scrub
CVC	California Vehicle Code
dB	decibel, decibels
dBA	A-weighed decibel
Dist.	District
DMP	Detection Monitoring Program
EC	electrical conductivity
EIR	Environmental Impact Report
EMFAC2002	On-Road Motor Vehicle Emissions Factor Model
F	Fahrenheit
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FRB	Frank R. Bowerman Landfill
FSR	Feasibility Study Report
FTA	Federal Transit Administration
ft-lb/blow	foot-pound per pile driver impact **[The amount of force required to accelerate a one pound mass, one foot per impact of a pile driver]**
Fwy	Freeway
FY	fiscal Year
FY03	fiscal year 2003
GDP	General Development Plan
GEP	Groundwater Extraction Monitoring Program
GIS	geographic information system
GLA	GeoLogic Associates
GP, GPs	General Plan, Plans
gpm	gallons per minute
GPS	Global Positioning System
GTP	Groundwater Treatment Monitoring Program
HC	hydrocarbon
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HDPE	high density polyethylene
HHW	household hazardous waste

HHWE, HHWEs	Household Hazardous Waste Element, Elements
HI	Hazard Index
HOV	high occupancy vehicle
hr	hour
HVAC	heating, ventilation and air conditioning
HWY	Highway
Hz	hertz
I	rainfall intensity
I-5	Santa Ana Freeway, Interstate 5
I-405	San Diego Freeway, Interstate 405
ICU	Intersection Capacity Utilitzation
IS	Initial Study
IUDA	Industry-Urban Development Agency
IWMA	Integrated Waste Management Act
IWMD	Integrated Waste Management Department
IWMP	Integrated Waste Management Plan
JTD	Joint Technical Document
L_{01}	noise level exceeded one-percent of the time during a stated period
L_{10}	noise level exceeded 10 percent of the time during a stated period
L_{50}	noise level exceeded 50 percent of the time during a stated period
L_{90}	noise level exceeded 90 percent of the time during a stated period
LAFCO	Local Agency Formation Commission
L_{dn}	day-night average sound or noise level
LEA	Local Enforcement Agency
L_{eq}	equivalent continuous sound or noise level
LFG	Landfill gas
L_{max}	maximum noise level
LMP	Landscape Master Plan
LOS	Level of Service
LCRS	leachate collection and recovery system
LUE, LUEs	Land Use Element, Elements
L_v	vibration velocity level in decibels
MCE	Maximum Credible Earthquake
MCL	Maximum Contaminant Levels
MCY	million cubic yards
MDL	Method Detection Level
MEI	Maximum Exposed Individual
MICR	Maximum Individual Cancer Risk
MLD	Most Likely Descendant
MOU	Memorandum of Understanding
MPAH	Master Plan of Arterial Highways
MPO	Metropolitan Planning Organization

MPR	Master Plan of Roadways
MRF, MRFs	materials recovery/recycling facility, facilities
MMRP	Mitigation Monitoring and Reporting Program
MSDD	Master Storm Drain Design
MSW	municipal solid waste
MT	million tons
M&RP	Mitigation and Reporting Program
$\mu g/L$	micrograms per liter
$\mu g/m^3$	microgram per cubic meter
mg/m^3	milligram per cubic meter
NAC	Noise Abatement Criteria
NAHC	Native American Heritage Commission
NAAQS	National Ambient Air Quality Standards
NB	northbound
NCCP	Natural Community Conservation Plan
NDF, NDFs	Non-disposal facility
NDFE	Non-disposal Facility Element
NDIR	Nondispersive Infrared Photometry
NO	nitric oxide
NO_2	nitrogen oxide
NOCLATS	North Orange County Landfill and Alternative Technologies Study
NOP	Notice of Preparation
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
O_3	ozone
OAL	Olinda Alpha Landfill
OC	Orange County
OCBS	Orange County Board of Supervisors
OCEMA	Orange County Environmental Management Agency
OCFA	Orange County Fire Authority
OCHCA	Orange County Health Care Agency
OCHCS	Orange County Habitual Classification System
OCPD	Orange County Planning Department
OCTA	Orange County Transportation Authority
OEHHA	Office of Environmental Health Hazard Assessment
OVA	Organic Vapor Analyzer
Pb	lead
PC	Planned Community
PCE	Passenger Car Equivalent
pgm	processed green material
pH	potential of hydrogen
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter

PM_{10}	particulate matter less than or equal to 10 microns in diameter
ppb	parts per billion
ppd	pounds per day
ppm	parts per million
PPV	peak particle velocity
PQL	Practical Quantitation Level
PRC	Public Resources Code
PRIMP	Paleontological Resources Impact Mitigation Program
Q	direct peak runoff
RDMD	County of Orange Resources and Development Management Department
RELOOC	Regional Landfill Options for Orange County
RFI	Report of Facility Information
rms	root-mean-square
ROB	Roll-off box
ROC	reactive organic compounds
ROG	reactive organic gases
RWQCB-SA	Regional Water Quality Control Board-Santa Ana
SB	southbound
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	United States Soil Conservation Service
SIP	State Implementation Plan
SO_2	sulfur dioxide
SOI	Sphere of Influence
So_x	sulfuroxides
SR, SRs	State Route, Routes
SR 55	State Route 55
SR 57	State Route 57
SR 91	State Route 91
SRRE, SRREs	Source Reduction and Recycling Element, Elements
SWFP, SWFPs	Solid Waste Facilities Permit, Permits
SWPPP	Storm Water Pollution Prevention Plan
SWWG	Solid Waste Working Group
TAC	toxic air contaminants
TC	time of concentration
T-BACT	Toxics – Best Available Control Technology
TDS	total dissolved solids
TOC	total organic compounds
TPD	tons per day
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

USGS	United States Geological Survey
UST	underground storage tank
VdB	velocity in decibels
VOC, VOCs	volatile organic compounds
vphgl	vehicles per hour of green time per lane
WCCA	Wildlife Corridor Conservation Authority
WCS	Waste Characterization Study
WDA, WDAs	Waste Disposal Agreement, Agreements
WDR	Waste Discharge Requirements
WMU, WMUs	Waste Management Unit, Units
ZO, ZOs	Zoning Ordinance, Ordinances
4 (LS)	Public Facilities Landfill Site

SECTION 1.0
EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

1.1 DESCRIPTION OF THE PROPOSED PROJECT

1.1.1 PURPOSE OF THE PROPOSED PROJECT

The Regional Landfill Options for Orange County (RELOOC) effort is a long range strategic planning program initiated by the County of Orange Integrated Waste Management Department (IWMD). The purpose of RELOOC is to assess the County's existing disposal system capabilities and develop viable short and long term solid waste disposal options for the County. As part of that endeavor, the County is considering a number of short term improvements to existing municipal solid waste landfills operated by IWMD. The proposed project includes the vertical and horizontal expansion of Olinda Alpha Landfill to help meet the County's near term solid waste disposal needs.

This Environmental Impact Report (EIR) analyzes the potential environmental impacts associated with the continued operation of the Olinda Alpha Landfill from 2013 to the estimated horizon year 2021. The potential environmental impacts associated with the current Olinda Alpha Landfill operations through 2013 were analyzed in the Final EIR for the North Orange County Landfill and Alternatives Technology Study (NOCLATS), which was certified by the Board of Supervisors (BOS) in 1992. Environmental impacts associated with the County's solid waste options if Olinda Alpha Landfill is not expanded are discussed under the No Project Alternative in Section 6.0 of this EIR.

1.1.2 PROJECT LOCATION

The project site is located within the existing Olinda Alpha Landfill property located at 1942 North Valencia Avenue in unincorporated Orange County, near the City of Brea. Olinda Alpha Landfill is generally bounded by Lambert Road/Carbon Canyon to the south and Valencia Avenue to the southwest. To the north and northwest of the property is County of Los Angeles open space and to the northeast, east and southeast are the Firestone Boy Scout Reservation and Chino Hills State Park. The Olinda Ranch housing development is located south of the site and the future Tonner Hills housing development is proposed to be located to the southwest. The Brea Green Recycling Facility is located immediately south of the landfill entrance.

1.1.3 CURRENT SITE STATUS

1.1.3.1 Operations

Olinda Alpha Landfill opened in 1960. The landfill serves northern Orange County and also receives municipal solid waste (MSW) imported from Los Angeles, San Bernardino and Riverside Counties. Access to the landfill is via Valencia Avenue. The landfill is open Monday through Saturday from 6:00 A.M. to 7:00 A.M. for transfer trucks only and 7:00 A.M. to 4:00 P.M. for all commercial and non-commercial deliveries. Commercial haulers based both within and outside the County deliver to the site. Refuse disposal by private citizens is allowed and is limited to Orange County residents. Only MSW and exempt commodity such as soil, asphalt and processed green material is accepted at the landfill, although limited special wastes (i.e., tires) are also accepted. Hazardous materials such as asbestos, batteries, chemicals, paints, non-autoclaved medical waste and other substances considered hazardous are not accepted at this landfill. Importation of MSW from Los Angeles, San Bernardino and Riverside Counties will cease in 2015 unless Olinda Alpha Landfill closes in 2013 at which time importation will cease. At about 2015, Olinda Alpha Landfill will need to begin importing cover material if the landfill closure date is extended. It is anticipated that the truck trip reduction (approximately 100 truck trips per day) that occurs with the cessation of MSW importation at Olinda Alpha Landfill will offset the increase in truck trips required for the transport of cover material (see further discussion in Section 4.4.1).

Olinda Alpha Landfill is a deep canyon, cut and cover facility where the majority of MSW is brought to the site by commercial haulers. To determine the tipping fees, trucks are weighed by scales before entering the facility and are then directed to a designated area of the landfill for waste disposal. IWMD heavy equipment operators use compactors, bulldozers and large earthmovers to push and compact waste for ultimate burial and daily covering of soil or an approved alternative. No waste is left uncovered at the end of the working day.

Olinda Alpha Landfill complies with all federal, state and local requirements for landfills. Site staff conducts daily inspections to ensure that the site is in compliance with all the permit conditions imposed by regulatory agencies having jurisdiction over landfills. These permitted conditions include specific procedures for controlling fires, leachate, landfill gas (LFG), dust, vectors, birds, noise, odor, drainage, erosion and traffic.

1.1.3.2 Regulatory Controls

Although the County of Orange is the owner and operator of Olinda Alpha Landfill, landfill operations in California are highly regulated and monitored by federal, state and local agencies. Olinda Alpha Landfill must comply with applicable California Code of Regulations (CCR) (primarily Title 27) and the Code of Federal Regulations, Title 40 (CFR), Parts 257 and 258 (Subtitle D) and Part 60, Subpart WWW (NSPS-New Source Performance Standards). Olinda Alpha Landfill is a Class III landfill permitted for the disposal of non-hazardous MSW. State law requires that landfills operate under the various regulatory requirements of the California Integrated Waste Management Board (CIWMB) that exercises its authority through the approval of Solid Waste Facilities Permits (SWFPs) issued by the Local Enforcement Agency (LEA). The LEA for Olinda Alpha Landfill is the County of Orange Health Care Agency, Environmental Health.

Additionally, the Regional Water Quality Control Board-Santa Ana Region (RWQCB-SA) regulates landfill operations and designs to ensure protection of surface water and groundwater. The RWQCB-SA exercises its authority through issuance of Waste Discharge Requirements (WDR). The South Coast Air Quality Management District (SCAQMD) regulates landfill operations related to LFG emissions, subsurface gas migration and fugitive dust control for Orange County landfills. Environmental monitoring of air, LFG and groundwater is conducted at all landfills to detect LFG migration or groundwater contamination. An existing LFG extraction system and flare station operates at Olinda Alpha Landfill for LFG control. In addition, utilization of LFG for energy production currently is being conducted at the Olinda Alpha Landfill. A groundwater extraction program including extraction wells and treatment is currently ongoing at Olinda Alpha Landfill. There is also a leachate collection and recovery system (LCRS) at the landfill.

Although the CIWMB has primary oversight and regulatory responsibilities for Olinda Alpha Landfill and has designated the County of Orange Environmental Health Care Agency, Environmental Health as its LEA, Olinda Alpha Landfill is also regulated through other laws enforced by agencies at the federal, state and local regulatory levels. In addition to the RWQCB-SA and SCAQMD, these agencies include the United States Environmental Protection Agency (USEPA) for New Source Performance Standards (NSPS), United States Fish and Wildlife Service (USFWS), United States Army Corps of Engineers (ACOE), California Department of Fish and Game (CDFG), Orange County Fire Authority (OCFA) and the County of Orange Resources and Development Management Department (RDMD). Continued adherence to all applicable laws and regulations would be required as part of project approval and operating conditions for the proposed expansion at Olinda Alpha Landfill.

1.1.3.3 Capacity of Olinda Alpha Landfill

A variety of factors are utilized to determine landfill system capacity including total air space, refuse volume, final cover volume, refuse-to-soil ratio and compaction densities. Based on these factors, IWMD's records show that the current permitted remaining refuse capacity for Olinda Alpha Landfill is 23.9 million tons (or 44.7 million cubic yards of air space capacity) as of June 30, 2003.

The permitted daily tonnage limit for Olinda Alpha Landfill is 8,000 tons per day (TPD) of MSW. However, a Memorandum of Understanding (MOU) between the County and the City of Brea limits daily waste disposal to an annual average of 7,000 TPD. The landfill currently (as of April, 2004) receives a daily average of approximately 6,800 TPD of solid waste and an average of approximately 3,000 to 4,000 TPD of exempt commodities which includes dirt, asphalt and green waste.

A number of landfill agreements and permits currently are in place with Orange County cities, waste haulers and regulatory agencies responsible for oversight of the County's landfills. In addition to those regulatory agency permits and city agreements described above, the County also has ten-year Waste Disposal Agreements (WDA) with contract cities that are subject to negotiation for renewal by June 2004. In addition, franchised haulers and Districts also have WDA's that are subject to negotiation. The negotiations for renewal will need to be extended because the County landfill system will not have been defined by June 2004. Approval of the Olinda Alpha Landfill expansion is a key component of the system implementation required for negotiation of WDAs for an additional ten-year period.

1.1.4 PROJECT DESCRIPTION

1.1.4.1 Project Modifications

The proposed project includes both a vertical and a horizontal expansion of Olinda Alpha Landfill within the existing landfill property. No change in the landfill property boundary is proposed. As proposed, the height of Olinda Alpha Landfill would be increased from its current permitted level of 1,300 feet above mean sea level (AMSL) to a maximum of 1,415 feet AMSL or a net vertical increase of 115 feet. The horizontal expansion would include landform modifications to the northeast part of the existing landfill property. This modification would expand the existing refuse footprint by an estimated 33 acres within the existing property boundary of Olinda Alpha Landfill. The extent of the lateral expansion will be determined after additional geotechnical field data is obtained prior to construction. Portions of the horizontal expansion would be in areas that have already been disturbed by landfill operations. Figure 4.5-1, provided in Section 4.5-2 (pg 4-16) of this EIR, shows the current permitted vertical and horizontal limits of Olinda Alpha Landfill. Figure 4.5-2, provided in Section 4.5-2 (pg-4-17) of this EIR, shows the proposed limits of the vertical and horizontal expansions at the landfill under the proposed project. The expanded landfill would ultimately accommodate disposal of an additional 25.7 million cubic yards of air space or 14.2 million tons (MT) of MSW (based on a 5:1 refuse-to-soil ratio and 1,333 lb/cy refuse density) and would extend the life of this landfill from its permitted closure date of 2013 to approximately 2021, based on current population projections, daily tonnage, compaction densities, approved landfill elevations and existing disposal technologies. The proposed project would not result in any increase to either the maximum daily permitted tonnage or the annual average daily tonnage limits for this landfill.

1.1.4.2 Project Phasing

The proposed expansion of Olinda Alpha Landfill would be implemented in phases and would not disturb all parts of the landfill property at once. Operations in the vertical and lateral expansion areas would continue as before with the incremental development of waste cells across the deck in 20-foot lifts from south to north and west to east. The lateral expansion would occur before the vertical expansion, prior to reaching the existing permitted elevation of 1,300 feet AMSL. As filling operations approach the lateral expansion area elevations, the lateral expansion areas would be lined and refuse filling would continue across the deck.

On-site soil to be used for daily cover, road construction and other related uses is available at the Olinda Alpha Landfill through 2015. The site currently accepts dirt as an exempt commodity and continues to stockpile soil on-site for future cover use. When on-site soil for cover is depleted at Olinda Alpha Landfill, soil will need to be imported to the site. Truck traffic associated with soil import is anticipated to occur in 2015 and is anticipated to be less than or equal to import refuse truck traffic, which will cease in 2015. Fill and cover techniques at the landfill under the expansions would be similar to the methods currently employed. Waste would be deposited, compacted and covered daily using appropriate landfilling methods.

The final cover system for the entire landfill site will be constructed in accordance with regulatory requirements and an approved Final Closure Plan. The current final cover design for the deck and slope areas of the landfill is planned to consist of a two-foot foundation layer comprised of random soils and a minimum one-foot low-permeability layer of compacted fine grained soils, which will yield a permeability of 1 x 10^{-6} cubic meters per second (cm/sec) or less. The vegetative layer depth would vary for the deck and slopes for landscaping purposes. The deck would have a two-foot thick vegetative layer and the vegetative layer on the slope areas would vary from two to five feet in thickness.

The final cover design for the deck and slope areas for any lined portion of the landfill expansion would meet Title 27 requirements. The final cover for the entire site will meet or exceed regulatory requirements at the time of closure of the site. The final cover design for the site will be determined in the Final Closure Plan which would be developed two years prior to closure. A cover design to support a passive use regional park, which is the current post-closure use, will be developed as part of the Final Closure Plan. At that time, the IWMD will evaluate new technologies that may support this type of end use.

1.1.4.3 Waste Composition

The waste composition at Olinda Alpha Landfill under the proposed project would not differ from that currently received at this landfill. Non-hazardous MSW would comprise the waste stream and existing screening safety mechanisms would continue to be employed to ensure that hazardous materials are not accepted.

1.4.4.4 Traffic

Access to Olinda Alpha Landfill would remain unchanged, with access provided via Valencia Avenue. The total number of trips per day to the landfill for MSW disposal would not increase under the proposed project because the permitted daily tonnage accepted at Olinda Alpha Landfill would not increase compared to existing conditions. The additional traffic associated with soil import for cover use at Olinda Alpha Landfill starting by approximately 2015 would be offset by the cessation of refuse importation from outside Orange County in 2015 (see further discussion in Section 4.4.1).

1.1.4.5 Other Project Features

The proposed project may require that additional landfill operations, support and maintenance buildings and structures be constructed at Olinda Alpha Landfill and may include additional LFG control facilities. However, the number of employees at the landfill will not change with implementation of the proposed project. Employees would continue to perform landfill operations including administration, landfill cover operations and other landfill-related operations. The number of pieces of and types of equipment used at Olinda Alpha Landfill also would remain unchanged. The operating schedule/procedures at Olinda Alpha Landfill would remain unchanged after implementation of the proposed project.

The existing surface water drainage systems, LFG collection and control systems, and leachate collection and recovery systems will be expanded, as necessary, to accommodate the proposed expansion of Olinda Alpha Landfill. A description of these systems is provided later in Section 4.5.3 (Environmental Protection Elements).

1.1.5 PROJECT OBJECTIVES

The objectives of the proposed project to expand the Olinda Alpha Landfill, derived from the RELOOC study goals and objectives and the RELOOC planning process, are:

- Define future waste disposal system by 2004 to provide a basis for renegotiation of WDAs with Orange County cities, franchised haulers and Districts.
- Ensure that the County's near term waste disposal needs are met.
- Maximize capacity of Olinda Alpha Landfill.
- Maintain adequate revenues and local control of waste disposal to provide consistent and reliable public rates and fees.
- Maintain efficient, cost effective and high quality IWMD operations.
- Minimize adverse environmental impacts associated with MSW disposal.

1.2 SUMMARY OF IMPACTS

Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance) of this EIR documents the technical analyses of the potential impacts of the proposed project related to land use and planning, geology and soils, hydrogeology and water quality, surface water hydrology, transportation and circulation, air quality, noise, aesthetics, cultural and scientific resources, hazards, public services and biological resources. Alternatives that considered Olinda Alpha Landfill closing in 2013 are described in Section 6.0 (Alternatives) and are summarized in Section 1.3. Sections 7.0 (Growth Inducing) and 8.0 (Cumulative Impacts) describe the potential for the proposed project to result in growth inducing and cumulative impacts, respectively. Section 10.0 (Unavoidable Adverse Impacts) summarizes the potentially significant adverse impacts of the proposed project which cannot be avoided or mitigated to below a level of significance.

The potential for the proposed project to result in adverse impacts related to these environmental parameters is summarized in Table 1-1.

1.3 ALTERNATIVES

1.3.1 SUMMARY OF ALTERNATIVES

This EIR analyzes two Alternatives to the proposed project and the No Project Alternative as required by the CEQA. Discussed below is a brief description of the Alternatives and their assumptions. For a detailed description of these Alternatives, refer to Section 6.0 (Alternatives to the Proposed Project).

TABLE 1-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

Potential Impact	Mitigation Measures		Level of Significance After Mitigation
Summary of Impacts Related to Land Use and Planning			
Implementation of the proposed project would conflict with the existing Memorandum of Understanding (MOU) between the County of Orange and the City of Brea regarding Olinda Alpha Landfill.	LU-1	Prior to acquiring revised landfill permits and finalization of design plans for the project, the County of Orange and the City of Brea will renegotiate the details of the MOU to allow the disposal of MSW over a longer period of time. Under the proposed project, closure would be extended to approximately 2021 based on increasing the site's air space capacity and increased operational efficiencies, current population projections and existing disposal technologies.	Less than significant.
Summary of Impacts Related to Geology and Soils			
Implementation of the proposed project has the potential to impact the landfill's slope stability.	G-1	Prior to construction of the lateral expansion area, additional geologic data will be obtained and subsequent slope stability analyses will be conducted to verify assumptions made for the stability analysis included in Appendix L.	Less than significant.
	G-2	Geologic mapping will be conducted during construction to identify any changes in geologic structure that may impact the stability analysis conducted for the lateral expansion design.	
Summary of Impacts Related to Hydrogeology and Water Quality			
Implementation of the proposed project has the potential to impact groundwater.	HW-1	A composite liner or an alternative to the prescriptive composite liner and LCRS will be placed in the lateral expansion area to intercept and collect leachate for disposal off-site or use as dust control, as approved by the RWQCB-SA. A subdrain system will be installed, as necessary, to intercept seeps below the liner. The prescriptive or alternative liner, LCRS and subdrain will be approved by the RWQCB-SA and comply with federal and state requirements (27 CCR).	Less than significant.
	HW-2	The site will continue to comply with the site's Waste Discharge Requirements and Monitoring and Reporting Program requirements imposed by the RWQCB-SA for the protection of water quality.	

TABLE 1-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

Potential Impact	Mitigation Measures		Level of Significance After Mitigation
	HW-3	The Corrective Action System in place at the landfill will continue operating during the extended landfill operations if detections of VOCs in groundwater continue.	
Summary of Impacts Related to Surface Water Hydrology			
Implementation of the proposed project has the potential to impact hydrological system.	H-1	As part of a Joint Technical Document (JTD) to be prepared by IWMD in support of a revised SWFP and WDRs for the proposed expansion, the IWMD shall present the assumptions, methods and calculations used to calculate the potential flow quantities for run-on, run-off and sediment content of storm water flow used in sizing drainage and sediment control facilities for Olinda Alpha Landfill in conformance with 27 CCR regulations.	Less than significant.
	H-2	As part of a JTD to be prepared by IWMD in support of a revised SWFP and WDRs for the expansion, the IWMD shall include surface drainage plans for Olinda Alpha Landfill expansion final grading plans, including any berms, down drain systems, perimeter drainage channel improvements and the location of off-site discharge points for run-off water in compliance with 27 CCR regulations.	
	H-3	Diversion and drainage facilities shall be evaluated, designed, constructed and operated to accommodate the anticipated volume of precipitation and peak flows from surface run-off under the precipitation conditions specified in Title 27 of the CCR. Drainage facilities for the landfill expansion shall be designed to prevent washout of the waste management unit during a 100-year storm event.	
	H-4	The landfill (including the expansion area) will continue to operate under an NPDES Permit to discharge storm flows. The criteria and restrictions of the NPDES Permit and the SWPPP and BMPs that accompany the NPDES Permit will be adhered to.	
	H-5	Positive drainage will be ensured in the expansion area by maintaining a two to three percent slope on all landfill deck surfaces.	

TABLE 1-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

Potential Impact	Mitigation Measures		Level of Significance After Mitigation
	H-6	During all landfilling operations in the expansion area, sediment and erosion control plans will continue to be prepared and implemented on an annual basis to reduce sediment and control erosion on the landfill site.	
Summary of Impacts Related to Transportation and Circulation			
Imperial Highway at its intersections with Valencia Avenue and Kraemer Boulevard will experience a significant adverse impact as a result of project traffic in 2021.	T-1	<u>Imperial Highway at Valencia Avenue</u>. IWMD will contribute a 9.2 percent fair share of the cost to modify the southbound Valencia Avenue approach at Imperial Highway. The fair share allocation is a standard County RDMD guideline for intersections operating at a LOS E without a project and LOS F with a project as the LOS is unacceptable. Under both scenarios, IWMD will contribute its fair share to the incremental impact to the southbound Valencia Avenue approach at Imperial Highway which would change that LOS E to LOS F (Refer to Appendix F-9 for supporting calculation sheets). The proposed modifications include one additional southbound left turn lane and re-configuration of the rest of the southbound lanes (i.e. one through and one right turn lane) to one through lane and one optional through/right lane. This measure can be accomplished with re-striping only and with no additional street widening. This improvement will result in an ICU of 0.836 (LOS D) with mitigation compared to an ICU of 0.981 (LOS E) without mitigation.	Less than significant.

TABLE 1-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

Potential Impact	Mitigation Measures		Level of Significance After Mitigation
	T-2	Imperial Highway and Kraemer Boulevard. IWMD will contribute a 100 percent fair share to the cost to modify the eastbound Imperial Highway approach at Kraemer Boulevard. The 100 percent fair share allocation is a standard County RDMD guideline for intersections operating at a LOS D without a project (an acceptable LOS) and LOS E with a project (an unacceptable LOS). Since the projected traffic associated with the Olinda Alpha Landfill expansion project, on its own, would cause the LOS D at the Imperial Highway and Kraemer Boulevard intersection to operate at LOS E, IWMD will contribute 100 percent of the cost to improve the LOS to an acceptable LOS D. The proposed modifications are to provide an eastbound right turn only lane. This mitigation measure requires widening on the south side, relocation of street light poles and other street furniture.	
Summary of Impacts Related to Air Quality			
Implementation of the proposed project has the potential to have short term impacts related to fugitive dust during construction operations.	AQ-1	Applicable dust suppression techniques from Rule 403 are summarized below. Additional dust suppression measures in the SCAQMD CEQA Air Quality Handbook are also included as part of the project's mitigation. Implementation of these dust suppression techniques will reduce the fugitive dust generation (and thus the PM_{10} component). Compliance with these rules will reduce impacts on nearby sensitive receptors. Applicable Rule 403 measures: a. Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).	Significant.

TABLE 1-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

Potential Impact	Mitigation Measures	Level of Significance After Mitigation
	b. Water active sites at least twice daily. (Locations where grading is to occur will be thoroughly watered prior to earth moving). c. All trucks hauling dirt, sand, soil, or other loose materials are to be covered, or should maintain at least two feet of freeboard in accordance with the requirements of California Vehicle Code (CVC) section 23114 (freeboard means vertical space between the top of the load and top of the trailer). d. Pave construction access roads at least 100 feet onto the site from main road. e. Traffic speeds on all unpaved roads shall be reduced to 15 mph or less. Additional SCAQMD *CEQA Air Quality Handbook* dust measures: a. Revegetate disturbed areas as quickly as possible. b. All excavating and grading operations shall be suspended when wind speeds (as instantaneous gusts) exceed 25 miles per hour (mph) and dust plumes are visible. c. All on-site streets shall be swept once a day if visible soil materials are carried to adjacent streets (recommend water sweepers with reclaimed water). d. Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash trucks and any equipment leaving the site each trip.	

TABLE 1-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

Potential Impact	Mitigation Measures		Level of Significance After Mitigation
	AQ-2	Dust generated by the construction activities shall be retained on-site and kept to a minimum by following the dust control measures listed below. a. During clearing, grading, earth moving, excavation, or transportation of cut or fill materials, water trucks or sprinkler systems shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease. b. During construction, water trucks or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this would include wetting down such areas in the late morning and after work is completed for the day and whenever wind exceeds 15 miles per hour. c. Immediately after clearing, grading, earthmoving, or excavation is completed, the entire area of disturbed soil shall be treated until the area is paved or otherwise developed so that dust generation will not occur. d. Soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation. e. Trucks transporting soil, sand, cut or fill materials, and/or construction debris to or from the site shall be tarped or maintain 6 inches of freeboard from the point of origin.	
Summary of Impacts Related to Noise			
Although construction of the proposed expansion project would not result in significant adverse short term noise impacts, the following measures will further reduce short term construction related noise levels.	N-1	During all project site excavation and grading, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.	Less than significant.
	N-2	The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the active construction areas.	

TABLE 1-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

Potential Impact	Mitigation Measures		Level of Significance After Mitigation
	N-3	The construction contractor shall locate equipment staging in areas to result in the greatest distance between construction related noise sources and noise sensitive receptors nearest the active construction areas during all project construction.	
	N-4	The construction contractor shall restrict all construction-related activities that would result in high noise levels between the hours of 8:00 PM and 7:00 AM on weekdays, including Saturday, or at any time on Sunday or a federal holiday.	
Though the project will not increase noise above existing conditions because it would not change the volume of traffic as it is occurring in 2004, the continuation of landfill activities due to the project at 2013 would result in a 12 dBA increase above the no project scenario.	N-5	For residential units on Valencia Avenue north of Carbon Canyon Road which are approved prior to any approval of an expansion at Olinda Alpha Landfill, which are constructed and occupied before 2013 and which would be impacted by 65 dBA CNEL or higher traffic noise, the County of Orange IWMD will contribute a fair share to a road noise reduction program for these residences, if such a program is implemented by the City of Brea. This program could potentially implement a variety of road noise reduction measures which may include reduction in road speeds on the segment of Valencia Avenue north of Carbon Canyon Road, construction of sound walls adjacent to the affected residences and/or installation of rubberized asphalt concrete on Valencia Avenue north of Carbon Canyon Road.	Less than significant.
Summary of Impacts Related to Aesthetics			
The visual impacts of the proposed landfill would have the potential to be adverse if the surface of the landfill were vegetated with plant species that would highly contrast with the surrounding undeveloped hills.	AS-1	The existing Olinda Alpha Landfill Landscape Master Plan (LMP) that was developed in concert with IWMD and the City of Brea Citizens Advisory Committee in 1994 to address minimization of interim and permanent visual impacts will be revised to include the proposed vertical and horizontal expansion. The current seed mixes in the LMP will be identified for use on the appropriate areas of the expansion. The revised LMP will execute the original goal of blending the landfill property with the adjacent native open space area. The revised plan will be approved by IWMD and the City of Brea and will be included in the	Less than significant.

TABLE 1-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

Potential Impact		Mitigation Measures	Level of Significance After Mitigation
		Closure Plan for the site as part of the SWFP and WDR revision application. The phased interim landscape plan included as part of the LMP will be revised to continue visual screening of the landfill operations and facilities for the expansion and to assist in blending the manufactured slopes with surrounding open space prior to landfill closure.	
Impacts associated with additional lighting would be considered substantially adverse if the light spilled over onto adjacent sensitive residential and wildlife habitat areas.	AS-2	All outdoor lighting, including any construction-related lighting, shall be designed, installed and operated in a manner that ensures that all direct rays from project lighting are contained within the landfill property, and that residences and undeveloped areas that may provide wildlife value are protected from spillover light and glare.	Less than significant.
Summary of Impacts Related to Cultural and Scientific Resources			
No cultural resources were identified on the proposed expansion site. However, there is the potential for uncovering previously unknown cultural resources during ground disturbing activities.	C-1	The construction bid package, related construction and design plans, and specifications shall require that if buried cultural material is encountered during project construction, the County's construction contractor shall immediately stop work in the area. Work shall be halted until the County can retain a qualified archaeologist, and the nature and significance of the find are determined. If significant archaeological material is found, it shall be salvaged and collected in compliance with all applicable regulations and sent to a designated museum.	Less than significant.

TABLE 1-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

Potential Impact	Mitigation Measures		Level of Significance After Mitigation
No paleontological resources were identified on the proposed expansion site. However, there is the potential for uncovering paleontological resources during ground disturbing activities.	C-2	If human remains are encountered during project construction, the County's construction contractor shall immediately stop work in the area. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 24 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.	Less than significant.
	C-3	A Paleontological Resources Impact Mitigation Program (PRIMP) will be implemented. The PRIMP shall include, but not be limited to, the following: paleontological monitoring, preparation of any collected specimens to the point of identification, curation of specimens to a museum or similar institution and preparation of a mitigation report documenting any findings.	
Summary of Impacts Related to Hazards			
There would be no impacts to public health and safety with respect to hazardous materials because the landfill expansion would comply with federal, state and local landfill regulations that currently govern landfill procedures.	No mitigation is required		No Impact.
Summary of Impacts Related to Public Services			
Impacts to public services (fire protection services and parks) will be less than significant.	No mitigation is required.		No Impact.

TABLE 1-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

Potential Impact	Mitigation Measures		Level of Significance After Mitigation
Summary of Impacts Related to Biological Resources			
Implementation of the proposed project would impact 1.3 acres of coast live oak.	B-1	Prior to the removal of the 1.3 acres of coast live oak, IWMD shall prepare and submit a Mitigation Monitoring and Reporting Program (MMRP) to the CDFG for review and approval. In accordance with an approved MMRP, IWMD will replace the 1.3 acres of coast live oak woodland at a 1:1 ratio (or as otherwise approved by the CDFG). The location of coast live oak plantings on the landfill will be determined in consultation with CDFG and a qualified ecologist. However, if the ultimate location of these replacement oaks are within the disposal area of the landfill, the RWQCB-SA will need to approve the plan to ensure that the tree root system does not compromise landfill operations and/or closure (final cover) requirements.	Less than significant.
Implementation of the proposed project would impact 4.0 acres of CSS and 10.4 acres of cut/slope revegetation.	B-2	Prior to the removal of the 4.0 acres of CSS and the 10.4 acres of cut/slope revegetation, IWMD shall prepare and submit a Coastal Sage Scrub Mitigation Plan (CSSMP), to the CDFG for review and approval. In accordance with an approved CSSMP, the IWMD will replace the 4.0 acres of CSS and the 10.4 acres of cut/slope revegetation, which provide marginally suitable habitat for the California gnatcatcher, at a 1:1 ratio (or as otherwise approved by the CDFG). Guidelines for the CSSMP are: • The mitigation areas/sites shall have been evaluated and selected on the basis of their suitability for use as coastal sage scrub revegetation areas. The parameters evaluated shall include but not be limited to soil conditions, slope aspect, proximity to adjacent coastal sage scrub, level of difficulty of site preparation, and ownership status.	Less than significant.

TABLE 1-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

Potential Impact	Mitigation Measures	Level of Significance After Mitigation
	• The mitigation plan shall provide procedures to prepare the soils in the mitigation area, provide detailed seeding/planting mixtures, provide seeding/planting methods and provide any other procedures that will be used for successful revegetation. • Maintenance and monitoring goals shall be established.	

1.3.1.1 Alternative No. 1 – No Project Alternative

The No Project Alternative would include no action by the County of Orange. Under this Alternative, neither the vertical nor horizontal expansion at the Olinda Alpha Landfill would occur. The landfill would continue to operate at its existing permitted capacity with no increase in long term physical capacity or daily tonnage received. As such, under this Alternative, the Olinda Alpha Landfill would continue to receive up to an annual average of 7,000 TPD of MSW under an MOU between the City of Brea and IWMD and would operate until its permitted closure date of 2013. Under this Alternative, importation of waste into the Orange County disposal system will end in 2013 when landfilling at the Olinda Alpha Landfill terminates. Upon its closure, approximately 1,000 TPD of MSW, which is in excess of what could be accommodated at the Frank R. Bowerman (FRB) and Prima Deshecha Landfills, would have to be accommodated at landfills outside of Orange County. The projected excess TPD of MSW to be exported out of County is based on population projections for the system demand by 2021 (the horizon year for this EIR) (see Section 4.3.1.2).

Out-of-County landfills would have to be permitted to accept the excess tonnage from Orange County and may include El Sobrante Landfill in Riverside County, the Mid-Valley Landfill in San Bernardino County and/or a rail haul facility.

1.3.1.2 Alternative No. 2 – Two Landfill System in 2013 (Prima Deshecha Daily Tonnage Increase)

<u>Assumptions</u>

- Increase permitted TPD at Prima Deshecha Landfill from 4,000 TPD to 5,000 TPD when Olinda Alpha Landfill closes in 2013.
- Permitted TPD at FRB Landfill remains at 8,500 TPD, when Olinda Alpha Landfill closes in 2013.
- No expansion at Olinda Alpha Landfill, present capacity unchanged through remaining life.
- County importation at all three Orange County landfills ceases in 2013, with a net reduction of approximately 2,075 TPD imported to Olinda Alpha Landfill; approximately 830 TPD imported into FRB Landfill and approximately 920 TPD imported into Prima Deshecha Landfill (projected amount for 2013 according to County of Orange - RELOOC Demand Model Runs R1 Thru R5).

This Alternative would include increasing the current daily permitted TPD at Prima Deshecha Landfill from 4,000 to 5,000 TPD when Olinda Alpha Landfill closes at its permitted closure date of 2013. This increase would accommodate projections for the system demand in the EIR horizon year 2021 based on forecasted population growth (see Section 4.3.1.2). The FRB Landfill's permitted TPD received would remain unchanged at 8,500 TPD as the permitted daily limit.

Under this Alternative, no expansion or extension of Olinda Alpha Landfill's closure date would occur. All importation of waste from out of the County would cease in 2013 when there is no longer capacity in the system to accommodate imported waste. The Prima Deshecha Landfill 2001 General Development Plan remaining refuse capacity would remain unchanged at 77.6 MT (as of January 2002). However, the incremental increase of Prima Deshecha Landfill's in-flow waste stream would accelerate its anticipated closure date from 2067 to approximately 2056 based on current population projections and existing disposal technologies. The accelerated closure date to 2056 results in a net reduction of 11 years in landfill life at Prima Deshecha Landfill under this Alternative.

Under this Alternative, the number of truck trips to Prima Deshecha Landfill would increase although the duration of the trips would be reduced because the life of the landfill would be shortened.

Under this Alternative, the County's MOU with the Cities of San Juan Capistrano and San Clemente would need to be amended prior to 2013 to provide for the increase in annual average tonnage. Similarly, permits currently in place with the CIWMB and other regulatory agencies with jurisdictional oversight for Prima Deshecha Landfill would need to be amended.

1.3.1.3 Alternative No. 3 – Two Landfill System in 2013 (Frank R. Bowerman Daily Tonnage Increase)

<u>Assumptions</u>

- Increase permitted TPD at FRB Landfill from 8,500 TPD to 9,500 TPD when Olinda Alpha Landfill closes in 2013.

- Permitted TPD at Prima Deshecha Landfill remains at 4,000 TPD when Olinda Alpha Landfill closes in 2013.

- No expansion at Olinda Alpha Landfill, present capacity unchanged through remaining life.

- County importation at all three Orange County landfills ceases in 2013, with a net reduction of approximately 2,075 TPD imported to Olinda Alpha Landfill; approximately 830 TPD imported into FRB Landfill and approximately 920 TPD imported into Prima Deshecha Landfill (projected amount for 2013 according to County of Orange - RELOOC Demand Model Runs R1 Thru R5).

This Alternative would include increasing the current permitted TPD at FRB Landfill from 8,500 to 9,500 TPD when Olinda Alpha Landfill closes on its permitted closure date in 2013. This increase would accommodate projections for the system demand in the EIR horizon year of 2021 based on forecasted population growth (see Section 4.3.1.2). The Prima Deshecha Landfill's permitted TPD would remain unchanged at 4,000 TPD.

Under this Alternative, no expansion or extension of Olinda Alpha Landfill's closure date would occur. All importation of waste from out of County would cease in 2013 when there no longer is capacity in the system to accommodate imported waste.

At present, the permitted closure date of the FRB Landfill is 2022. This Alternative would accelerate the closure date to 2021 based on current population projections and existing disposal technologies. This accelerated closure date for the FRB Landfill just meets the horizon year goal of 2021 for this EIR. The accelerated closure date to 2021 results in a net reduction of one year of landfill life at the FRB Landfill based on the currently permitted closure date. Under this Alternative, the number of truck trips to FRB Landfill would increase although the duration of the trips would be reduced slightly because the life of the landfill would be shortened by one year.

Under this Alternative, the County's existing Settlement Agreement with the City of Irvine would need to be amended prior to 2013 to provide for the increased daily tonnage. Similarly, permits currently in-place with the LEA and other regulatory agencies with jurisdictional oversight for the landfill would need to be amended.

1.3.2 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Each of the alternatives would result in environmental impacts greater than would occur under the No Project Alternative (refer to Section 6.0). Therefore, the No Project Alternative is the environmentally superior alternative, although it would not meet project objectives as discussed earlier. Section 15126.6(e) of the CEQA Guidelines states that if the No Project Alternative is selected as the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives. Of the remaining alternatives, the proposed project is the environmentally superior alternative.

1.4 ISSUES TO BE RESOLVED

The following have been identified as unresolved issues related to the proposed expansion at Olinda Alpha Landfill:

1.4.1 OPERATION OF THE LANDFILL PAST 2013

The current MOU between the City of Brea and the County of Orange indicates that landfilling at Olinda Alpha Landfill will terminate in 2013. Under the proposed expansion, the landfill would continue to operate and would continue to accept waste to 2021. The proposed project will require that the County of Orange and the City approve changes to the existing MOU to reflect the shift of the landfill closure date from 2013 to 2021.

1.4.2 USE OF TONNER CANYON ROAD AS THE LANDFILL ACCESS ROUTE

The potential to use an extension of Tonner Canyon Road as an access route to Olinda Alpha Landfill was identified in a number of comments received on the Notice of Preparation (NOP) and is discussed briefly here. The Tonner Canyon Road extension is discussed in more detail later in Section 2.3.3 (Tonner Canyon Road). As described in Section 1.1 (Description of the Proposed Project), an extension of Tonner Canyon Road is not proposed as part of the landfill expansion plan. Access to the landfill under the proposed expansion plan will continue to be via the existing Valencia Avenue. The Tonner Canyon extension as shown in the Orange County Transportation Authority Master Plan of Arterial Highways (MPAH) and the City of Brea Master Plan of Roadways (MPR) is proposed for deletion from the MPAH and the MPR as requested by the City. In 1994, the County of Orange completed the "Project Report and Preliminary Summary of Environmental Impacts, Landfill Access Road Alternatives, Olinda/Olinda Alpha Landfill Vertical Expansion Project" which concluded that Valencia Avenue is the environmentally superior and preferred alternative for access to the landfill. Improvements to Valencia Avenue constructed since 1997 provide the necessary capacity on Valencia Avenue to adequately serve the landfill. The County Board of Supervisors approval of the Tonner Canyon Planned Community in 2002 did not include an extension of Tonner Canyon Road. In summary, the extension of Tonner Canyon Road from the existing terminus east of State Route 57 east to the existing terminus of Valencia Avenue does not appear likely to be implemented in the foreseeable future, if ever. For these reasons, the proposed expansion project at Olinda Alpha Landfill does not include any project components or analysis related to extension of Tonner Canyon Road or the use of Tonner Canyon Road for access to the landfill through the life of this project.

SECTION 2.0
INTRODUCTION

SECTION 2.0
INTRODUCTION

2.1 PURPOSE OF THE EIR

2.1.1 AUTHORITY

This Environmental Impact Report (EIR) was prepared in accordance with the California Environmental Quality Act (CEQA) of 1970, as amended (California Public Resources Code Section 21000 et seq.) and the CEQA Guidelines (California Code of Regulations Section 15000 et seq.). This EIR assesses the potential impacts associated with the proposed Regional Landfill Options for Orange County (RELOOC) Strategic Plan - Olinda Alpha Landfill Implementation Project (proposed project). The County of Orange is the Lead Agency for the proposed project pursuant to the CEQA.

As stated in Section 15121 of the CEQA Guidelines, an EIR is an informational document which will inform decision-makers, public agencies and the general public about the potential significant environmental effects of a proposed project. It also identifies possible ways to minimize the significant adverse effects of the project and addresses reasonable alternatives to the project. CEQA requires that an EIR contain, at a minimum, the following elements:

- Executive Summary
- Project Description
- Environmental Settings, Impacts and Mitigation Measures
- Alternatives to the Proposed Project
- Growth Inducing Impacts
- Cumulative Impacts
- Effects Not Found to be Significant
- List of Preparers and Persons Consulted

2.1.2 PREPARATION OF THE EIR

This EIR was prepared pursuant to Section 15161 of the CEQA Guidelines which states that a project EIR "…examines the environmental impacts of a specific development project. This type of EIR should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all the phases of the project including planning, construction, and operation." The RELOOC Strategic Plan - Olinda Alpha Landfill Implementation EIR analyzes the environmental consequences that could be anticipated to occur from the construction and operation of this proposed landfill expansion project.

2.1.3 INCORPORATION BY REFERENCE

Various technical studies, analyses and reports were used in the preparation of this EIR and are incorporated by reference in accordance with Section 15150 of the CEQA Guidelines. Information from these documents which have been incorporated by reference has been briefly summarized in the appropriate Section(s) of this EIR. The documents and other sources used in preparation of this EIR are identified in Section 13.0 (References). In accordance with the CEQA Guidelines, Section 15150(b), the location of where the public may obtain or review these referenced documents is also identified in Section 13.0.

2.1.4 INTENDED USES OF THE EIR

The EIR process is specifically designed to facilitate the objective evaluation of the significance of direct, indirect and cumulative impacts, provide analysis of alternatives, identify mitigation measures for significant adverse impacts, and implementation methods for those mitigation measures. It should be noted that just because a particular issue is addressed in this EIR, it does not mean that a significant adverse impact occurs. In several cases, impacts are not significant and adverse, however, the analysis is included to demonstrate the process leading to that conclusion.

Because approval and implementation of the RELOOC Strategic Plan - Olinda Alpha Landfill Implementation Project would result in potentially significant adverse impacts on the environment, this EIR was prepared in conjunction with the project plan. This was done to identify the potential significant adverse impacts and to identify what measures could be incorporated into the project to minimize or eliminate these impacts.

Prior to the certification of the EIR, the Draft EIR will be circulated for a 45-day public review period. All interested persons and/or agencies wishing to comment on the information contained in the EIR must do so within the 45-day public review period.

The County of Orange is responsible for reviewing site plans for the RELOOC Strategic Plan - Olinda Alpha Landfill Implementation project for land use regulations and design guidelines which will outline development standards. Additionally, the County of Orange will be responsible for issuing any necessary County permits and project approvals for all project construction. The County of Orange Board of Supervisors (BOS) will be responsible for certification of the Final EIR.

2.1.5 AGENCIES HAVING JURISDICTION/POTENTIAL DISCRETIONARY ACTIONS

The principal agency having jurisdiction over the proposed project is the County of Orange because the project site is located in an unincorporated area of Orange County. However, the proposed project is also in the City of Brea's Sphere of Influence which will require renegotiation of the existing Memorandum of Understanding (MOU) between the City of Brea and the County of Orange to allow the disposal of municipal solid waste (MSW) over a longer period of time, as a result of the additional capacity that is provided under the proposed project.

In addition to the County of Orange and City of Brea, other public agencies that may also have oversight over the project or may be responsible for issuing subsequent permits necessary to implement the proposed project are identified in Table 2-1.

TABLE 2-1
LIST OF POTENTIAL RESPONSIBLE AGENCIES

Agency	Approval/Permit
Federal Agencies	
United States Environmental Protection Agency	New Source Performance Standards (NSPS) monitoring and reporting requirements. Hazardous Waste Generator Exclusion Program.
State Agencies	
California Integrated Waste Management Board	Concurrence on revision of the existing Solid Waste Facility Permit (SWFP).
Regional Agencies	
Regional Water Quality Control Board - Santa Ana Region	Storm Water Management Plans. Revision of the existing Waste Discharge Requirements (WDR). National Pollution Discharge Elimination System (NPDES) Permit.
South Coast Air Quality Management District	Permits to Construct Expanded Gas Control Systems. Permits to Operate Expanded Gas Control Systems.
County Agencies	
Local Enforcement Agency (Health Care Agency)	Revision of the existing SWFP.
County of Orange Board of Supervisors	Certification of the Final EIR.
Orange County Fire Authority	Fuel Modification Plan and Program Fire Break Roads.
County of Orange Resources and Development Management Department	Grading/Miscellaneous Permits.

2.1.6 AVAILABILITY OF THE EIR

Agencies, organizations and individuals wishing to comment on the information presented in this EIR may do so during the 45-day public review period. All written comments on the EIR will be addressed in the Responses to Comments Report. The Responses to Comments Report will be part of the Final EIR and will be presented to the BOS for their consideration of the EIR and the proposed project. Copies of the EIR and relevant technical studies are available for review during regular business hours at the following locations:

Integrated Waste Management Department 320 North Flower Street, Suite 400 Santa Ana	California State University, Fullerton Library, Document Section Fullerton
Orange County Public Library 31495 El Camino Real San Juan Capistrano	Orange County Public Library 14361 Yale Avenue Irvine
Orange County Public Library 33841 Niguel Road Dana Point	Orange County Public Library 242 Avenida Del Mar San Clemente
Orange County Public Library 1 Civic Center Circle Brea	Orange County Public Library 30341 Crown Valley Parkway Laguna Niguel
Orange County Public Library 4512 Sandburg Way Irvine	University of California, Irvine Main Library, Government Publications Microfilms Irvine

2.2 METHODOLOGY

Each environmental parameter discussed in Section 5.0 of the EIR is organized and analyzed as discussed below.

2.2.1 EXISTING CONDITIONS

This Section describes the existing environmental conditions in the vicinity of the proposed project, as they existed at the time the Notice of Preparation (NOP) was published. The environmental setting constitutes the baseline physical conditions against which the Lead Agency (the County of Orange) determines whether an impact is considered significant and adverse.

2.2.2 THRESHOLDS OF SIGNIFICANCE

Thresholds of significance which are the basis for determining project related potential impacts are presented in this Section of the EIR. These thresholds are derived from local (County of Orange), state and/or federal policies and programs that may apply; and other accepted standards determined to be appropriate by the Lead Agency (County of Orange) pursuant to Section 15064.7 of the CEQA Guidelines. This analysis is intended to be consistent with the Guidelines as revised following the decision in *Communities for a Better Environment v. California Resources Agency,* 103 Cal. App. 4th 98 (2002).

2.2.3 METHODOLOGY RELATED TO EACH ENVIRONMENTAL PARAMETER

The procedures and rules used to analyze impacts of the proposed project on each environmental parameter are presented in this Section of the EIR.

2.2.4 ENVIRONMENTAL IMPACT ANALYSIS

The environmental analysis for each environmental parameter for which the proposed project may or would result in potentially significant adverse impacts is contained in this Section of the EIR. These parameters were identified in the findings of the Initial Study (IS) which was included as part of the NOP. Environmental parameters not discussed in this Section are described in Section 3.0 (Effects Found Not To Be Significant).

2.2.5 MITIGATION MEASURES

If the analysis contained in the environmental impacts Section concludes that the proposed project will create significant adverse impacts on the environment, mitigation measures are identified in this Section to minimize or eliminate the significant adverse impacts.

2.2.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

This Section identifies unavoidable significant adverse impacts which cannot be mitigated or that remain significant even after mitigation is incorporated in the proposed project. If significant unavoidable adverse impacts are identified, it will be necessary for the County of Orange BOS to determine if the benefits from implementing the proposed project outweigh and override the unavoidable adverse effects created by the proposed project and to adopt a Statement of Overriding Considerations.

2.3 BACKGROUND

2.3.1 INITIAL STUDY AND NOTICE OF PREPARATION

As required by CEQA, an IS and NOP for the proposed project were prepared by the County of Orange. The IS indicated that the proposed project did have the potential for significant adverse impacts on the environment and an EIR required. A copy of the IS/NOP is included in Appendix A. The IS/NOP was released on January 13, 2004 for a 30-day public review period which concluded on February 11, 2004. The IS/NOP was distributed to the State Clearinghouse Office of Planning and Research, public agencies, interested parties, libraries and service providers. The distribution list for the IS/NOP is provided in Appendix B.

The County of Orange received eighteen written responses to the NOP. Copies of these comment letters are provided in Appendix C. Written comments received in response to the NOP previously issued on September 9, 2002 were also retained and incorporated into the Draft EIR if requested by the commenter. Table 2-2 summarizes the comment letters and indicates where in the IS and/or in the EIR each specific issue raised in these comment letters is located.

2.3.2 PUBLIC SCOPING AND CITIZEN CONCERNS

A public scoping meeting was held on January 22, 2004 to solicit input for consideration in this EIR. Thirty people attended the meeting at the City of Brea City Council Chambers, located at 1 Civic Center Circle. Following the presentation of the project by County staff, attendees expressed their concerns about the elements and potential impacts of the proposed project. Table 2-3 summarizes the written comments received during the scoping meeting. Table 2-4 summarizes the verbal comments received at the scoping meeting. Copies of the comment letters and verbal comments are provided in Appendix D. In addition, comments received during the previous scoping meeting that was held in the City of Brea on September 18, 2002 are also included in Table 2-5 and are also included in Appendix D.

This EIR was prepared based on the information provided in the IS and the issues expressed in the responses to the NOP and at the scoping meetings.

TABLE 2-2
SUMMARY OF COMMENTS IN RESPONSE TO THE NOP

Respondent	Summary of Comments	Where Comment is Addressed in the EIR
Governor's Office of Planning and Research State Clearinghouse	Confirmed the filing of the NOP and identified the review period.	Comment noted.
Hills for Everyone	Prepare a cumulative impact analysis in evaluating impacts of the proposed project.	Section 8.0 (Cumulative).
	Concerned with fragmentation of habitat and the creation of edge effects by the landfill in this region.	Section 5.12 (Biological Resources).
United States Department of the Interior, United States Fish and Wildlife Service	Provide description of the environment in the vicinity of the project, include aerial photograph with project site outlined.	Section 4.0 (Project Description).
	Provide a complete discussion of each alternative.	Section 6.0 (Alternatives to the Proposed Project).
	Include a complete discussion of the purpose and need, proposed project, including limits of development, grading and fuel modification.	Section 4.0 (Project Description).
	Quantitative and qualitative assessment of biological resources and habitat type should be included.	Section 5.12 (Biological Resources).
	Include a discussion of cumulative impacts to biological resources.	Section 8.0 (Cumulative).
	Mitigation measures to avoid biological resources impacts.	Section 5.12 (Biological Resources).
	Include analysis on wildlife movement and measures to avoid impacts.	Section 5.12 (Biological Resources).
	Include potential impacts to wetlands and jurisdictional waters of the United States.	IS Environmental Analysis Checklist, page 12.
Transportation Corridor Agencies	NOP figures had some inaccuracies, please verify that the maps have been corrected.	Section 4.0 (Project Description).
City of Brea	EIR should have a comprehensive analysis of traffic impacts associate with the project.	Section 5.5 (Transportation and Circulation).
	On going effects of landfill operation to air quality should be analyzed.	Section 5.6 (Air Quality).
	Discussion of aesthetic impacts and mitigation measures.	Section 5.8 (Aesthetics).
	Noise analysis related to landfill operations.	Section 5.7 (Noise).
	Discussion of potential impacts to hydrology, drainage and water quality as they may impact nearby residents.	Section 5.3 (Hydrogeology and Water Quality).
	Discussion of health impacts to nearby residents.	Sections 5.6 and 5.10 (Air Quality and Hazards).
	Analyze impacts to wildlife movement and provide mitigation as appropriate.	Section 5.12 (Biological Resources).
Orange County Fire Authority	Fueling on-site requires UST/AST permits and disclosure from OCFA-Hazardous Materials Service Section.	Section 5.10 (Hazards).
	Question (g) in the IS Checklist (page 17) should be identified as less than significant instead of no impact.	Section 3.0 (Effects Found Not to be Significant).

TABLE 2-2
SUMMARY OF COMMENTS IN RESPONSE TO THE NOP

Respondent	Summary of Comments	Where Comment is Addressed in the EIR
	Fire Station 34 in Placentia handles calls from the Olinda landfill.	Section 5.11 (Public Services).
	Police responds are handled by OC sheriffs.	Section 5.11 (Public Services).
City of Fullerton, Development Services Department	Include an alternative that incorporates diversion of waste which would not need any landfill expansions.	Section 5.1.1.5 (Relevant Plans and Policies).
Aera Energy, LLC	Consider the full range of impacts (aesthetics, noise, traffic, safety, air quality, etc.)	Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance).
Wildlife Corridor Conservation Authority	Include waste reduction as an integral project component and establish mitigation funds for land acquisition/preservation.	Section 5.1.1.5 (Relevant Plans and Policies).
	Include mitigation funds for land acquisition/preservation.	Section 11.0 (Inventory of Mitigation Measures).
	Clarify the impacts to recreational services and other regional parks issues.	Section 5.11 (Public Services).
	Include a pre and post project aesthetics analyses from public viewing areas.	Section 5.8 (Aesthetics).
	Analyze impacts to wildlife movement in regarding to dust, noise and light emissions that could potentially disturb animal behavior.	Section 5.12 (Biological Resources).
Steven C. Vargas (resident)	What is the total acreage available or accessible to the people of Brea once it is closed?	Not an environmental issue under CEQA.
	What is the value of the land?	Not an environmental issue under CEQA.
	What are the impacts of not turning over the landfill property in 2013?	Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance).
	What were the landfill dimensions prior to the 1994 MOU?	Not an environmental issue under CEQA.
	As a result of the 1994 MOU, what was the landfill elevation agreed to, how much capacity?	Appendix E (Memorandum of Understanding).
	What is the new elevation if the proposed project is implemented?	Section 4.0 (Project Description).
	What are the visual impacts of this project?	Section 5.8 (Aesthetics).
	How much revenue does the City of Brea receive per year from the landfill operations?	Not an environmental issue under CEQA.
	Is there a restriction of where the money is spent?	Not an environmental issue under CEQA.
	What fee increase (per ton) would the County need to purchase open space or pay for a sports park? What would be the corresponding increase to Brea residents?	Not an environmental issue under CEQA.
	What are the traffic counts going to the landfill?	Section 5.5 (Transportation and Circulation).

TABLE 2-2
SUMMARY OF COMMENTS IN RESPONSE TO THE NOP

Respondent	Summary of Comments	Where Comment is Addressed in the EIR
	The access route to the landfill were restricted in 1997 to remove truck traffic from Lambert. How does this impact hauling routes, noise and pollution to residents on Imperial HWY, Kramer and Valencia Rd?	Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance).
	Is the County current on planning projection for the next 50 years of landfill operations?	Section 4.0 (Project Description).
	Has the County located new sites for future landfill operations in Orange County?	Section 6.6.2.2 (Off-site Alternative: New Landfill in Gypsum Canyon).
	Board of Supervisors are attempting to postpone a decision regarding the location of a new landfill, what are the projected cost associated with land acquisition?	This is an important environmental issue, but it is outside the scope of this current EIR.
	Where can the public get information regarding meetings between County officials and IWMD Board Members regarding the privatization of landfill operations?	Not an environmental issue under CEQA.
	What is the feasibility of building an access road off Tonner Canyon for direct access to the landfill? Tonner Canyon is an abandoned oil property in need of remediation, who is responsible for this remediation if an access road is built?	Section 2.3.3 (Tonner Canyon Road). Section 2.3.3 (Tonner Canyon Road).
	How does the cost of building an access road compare to paying increased gate fees for local road improvements and soundwalls?	Section 2.3.3 (Tonner Canyon Road).
	Local Council member is employed, and his family owns a major LA trash hauler company that hauls trash to Olinda. Has the County looked into this to determine if a conflict of interest exists?	Not an environmental issue under CEQA.
County of Orange, Health Care Agency	The existing soil stockpiles at Olinda Linda will be depleted (therefore the site will be dependent on imported soil) by 2013.	Section 4.0 (Project Description).
	Discussion of the proposed increased tonnage for 36 days should not be included since the IWMD withdrew the application of Olinda Alpha.	Sections 4.0 and 5.5 (Project Description and Transportation and Circulation).
	Consider including a brief discussion of the SWFP revision process currently underway.	Not an environmental issue under CEQA for this project.
	In order to maintain control of lateral and vertical migration of landfill gas, it is likely that additional flare(s) will need to be installed.	Sections 4.0 and 5.6 (Project Description and Air Quality).
	Consider analyzing the potential of subsurface off-site migration of landfill gas.	Section 5.10 (Hazards).
	Include discussion of radioactive waste and the fact that fee booths at Olinda Alpha are equipped with radiation sensors.	Section 5.10 (Hazards).

TABLE 2-2
SUMMARY OF COMMENTS IN RESPONSE TO THE NOP

Respondent	Summary of Comments	Where Comment is Addressed in the EIR
	Mention that the landfill has a fire hydrant located near the flare station and wharf valves.	Section 5.10 (Hazards).
California Department of Toxic Substances Control	Identify whether current or historic uses have resulted in any release of hazardous materials.	Section 5.10 (Hazards).
	Identify known or potential contaminated sites within the project area.	Section 5.10 (Hazards).
	Include the mechanism to initiate any required investigation and .or remediation of any contaminated site.	Section 5.10 (Hazards).
	If during construction, soil or groundwater is contaminated, suspend construction and appropriate Health and Safety procedures need to be followed.	Section 5.10 (Hazards).
UNOCAL	Include impacts of truck traffic on Imperial Highway and Valencia Avenue.	Section 5.5 (Transportation and Circulation).
	Consider using an alternative route such as Tonner Canyon Road.	Section 2.3.3 (Tonner Canyon Road).
Erik and Tina Johnson (residents)	Concerns with traffic danger, truck operating hours and proper signage for trucks that are prohibited from Lambert.	Section 5.5 (Transportation and Circulation).
	Concerns with noise related to truck traffic and generating station at the landfill.	Section 5.7 (Noise).
	Concerns with pollution and odors.	Section 5.6 (Air Quality).
California Department of Fish and Game	Include a complete assessment of the flora and fauna within and the adjacent area with emphasis upon identifying endangered, threatened, and locally unique species.	Section 5.12 (Biological Resources).
	A discussion of direct, indirect and cumulative impacts expected to affect biological resources.	Sections 5.12 and 8.0 (Biological Resources and Cumulative Impacts).
	A range of alternatives should be analyzed to ensure that alternatives to the proposed project are fully considered and evaluated.	Section 6.0 (Alternatives to the Proposed Project).
	Mitigation measures for adverse impacts related to biological resources.	Section 5.12 (Biological Resources).
	A California Endangered Species Act (CESA) must be obtained if the project has the potential to result in “take” of species of plants or animals listed under CESA.	Section 5.12 (Biological Resources).
	Strongly discourages development in wetland and riparian habitats.	IS Environmental Analysis Checklist, page 12.
City of Fullerton, Development Services Department	Request that the IWMD continue to work with the City of Fullerton to support diversion efforts in accordance with AB 939.	Not an environmental issue under CEQA for this project.
	An alternative that includes diversion measures should be considered.	Section 6.0 (Alternatives to the Proposed Project).

TABLE 2-2
SUMMARY OF COMMENTS IN RESPONSE TO THE NOP

Respondent	Summary of Comments	Where Comment is Addressed in the EIR
California Integrated Waste Management Board	Describe in detail the excavation plans for the proposed landfill expansions of the subject facilities.	Not an environmental issue under CEQA for this project.
	What is the proposed acreage for the landfill footprint and proposed project height?	Section 4.0 (Project Description).
	What is the proposed average and peak daily tonnage of waste materials to be permitted on a daily basis?	Section 4.0 (Project Description).
	What are the types and numbers of vehicles that will access the landfill facilities on a daily basis?	Section 4.0 & 5.5 (Project Description & Transportation and Circulation).
	What are the proposed hours and days of operation?	Section 4.0 (Project Description).
	What are the types of wastes to be disposed at the landfill?	Section 4.0 (Project Description).
	What project design or operations of the facility to prevent related impacts to litter, odor, noise, glare, vectors, vehicle queuing, drainage, and health and safety?	Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance).
	What special circumstances provisions will be required for handling, processing transport and storage of special wastes, if any?	Section 5.10 (Hazards).
	Will the highest vista of the landfill be at or above any existing ridgelines or in direct line of sight from a scenic viewpoint?	Section 5.8 (Aesthetics).
	Include significant effects and mitigation measures.	Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance).
	Include alternatives for the proposed project.	Section 6.0 (Alternatives to the Proposed Project).
	Description of salvaging operations.	Not an environmental issue under CEQA for this project.
	Describe the design and operational features relating to household hazardous wastes.	Section 5.10 (Hazards)
	If composting is part of the proposed project, the EIR should contain a complete description.	Section 4.0 (Project Description).
	Identify any areas of prime agricultural or Williamson Act contract lands that would be taken by the proposed project.	IS Environmental Analysis Checklist, page 4.
	CIWMB have identified potential impacts to land use, aesthetics, water quality, air quality, traffic, biology, noise and health and safety.	Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance).
	Cumulative impacts.	Section 8.0 (Cumulative Impacts).
	Mitigation Reporting and Monitoring Program (MRMP) must be submitted at the time local certification of the EIR.	Refer to Final EIR.
	How will the magnitudes and maximum ground acceleration affect proposed slopes stabilities?	Section 5.2 (Geology and Soils).

TABLE 2-2
SUMMARY OF COMMENTS IN RESPONSE TO THE NOP

Respondent	Summary of Comments	Where Comment is Addressed in the EIR
	Title 27, CCR, Section 21190-Postclosure Land Uses may apply to the proposed project.	Section 11.0 (Inventory of Mitigation Measures).
	Title 14, CCR, Section 17407.5. Hazardous, Liquid and Special Wastes may apply to the proposed project.	Section 5.10 (Hazards).

TABLE 2-3
SUMMARY OF WRITTEN COMMENTS AND QUESTIONS - JANUARY 22, 2004 SCOPING MEETING

Comment	Response to Comments	Where Comment is addressed in the EIR
Sami Abunadi	Will it be safe to eat fruits from the trees in Olinda Ranch?	Not an environmental issue under CEQA for this project.
	How much trash smell and particulates am I going to breathe?	Section 5.6 (Air Quality).
	Can you direct traffic through Tonner Canyon?	Section 2.3.3 (Tonner Canyon Road).
	Can you change truck hours till after 9:00 am?	Not an environmental issue under CEQA for this Project.
Roger A. Hoanpoa	Would like to see traffic routed to Tonner Canyon Road.	Section 2.3.3 (Tonner Canyon Road).
	Noise and pollution is becoming intolerable.	Sections 5.6 and 5.7 (Air Quality and Noise).
Unknown member of the audience	Look at the landfill's impact on bird habitat.	Section 5.12 (Biological Resources).
	Odor should be studied in the EIR.	Section 5.6 (Air Quality).
	Wildlife corridor should be studied in the EIR.	Section 5.12 (Biological Resources).
Unknown member of the audience	Air pollution should be analyzed in the EIR	Section 5.6 (Air Quality).
	Landslide possibility due to the height of the landfill.	Section 5.2 (Geology and Soils).
	What type of moving equipment is on the landfill, and what is their relationship to pollution.	Section 5.6 (Air Quality).
	Wildlife corridors should be studied in the EIR.	Section 5.12 (Biological Resources).
	Impacts that can not be mitigated should have some compensation for the damages.	Section 11.0 (Inventory of Mitigation Measures).
Unknown member of the audience	Ask that air quality test be done due to large amount of black dust particles.	Section 5.6 (Air Quality).
	Use Tonner Canyon as the truck route, which would solve the problem related to noise, vibration, toxic particles and road safety.	Section 2.3.3 (Tonner Canyon Road).
David Smith	Re-route the trash truck to Tonner Canyon.	Section 2.3.3 (Tonner Canyon Road).
Robert Lawton	Would like the green waste site closed.	Not an environmental issue under CEQA for this project.

TABLE 2-3
SUMMARY OF WRITTEN COMMENTS AND QUESTIONS - JANUARY 22, 2004
SCOPING MEETING

Comment	Response to Comments	Where Comment is addressed in the EIR
	Re-route the trash truck to Tonner Canyon.	Section 2.3.3 (Tonner Canyon Road).
Eric Bettecheim	Re-route the trash truck to Tonner Canyon.	Section 2.3.3 (Tonner Canyon Road).
	Landscape the lower facing slopes of the landfill.	Section 5.8 (Aesthetics).
Dr. Majed Muhtaseb	Concerns with safety related traffic.	Section 5.5 (Transportation and Circulation).
	Concerns with odors and noise.	Sections 5.6 and 5.7 (Air Quality and Noise)
	No entity should gain economic gain at the expense of the residents of Brea.	Not an environmental issue under CEQA for this project.
Unknown member of the audience	Concerns with truck traffic.	Section 5.5 (Transportation and Circulation).
	Concerns with odors that pervade the community.	Section 5.6 (Air Quality).

TABLE 2-4
SUMMARY OF VERBAL COMMENTS AND QUESTIONS - JANUARY 22, 2004
SCOPING MEETING

Comment	Response to Comments	Where Comment is addressed in the EIR
Joyce Larson	County needed to expand landfill capacity and then started in import trash. The County betrayed us before and how can we believe this time?	Not an environmental issue under CEQA for this project.
Warren Collier	The power plants at the landfill do make excessive noise, request a noise impact analysis.	Section 5.7 (Noise).
	Was told that sound walls were to be put up to reduce noise from power plants, but nothing has been done.	Not an environmental issue under CEQA for this Project.
	If there is a landfill expansion, sound barriers should be used around the facility.	Section 5.7 (Noise).
	Would like traffic studied and would like traffic re-route through Tonner Canyon.	Section 5.5 and 2.3.3 (Transportation and Circulation and Tonner Canyon Road).
Tina Johnson	Concerned with noise impacts on children growing up in Olinda Ranch.	Section 5.7 (Noise).
	Concerned with traffic impacts on children growing up in Olinda Ranch.	Section 5.5 (Transportation and Circulation).
	Concerned with pollution impacts on children growing up in Olinda Ranch.	Section 5.6 (Air Quality).
	Concerned with aesthetics and how much higher the landfill will be.	Section 5.8 (Aesthetics).

TABLE 2-4
SUMMARY OF VERBAL COMMENTS AND QUESTIONS - JANUARY 22, 2004
SCOPING MEETING

Comment	Response to Comments	Where Comment is addressed in the EIR
Phi Tonioka	Concerned with noise along main road that leads to Olinda Alpha.	Section 5.7 (Noise).
	Concerned with exhaust and the vibration of these trucks.	Section 5.6 and 5.7 (Air Quality and Noise).
	Truck traffic is another concern, suggest using Tonner Canyon.	Section 2.3.3 (Tonner Canyon Road).
	Concerned with children growing up close to a landfill.	Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance).
Keith Fullington	Air quality is his main concern.	Section 5.6 (Air Quality).
	Concerned with the safety of children due to the traffic on community roads.	Section 5.5 (Transportation and Circulation).
	EIR should address traffic impacts on Lambert and Carbon Canyon Road.	Section 5.5 (Transportation and Circulation).
	How many trips to and from the landfill are there?	Section 5.5 (Transportation and Circulation).
	Suggest making an off-ramp from the 57 just for trash trucks so it would not impact the wildlife.	Section 2.3.3 (Tonner Canyon Road).
Unknown	Are there more questions in the EIR than in the Checklist?	Section 2.0 (Introduction).
	Asked if one question in the Checklist was going to be changed from "No Impact" since it was incorrect.	Appendix A (Initial Study/Environmental Checklist and NOP).
Unknown	What levels are used regarding the potential significant impacts, less than significant and is there a scoring system used in the Checklist?	Appendix A (Initial Study/Environmental Checklist and NOP).
Unknown	It would make more sense if traffic was re-routed to Tonner Canyon.	Section 2.3.3 (Tonner Canyon Road).
Unknown	Asked about the life expectancy and pollution of the power plants.	Section 5.6 (Air Quality).
Unknown	When was the designated road chosen to the landfill?	Not an environmental issue under CEQA for this Project.
Unknown	How is the EIR going to address water quality in the landfill situation?	Section 5.3 (Hydrogeology and Water Quality).
Unknown	What happens to all the chemicals in the groundwater and will the plastic lining protect it from leakage?	Section 5.3 (Hydrogeology and Water Quality).
Unknown	Concerned with pollution from trucks.	Section 5.6 (Air Quality).
Unknown	Are there people checking and testing the water, soil, air and counting trucks.	Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance).
Unknown	How will particulates be exposed to Olinda Ranch?	Section 5.6 (Air Quality).
Unknown	Can you direct traffic through Tonner Canyon?	Section 2.3.3 (Tonner Canyon Road).
Unknown	Concerned with the height of the expansion.	Section 5.8 (Aesthetics).

TABLE 2-4
SUMMARY OF VERBAL COMMENTS AND QUESTIONS - JANUARY 22, 2004 SCOPING MEETING

Comment	Response to Comments	Where Comment is addressed in the EIR
Unknown	When will the solutions be addressed after the money for the extension comes through?	Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance).
Unknown	If the City does not approve the extension of the landfill, what is done at that point?	Section 6.3 (Alternative 1-No Project Alternative).
Unknown	What are the economic impacts if the project does not go through?	Not an environmental issue under CEQA.
Unknown	Residents want to be reflected in the data. Resident offers his backyard for data.	Not a requirement under CEQA.
Unknown	Valencia and Sandpiper is an empty lot for a good set up.	Not a requirement under CEQA.
Unknown	Economic impacts of families living in the area due to illness from the landfill.	Not an environmental issue under CEQA.
Unknown	Impact on home values?	Not an environmental issue under CEQA.
Unknown	Resident was told by homeowner association that the access road to the landfill was going to be moved.	Not an environmental issue under CEQA.
Unknown	If it were to go to the No Project, how far would they have to go for trash disposal and the cost to trash disposal	Section 6.0 (Alternatives to the Proposed Project). Cost is not an environmental issue under CEQA.

TABLE 2-5
SUMMARY OF VERBAL COMMENTS AND QUESTIONS - SEPTEMBER 18, 2002 SCOPING MEETING

Comment	Response to Comments	Where Comment is addressed in the EIR
Phi Tanioka	Concerned with negative consequences from transportation of waste.	Section 5.5 (Transportation and Circulation).
	Concerned with vibration and air quality related to truck traffic.	Section 5.6 and 5.7 (Air Quality and Noise).
	Use another access road.	Section 2.3.3 (Tonner Canyon Road).
Dianne Taylor	Truck traffic is really bad.	Section 5.5 (Transportation and Circulation).
	Noise, vibration and air quality is unacceptable.	Section 5.6 and 5.7 (Air Quality and Noise).
	Use Tonner Canyon as an alternative access.	Section 2.3.3 (Tonner Canyon Road).
Norm Wit	How many tons are being imported into the County landfill?	Section 4.0 (Project Description).
	Why is the cessation of imported materials not being addressed?	Section 6.6.1 (Early Cessation of MSW Importation from Outside the County).
Chris Rimer	How do you explain that there is no increase in daily tonnage yet we have more growth which means more trash?	Section 4.0 (Project Description).
Steve Vargas	Issues of concern in Brea include traffic along Imperial Highway.	Section 5.5 (Transportation and Circulation).

TABLE 2-5
SUMMARY OF VERBAL COMMENTS AND QUESTIONS - SEPTEMBER 18, 2002 SCOPING MEETING

Comment	Response to Comments	Where Comment is addressed in the EIR
	Concerned with noise and the vibration related to trucks.	Section 5.7 (Noise).
	Concerned with particulates and the hazards to my neighborhood.	Section 5.6 (Air Quality).
	How many trucks pass the landfill gates daily?	Section 5.5 (Transportation and Circulation).
	When did the expansion come to be?	Section 4.0 (Project Description).
	What is the acreage of the landfill in 2013 and 2021?	Section 4.0 (Project Description).
	Please clarify the dimensions of the regional park.	Appendix E (MOU).
	Concerned with the protection of the groundwater.	Section 5.3 and 5.4 (Hydrogeology and Water Quality and Surface Water Hydrology).
	What is the cost for the County to extend this landfill from 2013 to 2021?	Not an environmental issue under CEQA for this Project.
	Does the County anticipate having mitigations?	Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance).
	Does the County anticipate having tipping and gate fess?	Not an environmental issue under CEQA for this Project.
Claire Schlotterbeck	Concerned with particulate matter.	Section 5.6 (Air Quality).
	Concerned with the damage the landfill expansion will cause on the Puente-Chino Hills wildlife corridor.	Section 5.12 (Biological Resources).
Melody Schlotterbeck	Would like to see a tipping fee program that would fund the preservation of native habitats.	Not an environmental issue under CEQA for this Project.
	Concerned with traffic and suggests that the evaluation is looked at closely.	Section 5.4 (Transportation and Circulation).

2.3.3 TONNER CANYON ROAD

As discussed briefly earlier in Section 1.4.2 (Use of Tonner Canyon Road as the Landfill Access Route), the potential to use an extension of Tonner Canyon Road as an access route to Olinda Alpha Landfill was identified in a number of comments received on the NOP. The following Sections briefly describe the history of Tonner Canyon Road, its inclusion in transportation planning documents and various environmental analyses which have been conducted regarding this potential road extension. The Tonner Canyon Road extension is included in the Master Plan of Arterial Highways (MPAH) and the City of Brea General Plan Circulation Element. As discussed below, the potential extension of Tonner Canyon Road has been analyzed in the EIR for the Tonner Hills Planned Community (PC, 2002) and twice for the Olinda/Olinda Alpha Access Road (1994 and 1997). A brief summary of the environmental analyses in these documents for the potential extension of Tonner Canyon Road is also provided in this Section.

2.3.3.1 Orange County Transportation Authority Master Plan of Arterial Highways

The Orange County Transportation Authority (OCTA) is responsible for the MPAH in Orange County. The MPAH identifies existing and planned arterial roads throughout the County, based on existing and planned land uses and needed circulation system components to support those land uses. Tonner Canyon Road/Valencia Avenue is shown on the MPAH (12/11/00) as a four lane, divided primary arterial between State Route 57 (SR 57) and Imperial Highway. The MPAH distinguishes the segments of this road which are existing from those that are proposed. The proposed segment of Tonner Canyon Road/Valencia Avenue extends from the existing terminus of Tonner Canyon Road east to the existing northern terminus of Valencia Avenue.

The MPAH is a planning document and does not provide funding or implementation of the MPAH circulation system. Funding and implementation of the MPAH improvements are the responsibility of the individual jurisdictions. At this time, there is no proponent, no funding source and no identified project for the extension of Tonner Canyon Road as shown on the MPAH.

The City of Brea has previously formally requested that the OCTA analyze the potential deletion of the segment of Tonner Canyon Road from the existing terminus of Tonner Canyon Road east to the existing northern terminus of Valencia Avenue from the MPAH.

2.3.3.2 City of Brea General Plan Circulation Element

The City of Brea adopted an updated General Plan, including an updated Circulation Element, on August 19, 2003 (available from the City of Brea). That Circulation Element includes the City's Master Plan of Roadways (MPR, Figure CD-8 in the Circulation Element) which shows Tonner Canyon Road/Valencia Avenue as a primary arterial from SR 57 southeast to City boundary, just south of Imperial Highway. This designation is consistent with the MPAH except that the City's MPR includes a short segment of Valencia Avenue south of Imperial Highway as a primary arterial, which is not included on the MPAH. Figure CD-8 in the Circulation Element further notes that "The Valencia Avenue extension between the entrance to the Olinda Alpha Landfill and SR 57 will be deleted following parallel changes to the OCTA MPAH."

The text of the Circulation Element identifies specific changes that are accommodated in the MPR. That text indicates the City's intent to "Eliminate Tonner/Valencia Avenue (north of Lambert Road) as a Proposed Primary Arterial. Land Use Policy north of Lambert Road does not support the MPAH alignment, nor do planned densities require a roadway of this size." (General Plan, page 2-49).

2.3.3.3 1994 Evaluation of Landfill Access Road Alternatives

In 1994, the County of Orange completed the "Project Report and Preliminary Summary of Environmental Impacts, Landfill Access Road Alternatives, Olinda/Olinda Alpha Landfill Vertical Expansion Project." That report evaluated four access alternatives to Olinda Alpha Landfill, two of which included a Western Access Road from the existing terminus of Tonner Canyon Road east to the landfill, on a more southern alignment than the conceptual alignment shown on the MPAH for this segment of Tonner Canyon Road. That study concluded that existing Valencia Avenue was the preferred access to the landfill, based on physical and environmental constraints and costs. The most substantial of the physical and environmental constraints which differentiated the Western Access Road and Valencia Avenue alternatives and which were greater for the Western Access Road were flood risk; biological resources (habitats and wildlife corridor); aesthetics (impacts to one more view than the Valencia Avenue alternative); and traffic (2005 and buildout levels of service).

2.3.3.4 1997 Evaluation of Olinda Alpha Access Road Alternatives

In April 1997, the County of Orange completed the "Final Environmental Impact Report, Olinda/Olinda Alpha Access Road." That EIR evaluated access road alternatives including Valencia Avenue (two lane undivided and four lane undivided) and a Western Access Road. The Final EIR addressed four alignments for a Western Access Road through Tonner Canyon, one of which was determined superior to the others and was analyzed as a primary alternative in the EIR. The other three were evaluated as alternatives to the primary Western Access Road. As documented in the EIR, the four Western Access alignments would have required the construction of an approximate two-mile long road in undisturbed areas of Tonner Canyon. The environmental analysis concluded that all the Western Access Road alignments would result in unavoidable significant adverse impacts to biological resources, because all the alignments would result in a road that would adversely affect the use of Tonner Canyon as an important wildlife movement corridor. In addition, the construction cost of the primary Western Access Road alternative was estimated to be over five times the estimated cost of the Valencia Avenue - Four Lane Road Alternative. Based on this and other environmental considerations, the BOS found that the Valencia Avenue - Four Lane Road was the Environmentally Superior Alternative. That Alternative was also selected by the BOS as the Preferred Alternative.

On August 5, 1997 the County BOS approved landfill access improvements, the upgrading and widening of Valencia Avenue, as required by the County's MOU with the City of Brea. Valencia Avenue has since been widened from two lanes to a four-lane divided highway from Birch Street/Rose Drive north to Lambert Road/Carbon Canyon Road, and from two lanes to a four-lane undivided roadway from Lambert/Carbon Canyon north to the Sandpiper Street entrance to Olinda Ranch, consistent with the MOU and the 1997 EIR which identified the Valencia Avenue - Four Lane Road as the preferred access route to Olinda Alpha Landfill.

2.3.3.5 Tonner Hills Planned Community (PC) Final EIR

This EIR evaluated the potential impacts of this proposed PC**.** The Tonner Hills PC was approved by the Orange County BOS on November 19, 2002. The PC consists of 789.8 acres that include 795 residential units on 180 acres, Open Space with continued and new oil production activities on 559.7 acres, Open Space/Public Use area on 21.5 acres, existing oil facilities - Tonner Tank Farm and Main Oil Operations on 16.3 acres, and Local Park Land on 14.6 acres.

As part of the original proposal, the Tonner Canyon PC was proposed to include an approximate two mile extension of Tonner Canyon Road, from the road's current terminus just east of SR 57 east to the existing northern terminus of Valencia Avenue. The proposed extension of Tonner Canyon Road as part of this project resulted in detailed and specific concerns raised by the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG). Specifically, the USFWS stated the following in its comment letter on the Draft EIR for the proposed Tonner Canyon PC:

> "Tonner Canyon provides water and cover for a variety of wildlife species which utilize both the canyon and the surrounding upland habitat as a movement corridor. This major east-west wildlife corridor has been well documented as a corridor of regional importance that supports wildlife movement throughout the Chino/Puente Hills, from west of the 57 Freeway northeast to Los Angeles and San Bernardino Counties. The Tonner Hills property provides habitat and a wildlife movement corridor for a wide variety of mammal species, including rabbit, raccoon, skunk, gray fox, coyote, bobcat, mule deer and mountain lion. The proposed development would directly impact the corridor by removing and fragmenting habitat. The constricted corridor through the property would then be subject to a suite of indirect effects from the development, including artificial night lighting, increased human activity, and uncontrolled pets.
>
> Of greatest concern is the proposed extension of Tonner Hills Road. The bridge at Tonner Canyon is the only underpass available for wildlife movement under the 57 Freeway and is considered a choke point (Haas and Crooks 1999). Because wildlife is restricted to just this one route, the proposed extension of Tonner Canyon Road will substantially compromise this unique and functional corridor. Not only would wildlife movement be severely restricted, but the road would increase wildlife mortality due to roadkill. Therefore, we strongly recommend that the proposed extension be deleted from the proposed project." (June 24, 2002 letter from USFWS to County of Orange Planning & Development Services Department regarding the Draft Tonner Hills PC EIR, pages 4 and 5).

CDFG stated the following in its comment letter on the Draft EIR:

> "In summary, the proposed extension of Tonner Hills Road directly through the wildlife corridor would further reduce sensitive species, reduce sensitive habitats, impact regional wildlife movement, increase wildlife mortality over time, and increase indirect effects. For these reasons, the Department recommends that the Environmentally Superior Alternative not include the Tonner Hills Road. In light of the direct, indirect, and cumulative regional impacts of the road, we do not recommend the construction of Tonner Hills Road under any project scenario." (June 24, 2002 Letter from CDFG to County of Orange Planning & Development Services Department regarding the Draft Tonner Hills PC EIR, pages 5 and 6).

As noted, both USFWS and CDFG concluded that the extension of Tonner Canyon Road would divide and fragment a regionally important wildlife movement corridor. During the BOS's consideration and subsequent approval of the Tonner Hills PC, in response to comments received on the Draft EIR, the proposed extension of Tonner Canyon Road was eliminated as an element of the Tonner Hills PC. As approved by the BOS, the Tonner Hills PC will include a gated, private internal road system accessed from existing Tonner Canyon Road to the west, existing Kraemer Boulevard to the south and Valencia Avenue at Santa Fe Road to the east. Tonner Canyon Road would not extend east as far as Valencia Avenue and would not be available as an alternative access route to the landfill.

2.3.3.6 Summary

As described in Section 1.1 (Description of the Proposed Project), the Tonner Canyon Road extension is not proposed as part of the Olinda Alpha Landfill expansion plan. Access to the landfill under the proposed expansion plan will continue to be via Valencia Avenue.

As described above, the Tonner Canyon extension as shown in the MPAH and the City's MPR is proposed for deletion from the MPAH and the MPR as requested by the City of Brea. Two previous studies related to access to the landfill have concluded that Valencia Avenue is the environmentally superior and preferred alternative for access to the landfill. Improvements to Valencia Avenue constructed since 1997 provide the necessary capacity and cross section on Valencia Avenue to adequately serve the landfill. The County BOS's approval of the Tonner Canyon PC did not include the extension of Tonner Canyon Road.

In summary, the extension of Tonner Canyon Road from the existing terminus east of SR 57 east to the existing terminus of Valencia Avenue does not appear likely to be implemented in the foreseeable future, if ever. For these reasons, the current proposed expansion project at Olinda Alpha Landfill does not include any project components or analysis related to the extension of Tonner Canyon Road or the use of Tonner Canyon Road for access to the landfill through the life of this project.

SECTION 3.0
EFFECTS FOUND NOT TO BE SIGNIFICANT

SECTION 3.0
EFFECTS FOUND NOT TO BE SIGNIFICANT

3.1 OVERVIEW

The analysis of the proposed project determined there are a number of environmental parameters that are not expected to incur significant adverse impacts resulting from implementation of the proposed project. This Section summarizes those potential adverse impacts related to the proposed project that were determined in the Initial Study (IS) to be below a level of significance or which could be mitigated to below a level of significance based on mitigation measures. For detailed information regarding this analysis for each environmental parameter, refer to Appendix A (Initial Study). The environmental analysis for each environmental parameter for which the proposed project may or would result in potentially significant adverse impacts is provided in Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance After Mitigation) of the EIR.

3.2 LAND USE AND PLANNING IMPACTS FOUND NOT TO BE SIGNIFICANT

The proposed vertical and horizontal expansion of the Olinda Alpha Landfill would not extend beyond the property boundary of the site and, therefore, would not result in the disruption or division of the physical arrangement of an established community. No mitigation is required.

The vertical and horizontal expansion of Olinda Alpha Landfill would not result in development outside the existing landfill boundary. Olinda Alpha Landfill is not in a designated Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) area. No mitigation is required.

3.3 AGRICULTURE IMPACTS FOUND NOT TO BE SIGNIFICANT

There are no existing agricultural preserves on the landfill property and no preserves will be impacted under the proposed project. Therefore, the proposed project will not result in impacts related to the conversion of farmlands listed as Prime, Unique or Farmland of Statewide Importance to non-agricultural uses. No mitigation is required.

The proposed project would not result in the cancellation of any Williamson Act contracts or conflict with any existing zoning for agricultural uses. No mitigation is required.

3.4 POPULATION IMPACTS FOUND NOT TO BE SIGNIFICANT

None of the improvements under the proposed project would entail new residences or extending any major infrastructure (i.e., sewer or water lines, road, etc.) that could support additional development beyond the existing landfill property boundary. Employment associated with landfill operations will be drawn from existing on-site employment. No substantial new employment will be generated by the proposed project that could potentially contribute to additional demand for housing or services in the surrounding area. No mitigation is required.

The proposed project will not result in the removal or demolition of any existing housing. The proposed project would not entail the displacement of a substantial number of people or residences because no housing currently exists on-site or is proposed. No mitigation is required.

3.5 GEOLOGY AND SOILS IMPACTS FOUND NOT TO BE SIGNIFICANT

Some of the soils underlying the Olinda Alpha Landfill site and the horizontal expansion area have a moderate to high shrink-swell potential. Although considered to be expansive soils, the soils at the site would not create a substantial risk to life or property. No mitigation is required.

The vertical and horizontal expansion of Olinda Alpha Landfill does not propose the use of septic tanks. No mitigation is required.

3.6 HYDROLOGY AND WATER QUALITY IMPACTS FOUND NOT TO BE SIGNIFICANT

Olinda Alpha Landfill is approved under the Waste Discharge Requirements (WDRs) issued by the Regional Water Quality Control Board – Santa Ana Region (RWQCB-SA) and is designed to comply with water quality standards and waste discharge requirements. Semi-annual water quality testing at the landfill is conducted for volatile organic compounds (VOC), minerals, total dissolved solids (TDS), potential of hydrogen (pH), electrical conductivity (EC), nitrates and metals. Groundwater is extracted, treated and reused on-site. Any modification of the existing landfill design will require coordination with the Landfill Section of the RWQCB-SA to revise the existing National Pollutant Discharge Elimination System (NPDES) permit and WDRs for Olinda Alpha Landfill in accordance with federal and state requirements for the protection of water quality. No significant adverse impacts are anticipated.

The proposed project does not include any components that would result in groundwater extraction. The horizontal and vertical expansions and associated drainage patterns will channel run-off downstream to the existing on-site detention basins. The reduction in recharge at the horizontal and vertical expansion areas is not anticipated to substantially reduce recharge in the regional groundwater basin. Moreover, the proposed project would not result in significant adverse impacts related to groundwater depletion that would contribute to a net deficit in aquifer volume or a lowering of a local groundwater table.

The proposed project would not substantially alter the existing drainage pattern of the site or area. Under the project, the landfill will continue to operate as a solid waste landfill to approximately 2021. The existing storm water control system consisting of a network of drainage channels, berms, interceptor ditches and sedimentation basins will be extended, as necessary, to control any additional run-off and erosion associated with the proposed project. The existing concrete-lined sedimentation basins are sufficiently sized to accommodate storm water drainage associated with existing and future landfill operations. Collected silt is cleaned out of the sedimentation basins at the end of the rainy season.

The continued operation and expansion of Olinda Alpha Landfill will result in an increase in excavation and grading, potentially causing increases in erosion and run-off. Vertical and horizontal expansion of Olinda Alpha Landfill will modify the surface hydrology and change stormwater run-off rates on this site. The change in stormwater run-off is not expected to be substantially different from the existing condition and is not anticipated to result in flooding on or off-site. The capacity of the major on-site stormwater control facilities required for the permitted landfill operation do not need to be modified for the expansion project. Off-site discharge will be controlled to only release pre-development condition flows during a storm event. The proposed project will not impact the capacity of existing or planned stormwater drainage systems off-site.

The proposed project would result in the approximately 115-foot vertical and 33-acre horizontal expansion at Olinda Alpha Landfill. The landfill expansion must be designed, operated and monitored to preclude any significant adverse impacts to groundwater resources or water quality. In addition, the vertical and horizontal expansion must be approved under WDRs issued by the RWQCB-SA.

The proposed project does not include the development of housing or structures that would be located in a 100-year flood hazard area.

The proposed project is not anticipated to result in any impacts related to flooding as a result of the failure of a levee or dam, or inundation by seiche, tsunami or mudflow.

Although the proposed project will not have significant adverse impacts associated with hydrology and water quality, Sections 5.3 (Hydrogeology and Water Quality) and 5.4 (Surface Water Hydrology) are included in this EIR to provide more details regarding the environmental setting, impacts and mitigation related to hydrology and water quality that would result from implementation of the proposed project. Technical studies related to surface hydrology and water quality are discussed in those Sections.

3.7 TRANSPORTATION AND CIRCULATION IMPACTS FOUND NOT TO BE SIGNIFICANT

The proposed project is outside the defined airspace of any airport and would not result in changes in air traffic patterns or air traffic levels because the proposed expansion will not generate demand for air passenger or cargo trips. No mitigation is required.

The current access roads used by waste disposal trucks are designed to local jurisdictions' standards and are suitable for this type of use. The proposed project does not include road improvements or the use of vehicles not compatible with public and private access roads serving the landfill. Therefore, expansion of Olinda Alpha Landfill will not result in impacts related to safety hazards from design features or incompatible uses and no mitigation is required.

Emergency vehicles can use the existing private and public roads if necessary to respond to fire, medical or police emergencies. Consistent with the California Vehicle Code and local restrictions, trucks using public roads to access the landfill do not block emergency vehicles and do not block access to adjacent uses. At the landfill, trucks do not queue off the landfill property and, therefore, do not block emergency access in the area. On the landfill property, truck queuing is managed to ensure that emergency vehicles can access the site, if necessary. No mitigation is required.

Parking for employees and vehicles waiting for inspection or to deposit loads is currently provided on the Olinda Alpha Landfill property. In the event that additional parking is temporarily needed as a result of the proposed vertical and horizontal expansion, it also would be provided on the landfill property. No off-site parking will be required so the proposed project will not result in any impacts related to inadequate parking capacity. No mitigation is required.

Trucks transporting municipal solid waste (MSW) to Olinda Alpha Landfill, including the areas for the proposed expansion, would operate on public roads consistent with laws and regulations controlling vehicle traffic, similar to existing conditions associated with trucks currently accessing the landfill. Alternative modes, including rail, bus, transit, bicycling, carpooling and vanpooling, would not be adversely affected by these truck operations on public roads and no mitigation is required.

Under the proposed project, existing traffic levels to and from Olinda Alpha Landfill would continue for eight additional years, from the current closure date in 2013 to the proposed closure date in 2021. The potential for traffic impacts under the proposed project is discussed in detail in Section 5.5 (Transportation and Circulation).

3.8 AIR QUALITY IMPACTS FOUND NOT TO BE SIGNIFICANT

The proposed project would not result in an obstruction to the implementation of the 2003 Air Quality Management Plan as overseen by the South Coast Air Quality Management District (AQMD). No mitigation is required.

3.9 NOISE IMPACTS FOUND NOT TO BE SIGNIFICANT

The proposed project is not located within two miles of an existing public airport and is not within an adopted airport land use plan. Therefore, the proposed project will not result in exposure of people in this area to excessive aviation-related noise levels and no mitigation is required.

3.10 BIOLOGICAL RESOURCES IMPACTS FOUND NOT TO BE SIGNIFICANT

The proposed project would not impact wetlands or other watercourses subject to regulatory control because none are located on-site. No mitigation is required.

The proposed project is not expected to impact wildlife movement, migration patterns or wildlife corridors. No disturbance along the ridgeline east of the horizontal expansion area is proposed. However, landfill operations may generate dust, noise or light emissions that could potentially disturb wildlife behavior, including possible shifts in the use of the eastern ridgeline by wildlife. The majority of wildlife movement through and near the landfill occurs after dark. Because operations at the landfill cease at dark, no impacts to wildlife dispersal, migration or wildlife corridors will occur and no mitigation is required.

The proposed project would not impact locally designated species. The County of Orange has no officially adopted heritage tree ordinance or policy. Therefore, the proposed project would not result in impacts to locally designated species and no mitigation is required.

Olinda Alpha Landfill is not within an approved NCCP/HCP Reserve System and, therefore, would not impact any NCCP/HCP areas. No mitigation is required.

Section 5.12 (Biological Resources) in this EIR provides discussion regarding the environmental setting, impacts and mitigation related to biological resources that would potentially be impacted by the proposed project.

3.11 LIGHT, GLARE AND AESTHETICS IMPACTS FOUND NOT TO BE SIGNIFICANT

Potential light and glare impacts associated with the proposed project would be the same as existing impacts associated with the permitted landfill. Sources of light at this landfill, including lighting for access roads, parking areas, buildings and security, would not change appreciably under the proposed expansion. Therefore, there would be no impacts related to light and glare associated with the expansion at Olinda Alpha Landfill and no mitigation is required.

Section 5.8 (Aesthetics) in this EIR provides discussion regarding the environmental setting, impacts and mitigation related to aesthetics that would potentially be impacted by the proposed project.

3.12 CULTURAL AND SCIENTIFIC RESOURCES IMPACTS FOUND NOT TO BE SIGNIFICANT

No historic resources have been documented on the Olinda Alpha Landfill property. Therefore, no historic resources are expected to be impacted by the proposed expansion. No mitigation is required.

The proposed project would occur in some areas previously disturbed by landfill operations. No impacts to known archaeological resources would occur. The majority of the proposed expansion area has been surveyed and there are no known archaeological sites within the existing landfill property boundary. No mitigation is required.

During previous landfill operations, rare paleontological specimens have been found. The IWMD provides archaeological/paleontological monitoring services during construction to recover any paleontological resources or specimens that may be discovered in the future. These resources are preserved in accordance with the County of Orange Standard Conditions of Approval that require paleontological monitoring during construction. Potential adverse impacts on paleontological resources will be considered less than significant with the continuation of archaeological/paleontological monitoring services during construction.

The proposed project would occur in some areas previously disturbed by landfill operations. No known human remains would be disturbed by the proposed project. No mitigation is required.

Although the proposed project will not have significant adverse impacts associated with cultural and scientific resources, Section 5.8 (Cultural and Scientific Resources) is included in this EIR to provide more details regarding the environmental setting, impacts and mitigation related to these resources that would result from implementation of the proposed project.

3.13 RECREATION IMPACTS FOUND NOT TO BE SIGNIFICANT

The proposed project will not affect the local demand for neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. No mitigation is required.

The proposed project does not entail the construction of additional recreational facilities either on or off-site at Olinda Alpha Landfill. Therefore, the proposed project will not affect existing recreation facilities in the project area. No mitigation is required.

Section 5.11 (Public Services) in this EIR provides discussion regarding the planned post-closure use of the existing landfill which would result in the conversion of the landfill property to a passive use regional park. The proposed project will result in the continued operation of the landfill from 2013 to 2021 which will delay the use of the site for recreational use until after 2021.

3.14 MINERAL RESOURCES IMPACTS FOUND NOT TO BE SIGNIFICANT

No known mineral resources are presently or likely to be available on the Olinda Alpha Landfill property. Therefore, the proposed project will not result in impacts related to known mineral resources of possible state or regional value. No mitigation is required.

3.15 HAZARDS IMPACTS FOUND NOT TO BE SIGNIFICANT

The existing landfill design and facilities, including LFG collection and groundwater monitoring facilities, are required for the landfill to operate in a safe and sanitary manner. In addition, there are no existing or proposed schools within one-quarter mile of Olinda Alpha Landfill and no hazardous wastes will be disposed of in this landfill under the proposed project. The proposed project will not result in impacts related to hazardous emissions. No mitigation is required. Although the proposed project will not have significant adverse impacts associated with LFG, Section 5.10 (Hazards) was included in this EIR to provide a more detailed discussion regarding the potential for increase in LFG surface emissions into the atmosphere and subsurface migration under the proposed project.

The Olinda Alpha Landfill property is not listed as a hazardous materials site. The landfill accepts only Class III MSW and implements a hazardous waste exclusion program. No mitigation is required.

The proposed project is not located near an airport and is not affected by any airport land use plan. In addition, there are no private airstrips in the vicinity of the landfill property. Therefore, the proposed project will not result in adverse impacts related to aviation safety hazards for people residing or working in the project area. No mitigation is required.

The designated emergency routes from Olinda Alpha Landfill are through the City of Brea and will not change with the implementation of the proposed project. The proposed project will not affect emergency plans in the area and no mitigation is required.

There is a remote possibility of fire at Olinda Alpha Landfill from combustible refuse, vegetation or litter being ignited by sparks from vehicles, lighted cigarettes or matches thrown from vehicles. However, this potential risk is addressed in the design and daily operations of this landfill. Continued landfilling under the proposed project is not anticipated to have a significant adverse impact on the occurrence of wildland fires in the area.

The landfill may be subject to surface fires started by burning waste material deposited on the working landfill face. Should this occur, the fire would be limited to the materials deposited prior to the daily application of cover materials, as fire will not generally propagate through cover soil. The Orange County Fire Authority has procedures for the prevention, control and management of fires at waste disposal sites. There are numerous fire control and prevention practices and fire fighting provisions currently in place at Olinda Alpha Landfill. The landfill has a 100,000-gallon storage tank for potable water dedicated to fire protection and a fire hydrant is located near the LFG flaring system. Two water trucks are available on the landfill property for fire fighting purposes. Fire extinguishers are required and are provided on all heavy equipment at the landfill. Internal combustion engines have required OCFA approved spark arrestors. In addition, fire extinguishers are located within 50 feet of the aboveground liquid tanks.

Safety and health hazards such as fires or explosions could occur if LFG containing methane or toxic gases is permitted to migrate into nearby buildings. Further, site engineering staff routinely monitor on-site buildings with an Organic Vapor Analyzer (OVA) for methane. The existing LFG control and monitoring system at Olinda Alpha Landfill would reduce LFG migration and associated potential impacts associated with the proposed project to below a level of significance. No mitigation is required.

The proposed project does not include the development of new or retrofitted stormwater control BMPs. No mitigation is required.

Section 5.10 (Hazards) discusses impacts as they relate to hazardous emissions, hazardous material sites, airport/airstrip location, emergency response plans or emergency evacuation plans, fire, and new or retrofitted storm water control Best Management Practices (BMPs).

3.16 PUBLIC SERVICES IMPACTS FOUND NOT TO BE SIGNIFICANT

The existing police services in the area would be adequate to meet the demand for police protection services under the proposed project. Therefore, the proposed project will not result in adverse impacts related to police services and no mitigation is required.

The proposed project will not adversely impact schools because no population increase is associated with the expansion plan. No mitigation is required.

The proposed project will require some permit processing by the County of Orange. However, the proposed project is not anticipated to adversely affect the County's overall ability to provide permitting services Countywide. The proposed project will not result in an increase in the number of employees at the landfill or other changes which would result in the need for other new or altered government facilities or services such as libraries or jails. Therefore, the proposed project will not result in adverse impacts related to other governmental services. No mitigation is required.

Implementation of the proposed project will not result in a demand for increased public services.

3.17 UTILITIES AND SERVICE SYSTEMS IMPACTS FOUND NOT TO BE SIGNIFICANT

The proposed project would not result in the construction of new or expanded water or wastewater treatment facilities. In addition, the project would not exceed wastewater treatment requirements. No mitigation is required.

As previously discussed in Section 3.6, the project would not result in the need for the off-site construction of new or expanded stormwater drainage facilities. With the development of the proposed project, the existing landfill stormwater collection system that consists of a series of drainage channels, berms, interceptor ditches and sedimentation basins would be improved for the expansion areas as appropriate. This would occur in areas already disturbed by landfill operations and would not result in additional environmental impacts. No mitigation is required.

The proposed project would extend the use period of this landfill. Therefore, the proposed project will result in an increase in the total amount of water needed over time for offices, earthwork, dust control, on-site road construction and other on-site improvements. However, the proposed expansion is not anticipated to result in a substantial increase in the amount of water currently used daily at the landfill. The existing water facilities and supplies are anticipated to be adequate to continue providing water to the landfill over the extended use period of Olinda Alpha Landfill under this proposed project. Therefore, the proposed project will not result in significant adverse impacts related to water treatment and distribution facilities. No mitigation is required.

The proposed project will increase the use period of the landfill and will result in an increase in the total amount of sewage generated over the life of the landfill. However, the proposed expansion is not anticipated to result in a substantial increase in the amount of sewage currently generated daily at Olinda Alpha Landfill. The existing wastewater facilities are anticipated to be adequate to accommodate the additional sewage generated at Olinda Alpha Landfill over the extended use period of the landfill under the proposed project. Therefore, the proposed project will not result in significant adverse impacts related to sewer or septic systems. No mitigation is required.

The proposed project will extend the use period of Olinda Alpha Landfill and will provide additional capacity for MSW. Therefore, the proposed project will not result in adverse impacts to MSW disposal. No mitigation is required.

Implementation of the proposed project will not result in a demand for additional utilities and service systems.

SECTION 4.0
PROJECT DESCRIPTION

SECTION 4.0
PROJECT DESCRIPTION

4.1 PROJECT LOCATION

The project site is within the existing Olinda Alpha Landfill property at 1942 North Valencia Avenue in unincorporated Orange County, near the City of Brea. Figure 4.1-1 shows the location of Olinda Alpha Landfill which is generally bounded by Lambert Road/Carbon Canyon Road to the south and Valencia Avenue to the southwest. Olinda Alpha Landfill is located on the following assessor's parcels: 308-031-3, 7, 8, 9, 14, 15, 17, 22, 30, 31 and 308-021-3, 4, 12, 14.

4.2 ENVIRONMENTAL SETTING

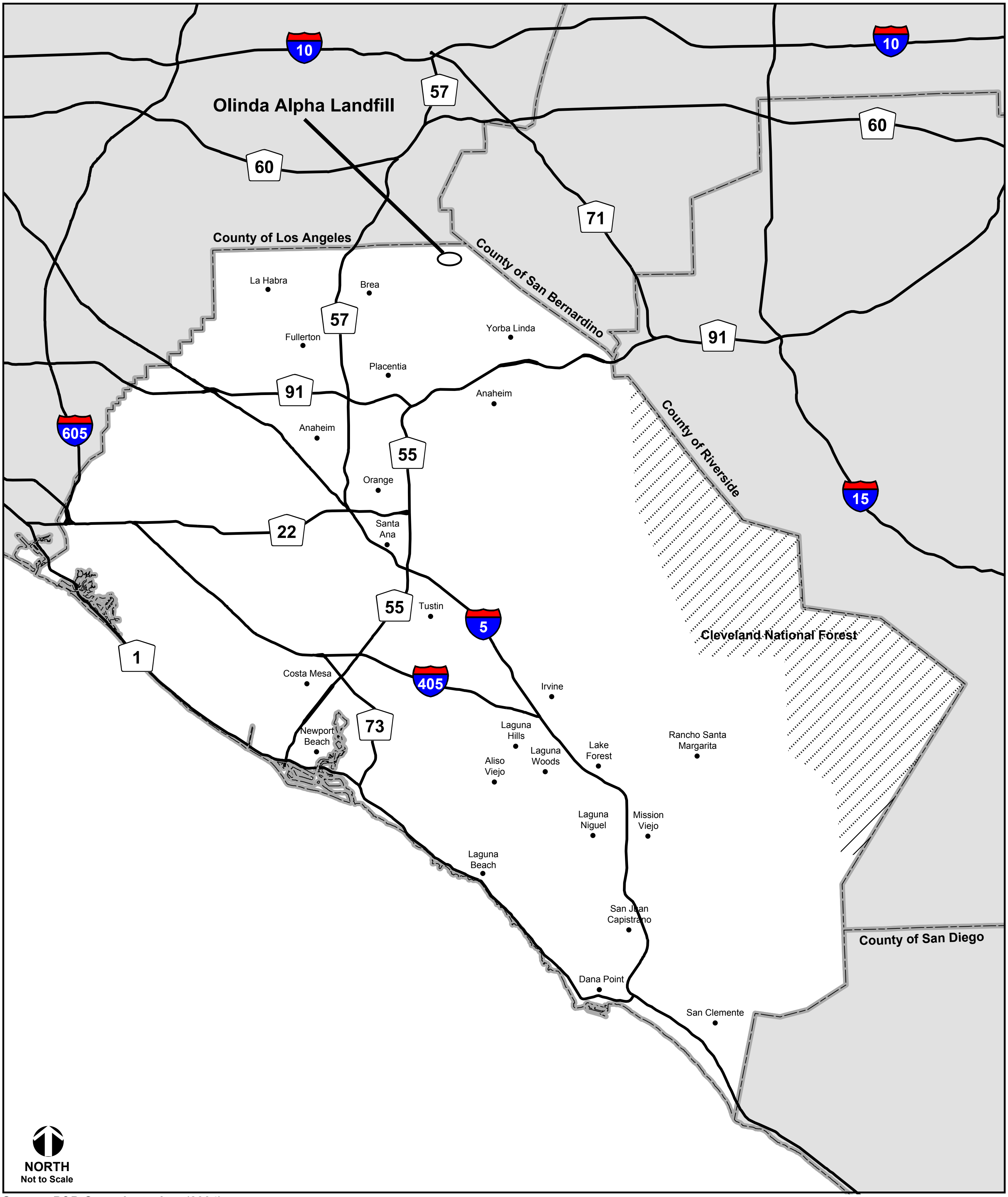
Olinda Alpha Landfill comprises 565 acres with approximately 420 acres currently permitted for refuse disposal. The approximate 33-acre area proposed for horizontal expansion is on a northeast hilly area on the existing Olinda Alpha Landfill property. The landfill is in an unincorporated area of Orange County with a land use designation of 4(LS) Public Facilities (Landfill Site). The landfill is also within the Sphere of Influence of the City of Brea and is designated in the City's General Plan as a Public Facility which allows for the use of this site for municipal solid waste (MSW) disposal. The proposed project is generally consistent with the City's existing General Plan land use designation for the site because the proposed expansion would occur entirely within the existing landfill boundary and would be an extension of the existing MSW disposal activities at this facility.

4.3 HISTORY AND EVOLUTION OF THE PROPOSED PROJECT

4.3.1 REGIONAL LANDFILL OPTIONS FOR ORANGE COUNTY

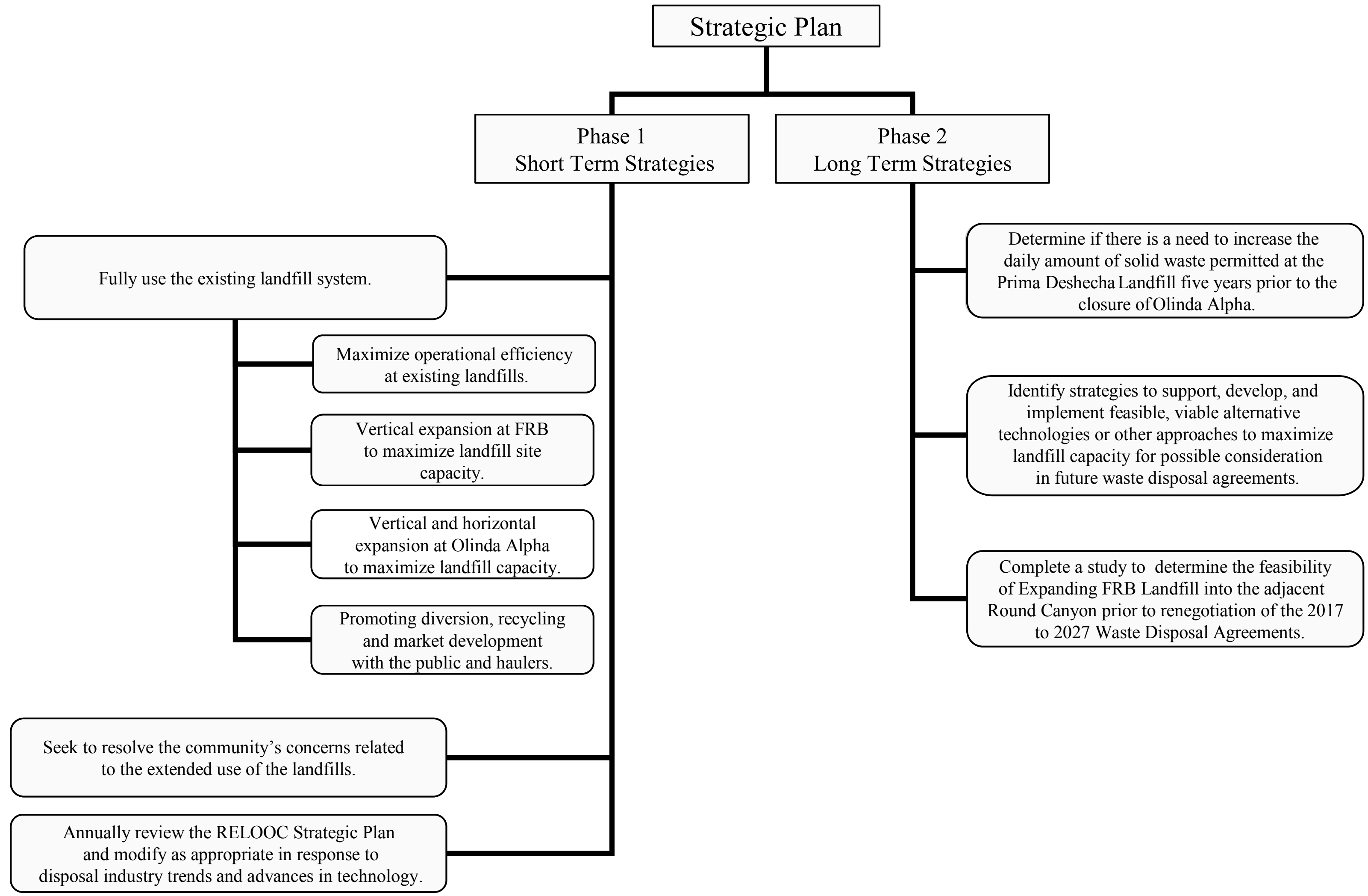
4.3.1.1 Strategic Planning

Strategic planning for MSW needs in Orange County is the responsibility of the County of Orange Integrated Waste Management Department (IWMD). IWMD's mission is "…to meet the solid waste disposal needs of Orange County through efficient operations, sound environmental practices, strategic planning, innovation and technology." The Regional Landfill Options for Orange County (RELOOC) is a short and long term strategic planning project initiated by IWMD in 1998 to address existing disposal system capabilities and future needs, and to develop viable short and long term solid waste disposal options for the County. Following completion of the planning and feasibility phase of RELOOC in 2002, the Orange County Board of Supervisors (BOS) concurred on recommendations to implement a phased approach to RELOOC and directed IWMD to evaluate those RELOOC strategies subject to the California Environmental Quality Act (CEQA). The RELOOC Strategic Plan provides a framework for solid waste management over the next 40 years in the most cost-effective manner, as shown in Figure 4.3-1. The RELOOC Strategic Plan includes a two-phased approach to accomplishing this goal as described below.



Source: P&D Consulants, Inc. (2004).

Figure 4.1-1
Regional Location Map



Source: Bryan A. Stirrat & Associates / P&D Consultants, Inc. (2004).

Figure 4.3-1
RELOOC Strategic Plan Structure Overview

Phase I (short term) strategies include fully using the existing landfill system capacity in Orange County by:

- Maximizing operational efficiency at the three existing landfills.
- Expanding the existing Frank R. Bowerman (FRB) and Olinda Alpha Landfills.
- Promoting diversion, recycling and market development with the public and waste haulers.
- Seeking to resolve community concerns related to the extended use of the three existing landfills.
- Annually reviewing the RELOOC Strategic Plan and modifying it as appropriate in response to disposal industry trends and advances in technology.

Phase II (long term) strategies consist of a series of studies which will:

- Determine if there is a need to increase the daily amount of solid waste permitted at the Prima Deshecha Landfill five years prior to the closure of Olinda Alpha Landfill.
- Identify strategies to support, develop and implement feasible, viable alternative technologies or other approaches to maximize landfill capacity for possible consideration in future waste disposal agreements.
- Complete a study to determine the feasibility of expanding FRB Landfill into adjacent Round Canyon prior to re-negotiation of the 2017 to 2027 Waste Disposal Agreements (WDAs).

The purpose of this Environmental Impact Report (EIR) is to analyze potential impacts of and provide environmental documentation for the implementation of the RELOOC Strategic Plan component to expand Olinda Alpha Landfill, proposed as a Phase I strategy in the Strategic Plan. A detailed discussion of the proposed project based on parameters developed pursuant to the Strategic Plan is provided later in Section 4.5 (Project Description).

The only other Phase I strategy component requiring CEQA analysis is the expansion of FRB Landfill, which will be addressed in a separate EIR when the expansion plan for that site is better defined. A major landslide that occurred at FRB Landfill in early 2002 has required extensive geotechnical investigation, landslide remediation design, biological resource evaluation and coordination/permitting with resource agencies in developing a remediation design for full development of the site. It is anticipated that the CEQA and resource agency approval processes for the FRB Landfill will be lengthy. Because the Olinda Alpha Landfill and FRB Landfill components are independent of each other, a separate EIR will be prepared for the FRB Landfill expansion component of RELOOC Phase I once the full extent of the landslide remediation needs and its effect on the current Master Plan for that landfill are known. To reduce further delays in implementing the overall RELOOC Phase I strategy, the implementation of the Olinda Alpha Landfill expansion is being proposed now.

The Phase II strategies are considered studies and are not subject to CEQA requirements. The Phase II strategies are long term RELOOC program components and, if determined to be feasible as a result of future studies, may be selected for analysis in accordance with CEQA requirements at a later date during the RELOOC 40-year planning time frame.

4.3.1.2 Tonnage Projections for RELOOC

As part of the RELOOC planning and evaluation process, tonnage projections were developed for the RELOOC Feasibility Study (report dated December 2001) which support the total daily tonnage requirements assumed in this EIR for the proposed expansion at Olinda Alpha Landfill. In developing the system configurations for each option analyzed for the RELOOC Feasibility Study time period, a capacity analysis was performed to determine remaining disposal capacity at the three existing Orange County landfills. January 1, 1999 was used as the basis for evaluation of remaining capacity at the existing landfills since the latest topographic maps available for the landfill properties at the beginning of the RELOOC study were October 1998.

Using the remaining capacity as of January 1, 1999, for the existing landfills, a system demand computer model was developed by the RELOOC consultant team to project future tonnages and disposal demand for each of the options evaluated in the RELOOC Feasibility Study. The projected tonnage was based on population projections provided by IWMD, which uses the Center for Demographic Research at California State University, Fullerton (CSUF) statistics for its database. Historical and current tonnage information was also provided by IWMD. Assumptions made for the demand model were:

- All waste is first routed to the Orange County landfill system within limits of daily permits (as applicable for each option) and total capacity constraints until waste cannot be accommodated by the system.
- Projected tonnage disposed was based on projected changes in population and assumes no additional diversion achieved after 1998. Although cities may increase diversion to try to achieve the state's 50 percent mandate, it was conservatively assumed for the RELOOC Feasibility Study that a majority of diversion had been achieved by 1998. Therefore, no increases in diversion were projected beyond the January 1, 1999 baseline for the tonnage estimates.
- Population projections through 2020 were from the Center for Demographic Research at CSUF. Growth rates for years after 2020 were assumed to be equal to the growth rates for the year 2020.
- Importation continues at tonnage levels as of 1/1/99 until 2015 based on the County's existing policy, except for options which have exportation occurring with the Olinda Alpha Landfill closing in 2013, which requires that importation ceases when exportation begins in 2013.
- All County landfills operate 307 days per year.

These assumptions were used in the RELOOC demand model for six initial and five final (R1 through R5) options evaluated for the RELOOC Feasibility Study. The demand model output is available at IWMD headquarters and a summary of the model results for the final five options is provided in the RELOOC Feasibility Study report (Table 3).

Based on these assumptions, the RELOOC demand model projected annual disposal tonnage for each City and unincorporated area in Orange County from 1999 to 2039; and out-of-county import was projected annually through 2013 (if Olinda Alpha Landfill closes in 2013) or 2015 (if Olinda Alpha Landfill does not close in 2015). The demand model projected total system demand for each year from 1999 to 2039. The model results show the total system demand projected for the year 2021 (the horizon year for this EIR for the proposed expansion at Olinda Alpha Landfill) is 4,062,000 tons. Assuming that the County landfills each operate 307 days per year, the total system daily tonnage requirement is forecast to be approximately 13,500 (rounded) tons per day (TPD) in 2021.

Assuming Olinda Alpha Landfill closes in 2013, as currently planned, with the maximum daily permitted tonnage at the FRB Landfill at 8,500 TPD and at the Prima Deshecha Landfill at 4,000 TPD, the total daily maximum permitted capacity in 2021 would be 12,500. This permitted daily system capacity is approximately 1,000 TPD (13,500 – 12,500 = 1,000 TPD) short of the daily tonnage demand projected in 2021. For the analysis of the proposed project and the alternatives to the proposed project for the Olinda Alpha Landfill expansion, this 1,000 TPD shortfall was assumed.

Refer to Section 6.0 for additional discussion of the No Project Alternative and Alternatives to the proposed project which are based on the above assumptions.

4.3.1.3 RELOOC Planning Process

The RELOOC planning process included a Steering Committee to provide policy guidance for the strategic planning process. The Committee was developed in consultation with the County of Orange Waste Management Commission. Membership in the Steering Committee consisted of representatives from the:

- Orange County community at-large.
- City Managers Solid Waste Working Group (SWWG).
- Landfill Host Cities (i.e., Brea, Irvine, San Juan Capistrano and San Clemente).
- Waste Management Commission.
- League of California Cities (Orange County Division).
- IWMD.
- County of Orange (County Executive Office).

The RELOOC Steering Committee directed the Consultant Team (consisting of landfill engineers, environmental experts and other individuals under contract with IWMD) to evaluate a number of strategic planning options that would meet the short and long term RELOOC goals. Key tasks assigned to the Consultant Team were:

- Identification of available options.
- Capacity analysis.
- Demand analysis.
- Economic analysis.
- Environmental impacts analysis.
- Evaluation (or goal achievement) matrix of options.
- Recommended Strategic Plan.

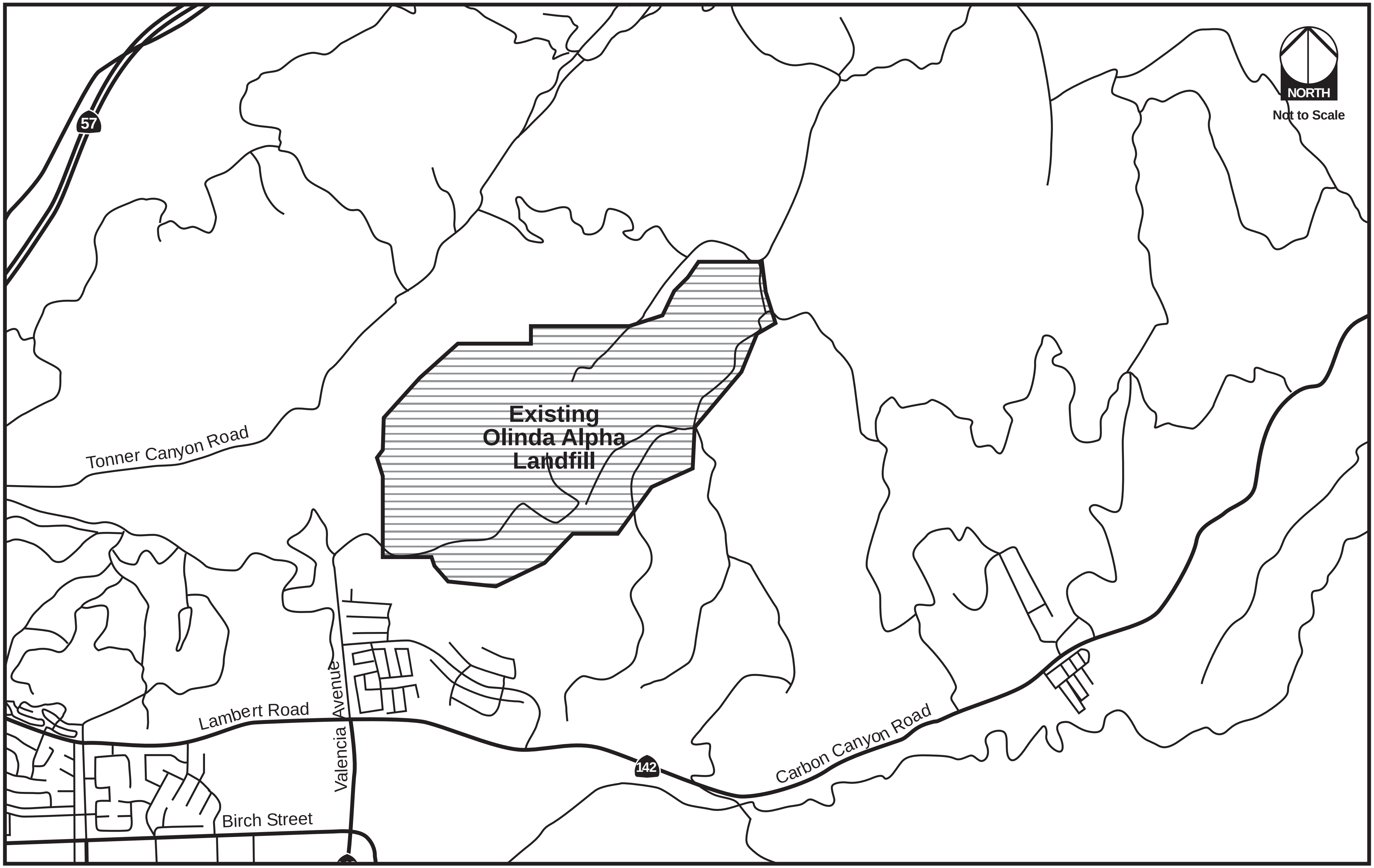
The RELOOC planning process involved extensive community and government agency outreach which was an important element in the evaluation and selection of available options. In the ranking of options, community acceptance was one of five criteria used and was evaluated using a Community Involvement Program (CIP) developed specifically for RELOOC. The CIP and preliminary findings of the RELOOC Feasibility Study Report (FSR) were presented to the Orange County City Managers Association's SWWG. As an outcome of input received from the SWWG and concurrence by the RELOOC Steering Committee, a phased approach to RELOOC developed. The phased approach to RELOOC was presented in a series of meetings and briefings to community groups, City Councils, Chambers of Commerce and the community at large, primarily within the landfill host cities affected by the phased approach. These meetings were conducted between August 23, 2001 and October 18, 2001. Based on recommendations from the community, the SWWG and subsequent action by the RELOOC Steering Committee, a phased approach for the RELOOC Strategic Plan, as previously discussed, was selected by the County BOS for CEQA analysis in May 2002.

In September 2002, a Notice of Preparation (NOP) for EIR 588 was circulated for public review that identified the RELOOC Phase I strategies. That NOP described proposed vertical and horizontal expansions of Olinda Alpha and FRB Landfills. Based on preliminary information on the complex geological conditions at FRB Landfill available at that time, scoping meetings were held in September 2002 to receive public comments on the NOP for EIR 588. Since then, extensive work has occurred at the FRB Landfill to develop a landslide remediation design and, as previously discussed, the approval process for that project is anticipated to be lengthy. To not further delay the implementation of the Olinda Alpha Landfill expansion component of RELOOC Phase I, this EIR 588 is being prepared separately from an EIR to be prepared at a future date for the FRB Landfill expansion component of RELOOC Phase I. Each of these landfill expansion projects is independent of, does not alter the need for, or impacts the other projects.

4.4 CURRENT SITE STATUS

4.4.1 OPERATIONS

Olinda Alpha Landfill opened in 1960. The landfill serves northern Orange County and also receives MSW from Los Angeles, San Bernardino and Riverside Counties. Access to the landfill is via Valencia Avenue as shown in Figure 4.4-1. Operations as performed under the current landfill operating permits and as described here will remain the same for the proposed expansion. The landfill is open Monday through Saturday from 6:00 A.M. to 7:00 A.M. for transfer trucks only and 7:00 A.M. to 4:00 P.M. for all commercial and non-commercial deliveries. Commercial haulers based both within and outside the County deliver to the site. Refuse disposal by private citizens is allowed and is limited to Orange County residents. Only MSW is accepted at the landfill, although tires are accepted for removal by a recycling contractor. No special wastes are accepted at the landfill. Hazardous materials such as asbestos, batteries, chemicals, paints, non-autoclaved medical waste and other substances considered hazardous are not accepted at this landfill.



Source: Bryan A. Stirrat & Associates (2004).

Figure 4.4-1
Olinda Alpha Landfill Location Map

Access to Olinda Alpha Landfill would remain unchanged under the proposed expansion, with access provided via Valencia Avenue. The total number of trips per day to the landfill for MSW disposal would not increase under the proposed project because the permitted daily tonnage accepted at Olinda Alpha Landfill would not increase compared to existing conditions.

Importation of MSW from Los Angeles, San Bernardino and Riverside Counties will cease in 2015 if the landfill closure date is extended as proposed. At about that time, Olinda Alpha Landfill will need to begin importing cover material if the landfill closure date is extended. It is anticipated that the truck trip reduction that occurs with the cessation of MSW importation at Olinda Alpha Landfill will offset the increase in truck trips required for the transport of cover material. This is based on IWMD records which indicate that an average of approximately 100 trucks per day enters the site carrying imported waste. IWMD estimates their annual daily cover requirements (assuming a 5:1 refuse-to-soil ratio) at approximately 480,000 cy per year or approximately 1,565 cy per day (based on 307 operational days per year). Dirt hauling trucks will average approximately 16 cubic yards of soil per trip. Therefore, it is anticipated that approximately 98 dirt hauling trips per day (1,565 cy/day ÷ 16 cy/trip = 97.8) would occur over the 307 operational days per year to accommodate the landfill needs. The 98 soil truck trips are about equivalent to the 100 refuse import truck trips into the site.

Olinda Alpha Landfill is a deep canyon, cut and cover facility where the majority of MSW is brought to the site by commercial haulers. To determine the tipping fees, trucks are weighed by scales before entering the facility and are then directed to a designated area of the landfill for waste disposal. IWMD heavy equipment operators use compactors, bulldozers and large earthmovers to push and compact waste for ultimate burial and daily covering with soil or an approved alternative cover material.

Upon acceptance of waste for disposal at the scale house, the fee collector directs the haulers to the working face of the landfill. Signs are posted along the on-site access road to guide customers to the unloading areas. Commercial vehicles are generally directed to an unloading area which is separate from that used by private vehicles.

The working face for the commercial refuse trucks is approximately 200 feet wide, which is sufficient to accommodate unloading of waste during an operating day. This unloading area is generally maintained at the toe of the working face so that wastes can be immediately spread and compacted. Small private vehicles are directed to a separate unloading area located away from the commercial vehicle unloading area. Waste unloaded in the area designated for private vehicles is deposited directly onto the deck area. This unloading area varies in size throughout the day depending on the number of private vehicles using the site. Periodically, throughout the day, refuse disposed in this area is pushed to the working face.

Once customers have disposed of their refuse at one of the unloading areas (e.g., commercial or public), a bulldozer pushes the waste to the working face. The refuse is then spread over the working face in about two-foot thick layers. The working face is sloped to 3:1 or 4:1 (horizontal to vertical) to achieve maximum compaction. A compactor or bulldozer then makes repeated passes over the working face to thoroughly compact the refuse. All refuse is spread and compacted in this manner to eliminate voids in the daily refuse cells to inhibit vector propagation and maximize capacity.

At Olinda Alpha Landfill, the canyon fill methodology is used for refuse placement. Figure 4.4-2 presents a typical landfill operation. Under this methodology refuse is typically placed in lifts up to 20-feet high. Each lift is made up of numerous cells and generally consists of 19-feet of refuse topped with one foot of compacted soil cover. No waste is left uncovered at the end of the working day. Daily refuse cells are built in this manner repeatedly across the landfill, up to the desired grades.

Olinda Alpha Landfill complies with all federal, state and local requirements for operation of a Class III Sanitary landfill. Site staff conduct daily inspections to ensure that the site is in compliance with all the permit conditions imposed by regulatory agencies having jurisdiction on landfills. These permitted conditions include specific procedures involving fire, leachate, dust, vector, bird, noise and odor control. Following is a brief description on how these items are controlled as part of ongoing operations at the Olinda Alpha Landfill.

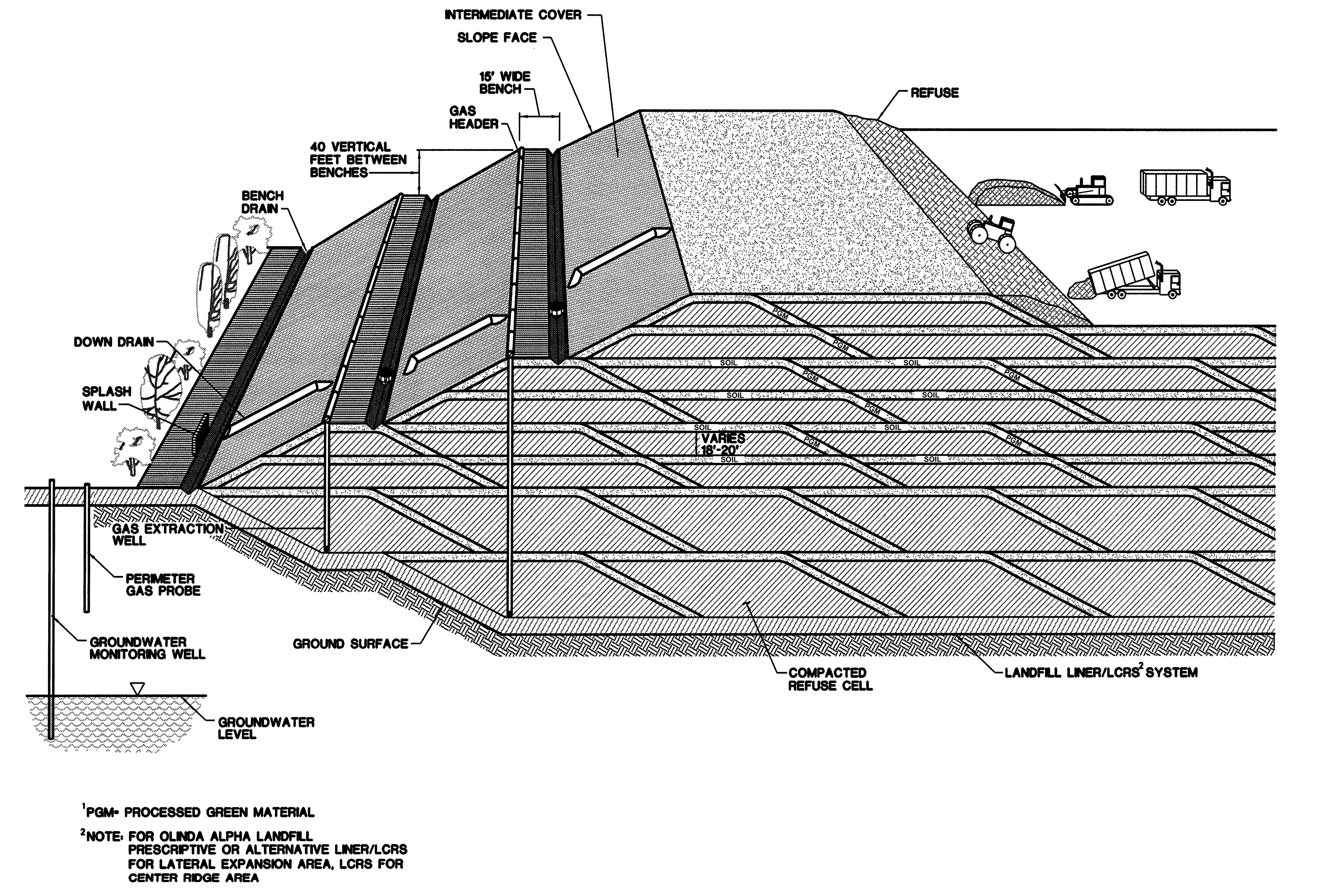
4.4.1.1 Fire Control

A potable water 100,000-gallon storage tank, an 8-inch diameter dedicated fire protection line with fire hydrant near the flaring system, fire sprinklers in all buildings and two water trucks are available at the site at all times for fire-fighting purposes. In the future, IWMD plans to install a fire protection pump that will provide 1,500 gallons per minute (gpm) fire flow at adequate residual pressure as required by the Orange County Fire Authority (OCFA). In addition, all County vehicles at the landfill are equipped with portable fire extinguishers for suppression of minor fires. Fire extinguishers are required on all heavy equipment. Internal combustion engines are required to have OCFA approved spark arrestors. Flammable debris is removed from heavy equipment on a daily basis. A fire extinguisher is also located within 50 feet of each aboveground, flammable liquid tank.

Any fires are immediately reported to the OCFA. Permits to dispense and store flammable and combustible liquids are obtained from the OCFA. Internal access roads on the landfill property are cleared of grass and brush 20 feet on each side of the road. Compacted daily cover limits the oxygen available for combustion within the refuse prism. Daily cover also creates individual cells that will confine a fire to a relatively small area. In the event a fire does start, fires are extinguished immediately and are covered with earth which is stockpiled on-site.

4.4.1.2 Leachate Control

Leachate is liquid which passes through a landfill, coming in contact with disposed wastes and possibly absorbing contaminants. To minimize leachate generation, IWMD maintains proper grading on the landfill decks to ensure positive drainage and to eliminate ponding, provides adequate daily and interim cover on refuse fills to minimize any run-off infiltration, and installs and maintains adequate drainage and erosion controls (interim and permanent) around active and completed areas. Routine inspections are conducted and any suspected seeps are investigated and mitigated. The center ridge area is equipped with a leachate collection system further described in



Source: Bryan A. Stirrat & Associates (2004).

Figure 4.4-2
Typical Landfill Operations

Section 4.5.3.1. The leachate collected is hauled off-site for proper disposal.

4.4.1.3 Dust Control

The Olinda Alpha Landfill dust control program consists of asphalt-paving of the main internal haul roads; watering and proper maintenance of haul roads; water spraying of soil stockpiles; applying water or planting temporary vegetation on intermediate soil cover; and planting and maintaining a vegetative cover on completed fill and excavation slopes. Fugitive dust control measures are implemented in compliance with a site-specific South Coast Air Quality Management District (SCAQMD) Rule 403 compliance plan which is reviewed and updated on an annual basis.

4.4.1.4 Vector and Bird Control

Refuse compaction and daily cover effectively prevent the propagation of vectors (i.e., insects, rodents) on-site. The Orange County Vector Control District has been monitoring for insect and rodent infestation at County operated landfills for several years. To date, no nuisance or health-related problems have been found. Cracker shells and whistles are used to control sea gulls.

4.4.1.5 Noise Control

Site operations are conducted in compliance with California Occupational Safety and Health Administration (Cal-OSHA) regulations. Noise levels of on-site equipment are controlled by installation and proper maintenance of mufflers on all motorized vehicles. Site personnel are provided with earplugs to reduce impacts from continued exposure to on-site noise levels.

4.4.1.6 Odor Control

Odors from refuse are primarily controlled by the operation of a comprehensive landfill gas (LFG) collection and control system. Odors are further controlled by the daily application of a minimum of six inches of soil cover and/or alternative daily covers (ADC) placed over the refuse. Intermediate cover is applied as soon as possible on areas required per Title 27. In addition, the active working face is contained to as small an area as practicable to help control odors from the waste disposal operation.

4.4.1.7 Litter Control

The primary cause for litter around the landfill is wind, which at times carries refuse (primarily plastic bags and paper) away from the tipping area and from vehicles transporting wastes to the site. Litter is collected weekly from outside the perimeter of the landfill site and along the main access route (Valencia Avenue) leading to the landfill. Additional help in collecting litter from outside the landfill perimeter is available from work crews assigned to work under the jurisdiction of the Maintenance Crew Supervisor at the landfill. Crews assigned to pick up litter are either inmates or laborers from the work release program.

Litter on the inside perimeter of the landfill is collected on an as-needed basis. The Site Supervisor and Maintenance Crew Supervisor coordinate litter pick up on the landfill property. Portable fencing is used around the periphery of the active disposal area to help contain litter within the site. During severe Santa Ana wind conditions, a vacuum truck that vacuums the bulk litter from the fences is rented and used. A contract for this equipment is being pursued to assure that the vacuum truck is available as needed. All vehicles entering the landfill are required to have covered loads so as to reduce flying litter along the roads leading to the landfill.

4.4.2 REGULATORY CONTROLS

Landfill operation in California are highly regulated and monitored by federal, state and local agencies. As the owner and operator of the Olinda Alpha Landfill, the County of Orange must comply with the applicable California Code of Regulations (CCR) (primarily Title 27) and the Code of Federal Regulations, Title 40 (CFR), Parts 257 and 258 (Subtitle D). Olinda Alpha Landfill is a Class III landfill permitted for the disposal of non-hazardous MSW. State law requires that landfills operate under the various regulatory requirements of the California Integrated Waste Management Board (CIWMB) that exercises its authority through the approval of Solid Waste Facilities Permits (SWFPs) issued by a Local Enforcement Agency (LEA). The LEA for Olinda Alpha Landfill is the County of Orange Health Care Agency, Environmental Health.

The Regional Water Quality Control Board-Santa Ana Region (RWQCB-SA) regulates landfill operations and designs to ensure protection of surface water and groundwater. The RWQCB-SA exercises its authority through issuance of Waste Discharge Requirements (WDR) and National Pollutant Discharge Elimination (NPDES) permits. The SCAQMD regulates landfill operations related to LFG emissions, subsurface LFG migration and fugitive dust control for Orange County landfills. Environmental monitoring of air, LFG and groundwater is conducted at all Orange County landfills to detect LFG migration or groundwater contamination.

Although the CIWMB has primary oversight and regulatory responsibilities for Olinda Alpha Landfill and has designated the County of Orange Environmental Health Care Agency, Environmental Health as its LEA, Olinda Alpha Landfill is also required to comply with other laws enforced by agencies at the federal, state and local regulatory levels. These agencies include the United States Environmental Protection Agency (USEPA), United States Fish and Wildlife Service (USFWS), United States Army Corps of Engineers (ACOE), California Department of Fish and Game (CDFG), OCFA and the Orange County Resources and Development Management Department (RDMD). Continued adherence to all applicable laws and regulations for continuing landfilling under the proposed project would be required as part of project approval and operating conditions.

4.4.3 CAPACITY OF OLINDA ALPHA LANDFILL

A variety of factors are used to determine landfill capacity including total air space, refuse volume, liner volume, refuse-to-soil ratio and other factors. Based on these factors, IWMD's records show that the current permitted remaining refuse capacity for Olinda Alpha Landfill was 23.9 million tons as of June 30, 2003.

The SWFP permitted daily tonnage limit for Olinda Alpha Landfill is 8,000 tons per day (TPD) of MSW. However, a Memorandum of Understanding (MOU) between the County and the City of Brea limits daily MSW disposal to an annual average of 7,000 TPD.

A number of landfill agreements and permits currently are in place with Orange County cities, waste haulers and regulatory agencies responsible for oversight of the County's landfills. In addition to those regulatory agency permits and city agreement described above, the County also has ten-year WDAs with contract cities that are subject to negotiation for renewal by June 2004. Franchised haulers and Districts also have WDA's that are subject to negotiation. The negotiations for renewal will need to be extended because the future County landfill system will not have been defined by June 2004. Approval of the Olinda Alpha Landfill expansion is a key component of the future system definition required for negotiation of WDAs for an additional ten-year period.

4.4.4 EXISTING WASTE DIVERSION PROGRAMS

In 2003, Olinda Alpha Landfill received approximately 41 percent of all the waste disposed at the three landfill system operated by the IWMD. Waste diversion activities at Olinda Alpha Landfill include a salvage program which recovers metals, large appliances and other reusable items; a tire recycling program; and a green waste reuse program that uses processed green material for erosion control on landfill slopes or as ADC on working face.

The most significant waste diversion that occurs within the County landfill system is that approximately 75 percent of the County's waste stream is processed at Material Recovery Facilities (MRFs) by the franchised waste haulers in the County. MRFs remove all possible recyclables prior to landfilling the residual waste. With this assistance, the CIWMB currently places the overall waste diversion rate for the County of Orange at approximately 42 percent of the total waste stream.

4.5 PROJECT DESCRIPTION

4.5.1 PURPOSE OF THE PROJECT

The RELOOC effort is a long range strategic planning program initiated by IWMD. The purpose of RELOOC is to assess the County's existing disposal system capabilities and develop viable short and long term solid waste disposal options for the County. As part of that endeavor, the County is considering a number of short term improvements to existing MSW landfills operated by IWMD. The proposed project includes an expansion of the existing Olinda Alpha Landfill to help meet the County's short term solid waste disposal needs.

This EIR analyzes the potential environmental impacts associated with the continued operation of Olinda Alpha Landfill from 2013 to the estimated horizon year 2021. The potential environmental impacts associated with the current Olinda Alpha Landfill operations through 2013 were analyzed in the Final EIR for the North Orange County Landfill and Alternatives Technology Study (NOCLATS), which was certified by the BOS in 1992.

The landfill will continue to accept no more than a maximum daily permitted tonnage of 8,000 TPD and an annual average daily tonnage of 7,000 TPD. In addition, the landfill will continue to accept an average of approximately 3,000 to 4,000 TPD of exempt commodities which include dirt, asphalt and green waste.

4.5.2 PROJECT MODIFICATIONS

The proposed project includes both a vertical and a horizontal expansion of Olinda Alpha Landfill within the existing landfill property. No change in the landfill property boundary is proposed. As proposed, the height of Olinda Alpha Landfill would be increased from its current permitted level of 1,300 feet above mean sea level (AMSL) to a maximum of 1,415 feet AMSL, or a net vertical increase of 115 feet. The horizontal expansion would include landform modifications on the northeast part of the existing landfill property. This modification would expand the existing refuse footprint an estimated 33 acres within the existing property boundary of Olinda Alpha Landfill. The extent of the lateral (horizontal) expansion will be determined after additional geotechnical field data is obtained and detailed slope stability analysis is conducted prior to construction. Parts of the proposed horizontal expansion would be in areas that have already been disturbed by landfill operations. Figure 4.5-1 shows the current permitted vertical and horizontal limits of Olinda Alpha Landfill. Figure 4.5-2 shows the proposed limits of the vertical and horizontal expansions at the landfill under the proposed project. The expanded landfill would ultimately accommodate disposal of an additional 25.7 million cubic yards or 14.2 million tons (MT) of MSW assuming a 5:1 refuse-to-soil ratio (which IWMD has field verified) and 1,333 lb/cy refuse density. This additional capacity would extend the life of the Olinda Alpha Landfill from its permitted closure date of 2013 to approximately 2021, based on current population projections, daily tonnage, compaction densities, approved landfill elevations and existing disposal technologies. The proposed project would not result in any increase to either the maximum daily permitted tonnage or the annual average daily tonnage limits for this landfill.

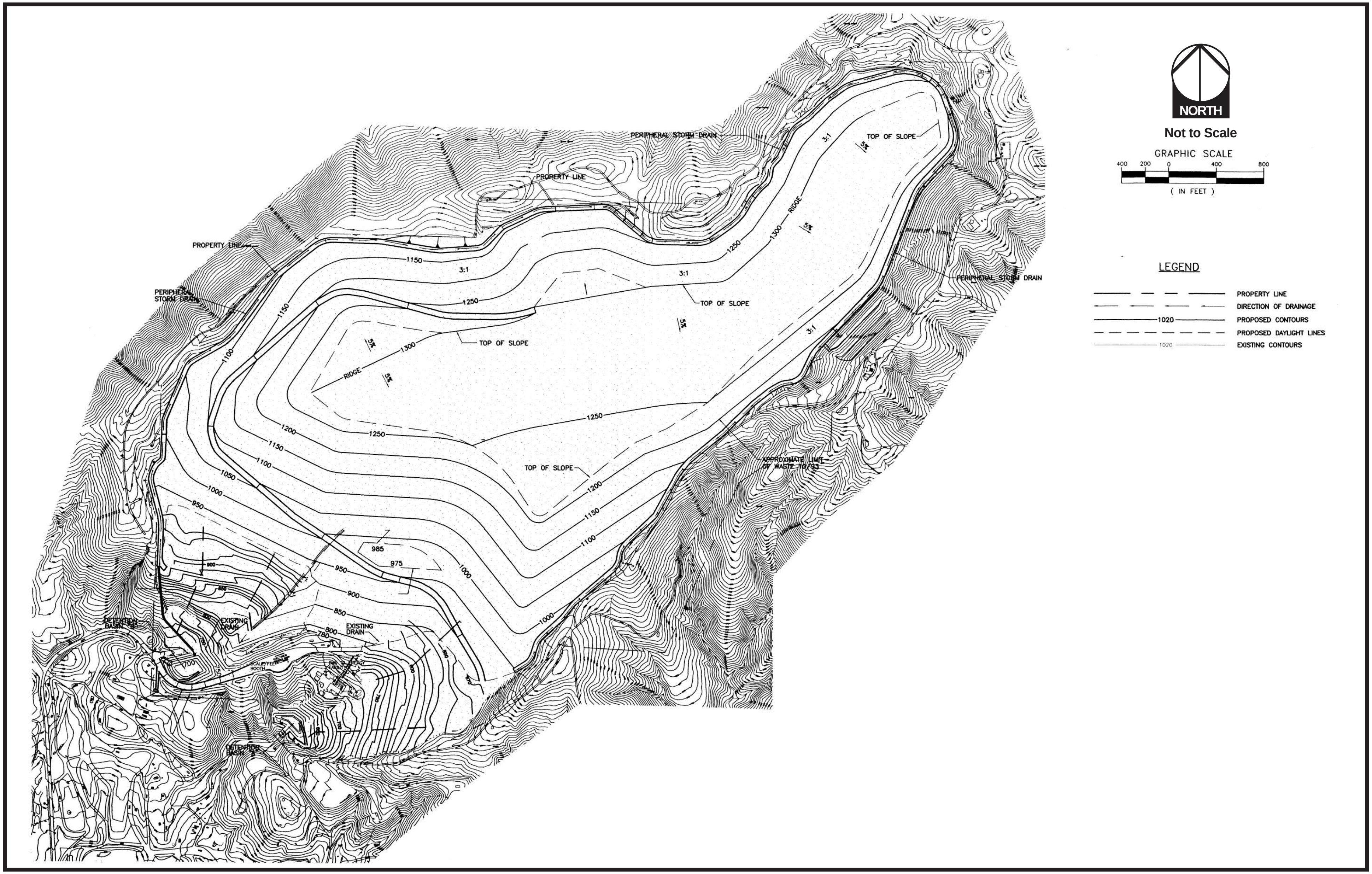
4.5.3 ENVIRONMENTAL PROTECTION ELEMENTS

The design for landfill operations includes a number of environmental protection elements which respond to applicable local, state and federal regulations. These elements include compliance with surface and groundwater monitoring and protection requirements, and air and LFG monitoring and protection requirements. These controls are described in the following sections.

4.5.3.1 Groundwater Protection Systems

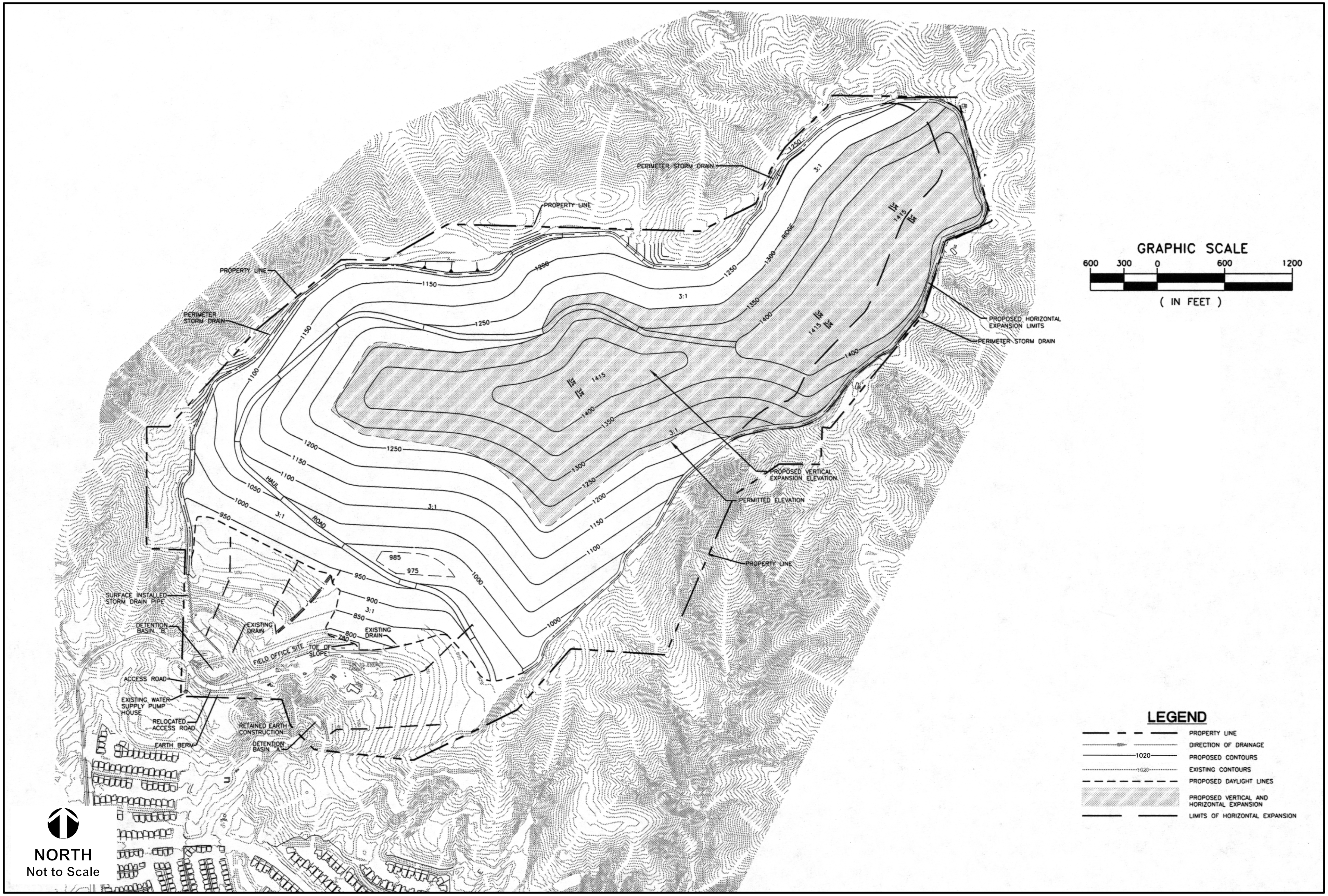
Leachate is liquid which passes through a landfill, coming in contact with disposed wastes and possibly absorbing contaminants. The sources of moisture in a landfill may include rainfall which infiltrates the surface cover, moisture in the refuse, and perched groundwater in contact with the bottom of an unlined landfill.

Landfill regulations minimize the production of leachate by reducing the potential for infiltration. Infiltration reduction is accomplished by prohibiting disposal of liquid wastes in the landfill, effective drainage management which diverts surface water flows away from the landfill, placement of a leachate collection system at the bottom of the landfill, and placement of daily,



Source: Bryan A. Stirrat & Associates (2004).

Figure 4.5-1
Final Grading Plan (Permitted - 1996)



Source: Bryan A. Stirrat & Associates (2004).

Figure 4.5-2

Olinda Alpha Landfill Proposed Horizontal and Vertical Expansion

intermediate and final cover. Figure 4.5-3 presents typical drainage and leachate controls for a landfill.

Drainage improvements for the Olinda Alpha Landfill include perimeter storm drain channels around the fill areas (see perimeter storm drain shown on Figure 4.5-2), down drains on the slopes and desilting basins. Final storm drain improvements are designed to accommodate flows from a 24-hour, 100-year storm event. Two detention/desilting basins have been constructed at Olinda Alpha Landfill to meet stormwater detention requirements for ultimate development of this landfill.

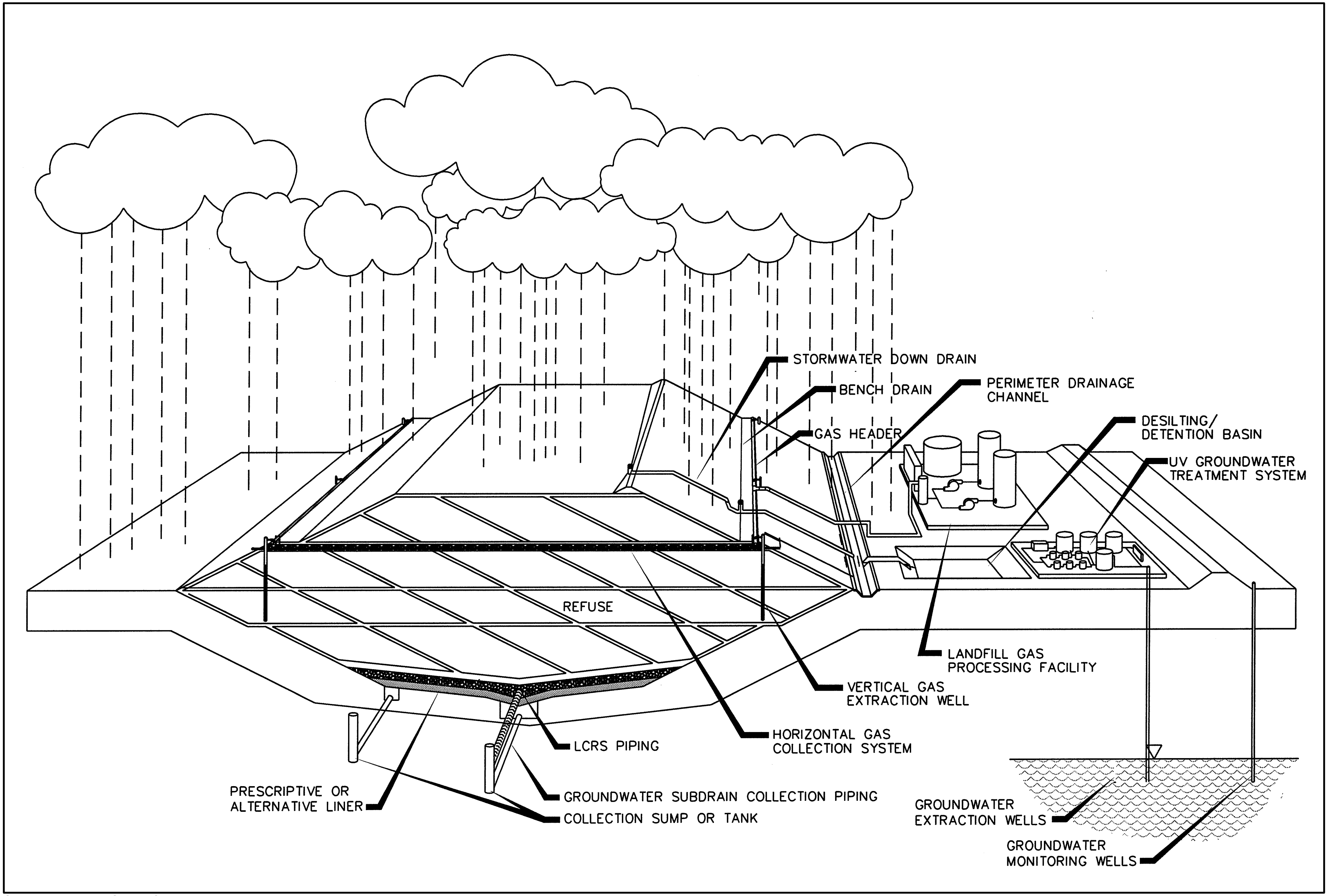
Olinda Alpha Landfill was not initially constructed with a liner or leachate collection and removal system (LCRS), because landfill operations at this landfill were initiated before the 1984 adoption of the CCR Title 23, Chapter 15 (now Title 27) which established standards for leachate control. However, an LCRS was installed as part of the excavation of the center ridge and previous vertical expansion of the landfill. The LCRS includes approximately 4,300 feet of high density polyethylene (HDPE) lined trenches, backfilled with drainage gravel where a perforated four-inch HDPE pipe is embedded, and wrapped in geotextile. The LCRS terminates at the southern end of the center ridge excavated area into a HDPE-lined leachate sump. When leachate in the sump reaches a certain level, a submersible pump in the sump automatically pumps the leachate into an above ground 10,000-gallon storage tank installed within a secondary containment structure. This water is currently and will continue to be hauled and disposed off-site until IWMD evaluates and selects a cost-effective disposal alternative that is approved by the exempt commodities.

The existing groundwater monitoring and control/treatment system at Olinda Alpha Landfill was constructed as a condition of the Waste Discharge Requirements issued by the RWQCB-SA. The system consists of 16 groundwater monitoring wells, 15 groundwater extraction wells and an UV/ozone treatment system. The extraction wells are located at the toe of the Olinda and Olinda Alpha canyons and are part of a Corrective Action System (CAS) to treat landfill impacted groundwater. Some of the groundwater monitoring wells are used to determine the effectiveness of the CAS at this landfill.

In accordance with Title 27, new areas to be landfilled will be underlain by a liner or an alternative to the prescriptive liner and an LCRS. For the development of the estimated 33-acre horizontal expansion, a liner or alternative will be designed which meets the requirements of 27 CCR, Section 20330 and would be approved by the RWQCB-SA.

4.5.3.2 Air Quality Protection Systems

LFG in the fill area is currently collected by an active LFG extraction system of horizontal collection piping and vertical wells. The LFG is piped to the existing flare station and a gas-to-energy plant. As the landfill continues to receive refuse, the system will be expanded through the installation of both horizontal collection piping and vertical wells connected to the existing flare station and gas-to-energy plant.



Source: Bryan A. Stirrat & Associates (2004).

Figure 4.5-3
Typical Landfill Drainage and Leachate Controls

Collected LFG will continue to be converted to electricity with additional flares installed as back-up as capacity requirements dictate. Some minor grading of the area may be necessary to create pads for additional flares and piping. Additional headers and extraction wells would be required to transport LFG from newly developed areas to the existing flare station.

As LFG flows through the LFG collection system, it cools and moisture condenses, resulting in a liquid called condensate. Condensate is separated from the LFG and is currently collected in tanks and then injected into the flares where it is thermally destroyed.

The IWMD has provided for energy recovery as an alternative to continued flaring of LFG at Olinda Alpha Landfill. A gas-to-energy plant has been designed, built and is currently being operated by GSF under a lease with the County. At closure, the site will still require a flare station and/or a LFG utilization facility until LFG is no longer produced by the landfilled waste.

4.5.4 PROJECT PHASING

The proposed expansion of Olinda Alpha Landfill would be implemented in phases and would not disturb all parts of the landfill property at once. Operations in the vertical and lateral expansion areas would continue as before with the incremental development of waste cells across the deck in 20-foot lifts from south to north and west to east as further described in Section 4.4.1. The lateral expansion would occur before the vertical expansion, prior to reaching the existing permitted elevation of 1,300 feet AMSL. As filling operations approach the lateral expansion area elevations, the lateral expansion areas would be lined and refuse filling would continue across the deck.

On-site soil to be used for daily cover, road construction and other related uses is available at the Olinda Alpha Landfill through 2015. The site currently accepts dirt as an exempt commodity and continues to stockpile soil on-site for future cover use. When on-site soil for cover is depleted at Olinda Alpha Landfill, soil will need to be imported to the site. Truck traffic associated with soil import is anticipated to occur in 2015 and is anticipated to be less than or equal to import refuse truck traffic, which will cease in 2015 (see further discussion in Section 4.4.1). Fill and cover techniques at the landfill under the expansions would be similar to the methods currently employed. Waste would be deposited, compacted and covered daily using appropriate landfilling methods.

The final cover system for the entire landfill site will be constructed in accordance with regulatory requirements and an approved Final Closure Plan. The current final cover design for the deck and slope areas of the landfill is planned to consist of a two-foot foundation layer comprised of random soils and a minimum one-foot low-permeability layer of compacted fine grained soils, which will yield a permeability of 1×10^{-6} cubic meters per second (cm/sec) or less. The vegetative layer depth would vary for the deck and slopes for landscaping purposes. The deck would have a two-foot thick vegetative layer and the vegetative layer on the slope areas would vary from two to five feet in thickness.

The final cover design for the deck and slope areas for any lined portion of the landfill expansion would meet Title 27 requirements. The final cover for the entire site will meet or exceed regulatory requirements at the time of closure of the site. The final cover design for the site will be determined in the Final Closure Plan which would be developed two years prior to closure. A cover design to support a passive use regional park use, which is the currently planned post-closure use, will be developed as part of the Final Closure Plan. At that time, the IWMD will evaluate new technologies that may support this type of end use.

4.5.5 WASTE COMPOSITION

The waste composition at Olinda Alpha Landfill under the proposed project would not differ from that currently received at this landfill. Wastes received at the Olinda Alpha Landfill consist of non-hazardous residential, commercial and industrial solid waste and are classified by 27 CCR as Class III wastes. Typical residential non-hazardous waste includes household refuse, tree and lawn clippings, leaves and brush, scrap lumber and metal, appliances, furniture, wood chips, plastic containers, newspapers, cardboard and glass containers. Commercial and industrial waste typically includes food wastes, paper, corrugated cardboard, plastic, rubber, glass, mixtures of concrete, asphalt, wood, steel, brick and block. Inert wastes such as asphalt and concrete are received at Olinda Alpha Landfill and are used for the construction of a wet weather deck area and for maintenance of the internal roads on the landfill property. Autoclaved (sterilized) medical wastes are also accepted for disposal at the Olinda Alpha Landfill. The autoclaved medical waste is combined with the other Class III wastes at the working face.

The IWMD hazardous waste screening program includes monitoring refuse loads for hazardous wastes by an inspector as each load is unloaded at the working face. The site's load check program also involves the random selection of commercial refuse vehicles at the scale house, which are then directed to a designated area for waste load inspection. This load check program involves spreading refuse from the load out in the designated area and visually inspecting for hazardous materials. Vehicles identified as carrying prohibited wastes (i.e., hazardous materials, liquid wastes and other non Class III wastes) are rejected. Hazardous wastes that are segregated from the wastes through the load check program or are found at the working face are placed in a temporary hazardous storage area. This area is specifically designed for hazardous material storage with secondary containment to provide a safe, convenient location for storing wastes discovered through the hazardous waste screening programs. On-site haul roads are provided to access this area. Waste oils and lubricants generated by on-site equipment maintenance activities are stored in the equipment maintenance area. These waste oils as well as other unacceptable wastes are stored on-site for a maximum of 90 days. These wastes may be removed earlier if a sufficient quantity has been collected to make a hazardous waste pick-up cost effective. In no instance are hazardous wastes stored on-site for more than 90 days.

Salvaging operations are conducted at Olinda Alpha Landfill in compliance with requirements of local, state and federal agencies. The County currently contracts with a private company to recycle/recover materials. The agreement includes a scope of work identifying the items that can be salvaged at the landfill. Salvaged materials include all types of metals, white goods (e.g., refrigerators, washers), mattresses, wood and other salvageable items. The materials are stored in separate roll-off containers or stockpiled on the ground in a storage area. The storage of salvaged materials is limited to a duration that will not result in health or fire problems. The storage containers are emptied or removed as needed. Salvaged materials are kept away from disposal operations.

4.5.6 OTHER PROJECT FEATURES

The proposed project may require that additional landfill operations, support and maintenance buildings and structures be constructed at Olinda Alpha Landfill and may include additional LFG control facilities. However, the number of employees at the landfill will not change with implementation of the proposed project. Existing employees would continue to perform landfill operations including administration, landfill cover operations and other landfill related operations. The number of pieces of and types of equipment used at Olinda Alpha Landfill are also proposed to remain unchanged. The daily operating schedule at Olinda Alpha Landfill would remain unchanged after implementation of the proposed project.

The existing surface water drainage systems, LFG collection and control systems, and leachate collection and recovery systems will be expanded, as necessary, to accommodate the proposed expansion of Olinda Alpha Landfill.

4.5.7 DISCRETIONARY APPROVALS

The principal agency having jurisdiction over the proposed project is the County of Orange because the project site is located in an unincorporated area of Orange County. However, the proposed project is also in the City of Brea's Sphere of Influence which will require renegotiation of the existing Memorandum of Understanding (MOU) between the City of Brea and the County of Orange to allow the disposal of MSW over a longer period of time, as a result of the additional capacity that is provided under the proposed project.

In addition to the County of Orange and City of Brea, other public agencies that may also have oversight over the project or may be responsible for issuing subsequent permits necessary to implement the proposed project are identified in Table 4-1.

4.6 PROJECT OBJECTIVES

The objectives for the proposed expansion of Olinda Alpha Landfill were derived from the RELOOC study goals and objectives and the RELOOC planning process. To better understand the project objectives, it is important to know how the expansion of Olinda Alpha Landfill fits in the County's strategic planning for solid waste disposal and management. As discussed earlier in this Section, the RELOOC Strategic Plan involves short and long term phases. One of RELOOC's stated objectives is:

> "To have a feasible balanced and flexible 40-year plan that addresses the County's solid waste disposal needs approved and ready for implementation by the year 2004 (when negotiations begin for the next term of the Waste Disposal Agreements)."

TABLE 4-1
LIST OF POTENTIAL RESPONSIBLE AGENCIES

Agency	Approval/Permit
Federal Agencies	
United States Environmental Protection Agency	New Source Performance Standards (NSPS) monitoring and reporting requirements. Hazardous Waste Generator Exclusion Program.
State Agencies	
California Integrated Waste Management Board	Revision of the existing Solid Waste Facility Permit (SWFP).
Regional Agencies	
Regional Water Quality Control Board - Santa Ana Region	Storm Water Management Plans. Revision of the existing Waste Discharge Requirements (WDR). National Pollution Discharge Elimination System (NPDES) Permit.
South Coast Air Quality Management District	Permits to Construct Expanded Gas Control Systems. Permits to Operate Expanded Gas Control Systems.
County Agencies	
Local Enforcement Agency (Health Care Agency)	Revision of the existing SWFP.
County of Orange Board of Supervisors	Certification of the Final EIR.
Orange County Fire Authority	Fuel Modification Plan and Program Fire Break Roads.
County of Orange Resources and Development Management Department	Grading/Miscellaneous Permits.

Therefore, the proposed expansion of Olinda Alpha Landfill would accomplish both broad County objectives as they relate to County-wide solid waste management and specific objectives relating to Olinda Alpha Landfill as these are integrally related. One of the Phase 1 Strategies of RELOOC is the vertical and horizontal expansion at Olinda Alpha Landfill. The WDAs with the cities in Orange County, franchised haulers and Districts are based on systemwide capacity of landfills in Orange County including Olinda Alpha Landfill.

The project objectives for the proposed expansion at Olinda Alpha Landfill are:

- Define future waste disposal system by 2004 to provide a basis for renegotiation of WDAs with Orange County cities, franchised haulers and Districts.

- Ensure that the County's near term waste disposal needs are met.

- Maximize capacity of the existing Olinda Alpha Landfill.

- Maintain adequate revenues and local control of waste disposal to provide consistent and reliable public rates and fees

- Maintain efficient, cost effective and high quality IWMD operations.

- Minimize adverse environmental impacts associated with solid waste disposal.

4.7 RELATED PROJECTS

4.7.1 WASTE CHARACTERIZATION STUDY

In addition to the RELOOC Strategic Plan, the IWMD is conducting a Waste Characterization Study (WCS) to identify type, quantity and recycling potential of self-haul waste entering Orange County landfills, the jurisdiction of origin. This study will allow IWMD to better understand wastes currently deposited at the three landfills and to potentially identify further opportunities for recycling rather than disposal as waste at landfills. Should the WCS identify these types of recycling opportunities, it is anticipated that these opportunities would be implemented at the three existing landfills, including Olinda Alpha Landfill. Although increased recycling would be expected to beneficially reduce the total waste deposited in Orange County landfills, it is not expected to substantially reduce the need for increased landfill capacity as proposed in the RELOOC Strategic Plan or under the Olinda Alpha Landfill proposed expansion. The WCS is described in more detail in the following Section.

4.7.1.1 Waste Characterization Study of Three Active Landfills

The IWMD'S WCS targets the residential and commercial self-haul waste generator sector entering the three Orange County landfills (Olinda Alpha, FRB and Prima Deshecha) for two time periods: during spring/summer 2003 and winter 2003/04. The self-haul waste stream includes businesses such as landscaping, demolition, construction, roofing and clean-up companies as well as residents cleaning out garages, homes or yards. Commercial roll-off box (ROB) waste is also included in the scope of the study.

The information in the WCS will be used by the County, local jurisdictions, facility operators and solid waste haulers to:

1. Identify the material types and subtypes and quantities of waste in the self-haul waste stream to determine what materials have the potential to be recycled.

2. Measure the effectiveness of current waste diversion programs and practices.

3. Plan future waste diversion programs.

4. Design future waste management facilities.

5. Determine waste disposal fee structures.

Generally, the study will include, but not be limited to, the following elements:

- Random waste sampling of all residential and commercial self-haul vehicles and ROB waste with the exception of transfer and route collection trucks.

- Characterization of waste by hand-sorting and weighing representative samples of incoming waste, or in the case of larger homogenous loads, by visual observation.

- Close coordination of the selected consultant firm conducting the study with the staff at the three existing landfills to minimize disruption to existing landfill operations and customers.

4.7.2 THIRD FLARE

The IWMD is proposing to upgrade the existing Olinda Alpha Landfill gas flaring system with the addition of one new LFG fired flare (Flare No. 3), plus ancillary equipment to supplement the two existing flares. The third flare will have the same dimensions as and be located adjacent to the existing flares. The addition of this third flare will enable IWMD to meet the demands of increased capacity and subsequent increases in landfill gas production. The proposed flare will offer 100% redundancy for those instances when the LFG-to-energy plant is out of service (i.e. for maintenance purposes). The permit for the proposed new flare will not limit operating hours.

It is proposed that the new flare be 12 feet in diameter and 48 feet high, and have appropriate appurtenances to provide additional capacity of 4,200 standard cubic feet per minute of LFG with 45 to 50 percent methane content. It will be equipped with an automatic air/temperature control system to maintain proper combustion temperature. The flare will be equipped with a condensate injection system, utilized for destruction of condensate in the flare unit.

Addition of the third flare would require the IWMD to obtain a modification to the SCAQMD permit for the existing LFG Flaring Facility. As documented by SCAQMD Rules 1401 and 212 calculations, the new flare would not result in human risks to any sensitive receptors located near the Olinda Alpha Landfill property boundary. The proposed third flare project would not result in any adverse impacts to the environment.

SECTION 5.0
EXISTING CONDITIONS, IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

SECTION 5.0
EXISTING CONDITIONS, IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

This Section documents the environmental analysis for those environmental parameters for which the proposed project may or would result in potentially significant adverse impacts. These parameters were identified in the Initial Study (IS) which was included as part of the Notice of Preparation (NOP). Environmental parameters not included in this Section were discussed in Section 3.0 (Effects Found Not To Be Significant).

5.1 LAND USE AND PLANNING

This Section describes the existing land uses in the project area, potential environmental impacts, recommended mitigation measures to help reduce or avoid identified land use impacts and the level of significance of adverse impacts after mitigation. The assessment of land use impacts is based primarily on General Plans supplemented by zoning maps and other planning documents from the County of Orange and the City of Brea.

5.1.1 EXISTING CONDITIONS

5.1.1.1 Regional Setting

Olinda Alpha Landfill is located in the northern part of the County of Orange. Much of northern Orange County is developed as residential, commercial and industrial uses. Areas of north Orange County containing unimproved, developable land are primarily located in the Puente Hills. Many of these areas are undergoing rapid urbanization from vacant land and petroleum extraction operations to residential and commercial uses. Large open space and undeveloped areas in this part of north Orange County include Chino Hills State Park, Carbon Canyon Regional Park and privately-held land.

5.1.1.2 Local Setting

Olinda Alpha Landfill is located at 1942 North Valencia Avenue in the Tonner Canyon area of the Chino Hills in an unincorporated area of Orange County. It is located just north of the City of Brea's corporate boundary near the Orange/Los Angeles County jurisdictional boundary. The landfill is located in the City of Brea's Sphere of Influence (SOI). The landfill property covers 565 acres with approximately 420 acres currently permitted for refuse disposal. The site was established as a landfill in 1960 and has operated continuously since then. The landfill is currently planned for closure in 2013 with its ultimate planned use proposed as a regional park.

5.1.1.3 Surrounding Land Uses

Oil production facilities are located to the south and southwest of Olinda Alpha Landfill, while vacant and open space are found to the west, northwest and north extending to the County of Los Angeles corporate boundary. Land to the north and northwest of the landfill property in the County of Los Angeles is open space owned by the City of Industry Urban Development

Agency. The Firestone Boy Scout Reservation and Chino Hills State Park form the landfill's northeastern, eastern and southeastern boundaries. Land uses associated with various residential subdivisions are existing or planned south of the landfill in the vicinity of Lambert Road and Valencia Avenue including the Olinda Ranch and Tonner Hills Specific Plan, respectively. Figure 5.1-1 shows the location of existing and planned land uses surrounding the Olinda Alpha Landfill property.

5.1.1.4 Existing Land Uses

The landfill includes two fee booths and four scales, a fenced mechanic area, administration building, lunch room (for the fee booth attendants), small storage areas, a waste to energy building, flare stations, tire acceptance area and water tanks. The landfill also contains improved and unimproved access roads that are used by waste haulers and landfill staff.

5.1.1.5 Relevant Plans and Policies

Olinda Alpha Landfill is in the SOI for the City of Brea. A SOI is identified as a possible future annexation area for a city as regulated by the Local Agency Formation Commission (LAFCO). Establishment of this boundary is necessary to determine which governmental agencies can provide services in the most efficient way to a property in any given area and the orderly incorporation of areas to cities. This Section discusses the relevant General Plan land use designations and policies concerning Olinda Alpha Landfill for the County of Orange and City of Brea. In addition, other relevant plans and policies which currently or in the future may govern this facility are discussed.

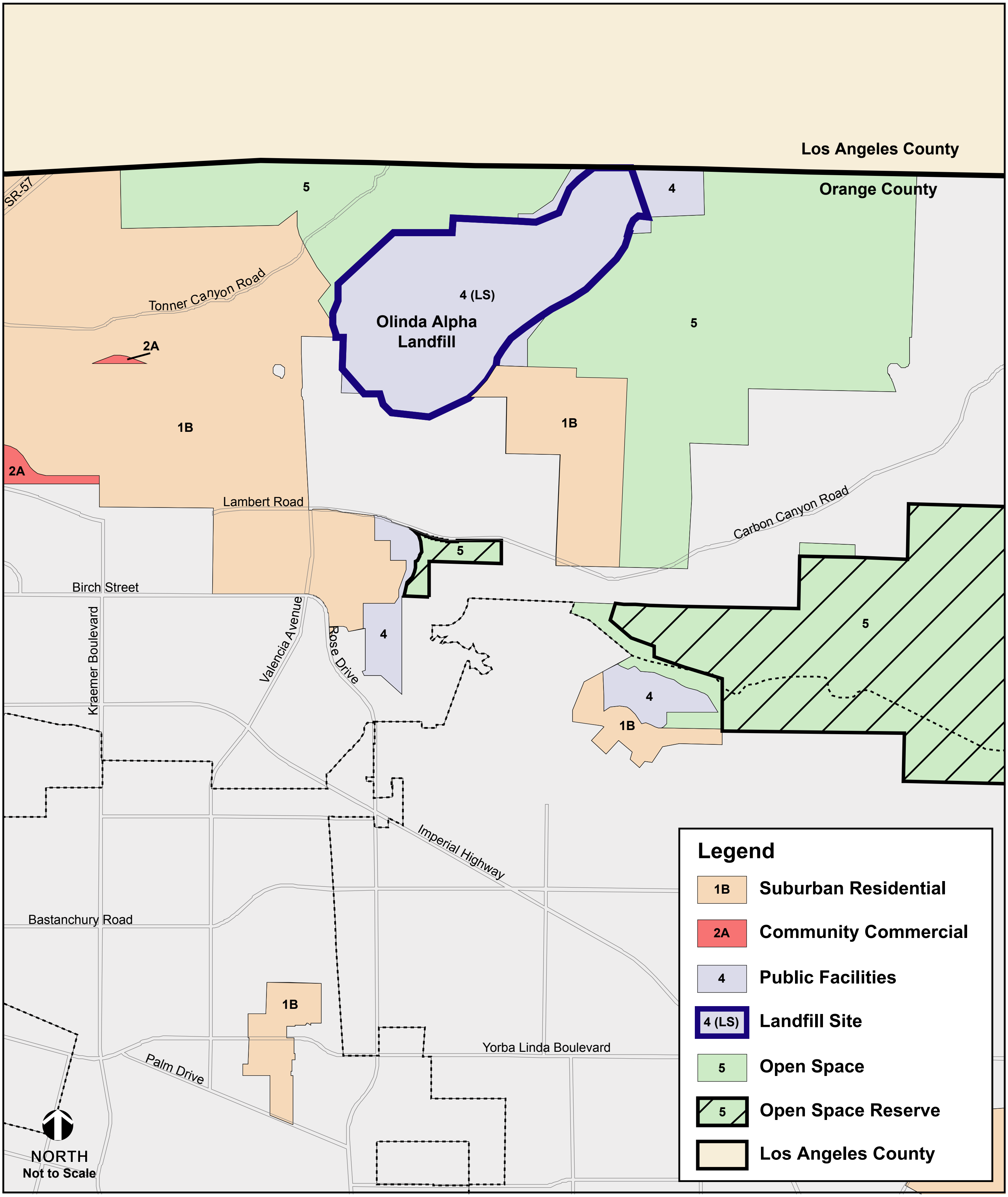
<u>Overview of General Plans and Zoning</u>

General Plans

Section 65302 of the California Government Code requires that all cities and counties adopt General Plans (GPs) containing seven mandatory elements: Land Use, Circulation, Housing, Conservation, Open Space, Noise and Safety. The GP is the basic planning document that provides a blueprint for growth and development.

Zoning

Zoning is essentially the division of a county or city into districts and the application of different regulations in each district. Zoning regulations are generally divided into two classes: (1) those that regulate the height or bulk of buildings within certain designated districts (i.e., structure and architectural design); and (2) those that prescribe the use of the building. Zoning Ordinances (ZOs) developed by a county or city must be consistent with the GP.



Source: County of Orange (2000).

Figure 5.1-1
Orange County Land Use Designations

County of Orange General Plan and Zoning Designations

The County of Orange has adopted each of the previously mentioned GP Elements, and also Public Services and Facilities, Resources, Recreation and Growth Management Elements (General Plan 1999). Olinda Alpha Landfill is designated Public Facilities (4) in the County of Orange GP. This designation allows for use of the site for solid waste disposal. The Solid Waste Facility-Landfill Site (LS) Overlay is also applied to the land use designation of Olinda Alpha Landfill in the County of Orange GP. The Overlay indicates that the current and near term use of the land is limited to landfill operations, including materials recovery and recycling facilities (MRFs), and associated uses such as borrow site areas, buffer area and access roads, until the landfill has been closed. The landfill's zoning designation is General Agriculture (A1) and contains a Public Facilities overlay. There are no site development regulations for landfill facilities regulated by zoning. Site development is regulated by the County of Orange and the Local Enforcement Agency (LEA) for the California Integrated Waste Management Board (CIWMB).

GP land use designations surrounding the Olinda Alpha Landfill property include Open Space (5) to the northwest and east and Suburban Residential (1B) to the southeast, south and west. The Open Space (5) designation provides for limited land uses that do not require a commitment of significant urban infrastructure. Compatible uses include land containing non-renewable and renewable resource areas, prime agricultural soils and water resources. MRFs are also permitted if the design of the facility does not adversely impact its open space surroundings, or if the facility is operated in conjunction with other refuse-oriented facilities (i.e., landfills). A number of additional uses are permitted including research and development, educational uses and other similar uses that do not require significant urban infrastructure.

Suburban Residential (1B) permits a wide range of housing types, from estates on large lots to attached dwelling units (e.g., townhomes, condominiums and clustered arrangements). This designation also permits the greatest flexibility for residential development. Building density and standards for this designation permit the construction of 0.5 to 18 dwelling units per acre.

County of Orange Source Reduction and Recycling Element

The County's Source Reduction and Recycling Element (SRRE) was developed to identify specific program alternatives to achieve compliance with the California Integrated Waste Management Act of 1989. Possible program alternatives include the establishment of MRFs in which waste materials are sorted and processed for sale to end users. A more detailed discussion of the SRRE and other state-mandated regulations is provided later in this Section.

City of Brea General Plan (GP) and Zoning Designations

The current City of Brea GP was adopted by the City Council on August 19, 2003. The City of Brea GP establishes a comprehensive long term vision for Brea to guide planning decisions and physical development over a 20-year period. The GP covers both the City's corporate boundaries and its SOI. Olinda Alpha Landfill is designated in the City of Brea's General Plan as a Public Facility, which allows for use of the site for municipal waste disposal. The City of

Brea GP states that the long range goal of the City is to designate the landfill property for open space when landfilling operations are terminated. The GP also states that the County's intent is to provide urban-natural and wilderness areas, and to provide active and passive recreational opportunities.

The City's GP identifies areas immediately surrounding Olinda Alpha Landfill in its SOI as buffer zones. Buffer zones are identified for areas requiring landscape treatment to enhance the compatibility of non-residential uses, such as industrial uses and Olinda Alpha Landfill, from adjacent and nearby existing and future residential developments. This land use category is also applied in areas that are subject to potentially excessive noise impacts such as the currently undeveloped areas along the freeway corridors.

Carbon Canyon Specific Plan

The Carbon Canyon Specific Plan (CCSP) encompasses 1,758 acres south of Olinda Alpha Landfill. The CCSP generally extends southwest from Rose Drive and Birch Street and northeast along Carbon Canyon Road to the City's corporate boundary with the County of San Bernardino. The CCSP provides the City with a comprehensive set of plans, regulations and criteria, conditions and programs for providing orderly development of the Carbon Canyon area. Permitted land uses in the CCSP include single and multiple family residential, neighborhood and recreational commercial, and open space.

Olinda Alpha Memorandum of Understanding

An existing Memorandum of Understanding (MOU) between the County of Orange and the City of Brea regarding Olinda Alpha Landfill (executed in March 1992 and subsequent amendments) addresses issues related to the existing and future landfill, circulation and recreational facilities at Olinda Alpha Landfill under the Orange County and City of Brea GPs. The MOU sets forth the permitted tonnage, operational guidelines and closure conditions for the landfill.

County of Los Angeles General Plan

The County of Los Angeles GP was adopted by the Los Angeles County Board of Supervisors (BOS) in 1988. Parts of the GP, including the Land Use Element, have been subsequently revised. The County is currently preparing a comprehensive GP update with adoption anticipated in 2005. Although Olinda Alpha Landfill is located in Orange County, it is less than one mile from the Los Angeles County boundary. The Los Angeles GP designates areas in Los Angeles County north of Olinda Alpha Landfill as Open Space. Areas designated Open Space include both public and private lands committed to long term open space use and lands intended to be used in a manner compatible with open space objectives. A variety of uses are permitted under the Open Space designation including the extraction of mineral resources and certain forms of commercial recreation.

California Integrated Waste Management Board

The California Integrated Waste Management Act of 1989, (IWMA, AB 939, Sher, Chapter 1095, Statutes of 1989 as amended) enacted through passage of Assembly Bill (AB) 939 and accompanying legislation AB 2707, established a requirement for each county and its cities to implement integrated waste management strategies to divert 50 percent of solid waste from landfills by 2000. Discussion of the requirements of these laws and their applicability to the County of Orange is provided in the following Sections.

Countywide Integrated Waste Management Plan

Counties are required to prepare and submit to the CIWMB an Integrated Waste Management Plan (IWMP) which includes all Source Reduction and Recycling Elements (SRREs), all Household Hazardous Waste Elements (HHWEs), a County-wide Siting Element (CSEs), all Non-Disposal Facility Elements (NDFEs), all applicable Regional SRREs, HHWEs and an applicable Regional Siting Element if regional agencies have been formed.

The County IWMP summarizes waste management issues facing the respective cities. It also provides an overview of the actions that will be taken to meet Public Resources Code (PRC) Section 41780 requirements. County IWMPs and any amendments are approved by the County and by a majority of the cities within that County. If cities fail to act on the County IWMP or amendments within 90 days of receipt, then failure to act is deemed to have been approved as submitted. County IWMPs are required to be updated every five years, if necessary. The County of Orange's IWMP was updated in 2001 and was approved by the CIWMB in September 2003. Goals and policies that are relevant to the IWMP include:

- The County and its cities will operate an environmentally sound solid waste management system that protects public health and safety, protects natural resources and uses the best available technology to accommodate the needs of the County.

- The County and its cities will operate a cost-effective integrated waste management system that emphasizes source reduction as its first priority, followed by recycling and composting. The system will be adequately financed to meet operational and maintenance needs.

- The County will provide facilities conveniently located throughout the County that will accept, process and safely dispose household hazardous waste (HHW). The County and its cities will, to the greatest extent possible, facilitate a decrease in the production, consumption, use and disposal of HHW and promote the use of County facilities for HHW requiring disposal.

Source Reduction and Recycling Element

The IWMA requires each California city and county to prepare, adopt and submit to the CIWMB an SRRE that demonstrates how the jurisdiction will meet the IWMA's mandated diversion goals of 50 percent on and after January 1, 2000. Each jurisdiction's SRRE must include specific components, as defined in PRC Sections 41003 and 41303. In addition, the SRRE must include a program for management of solid waste generated within the jurisdiction that is consistent with the following hierarchy: (1) source reduction, (2) recycling and composting and (3) environmentally safe transformation and land disposal. Included in this hierarchy is the requirement to emphasize and maximize the use of all feasible source reduction, recycling and composting options to reduce the amount of solid waste that must be disposed of by transformation and land disposal (PRC Sections 40051, 41002 and 41302). Currently, there is a County-wide diversion average rate of 42 percent. According to the CIWMB's jurisdiction profile for Orange County, the County's SRRE was approved in 1995. The following SRRE goals and objectives are relevant to the proposed project at Olinda Alpha Landfill:

- Maximize the use of all feasible source reduction, recycling and composting options to reduce the amount of solid waste that must be disposed of by transformation and land disposal.

- Develop and implement programs for source reduction, recycling, composting and special wastes that promote responsible solid waste management on the part of the County unincorporated area residents and businesses.

Household Hazardous Waste Element

Each city and county is required to prepare, adopt and submit to the CIWMB a HHWE which identifies a program for the safe collection, recycling, treatment and disposal of hazardous wastes generated by households. The regulations clarify and provide guidance to local jurisdictions as they prepare their HHWEs. The HHWE specifies how HHW generated by households within the jurisdiction must be collected, treated and disposed. The HHWE is addressed in two Articles of Title 14, Chapter 9, of the California Code of Regulations (CCR): 6.3 (Household Hazardous Waste Element) and 7.0 (Procedures for Preparing and Revising City and County Source Reduction and Recycling Elements, and Household Hazardous Waste Elements). Article 6.3 specifies the means by which each jurisdiction is required to prepare and implement a HHWE. This Article outlines objectives that include plans to source reduce and safely collect, recycle, treat, and dispose of household hazardous wastes generated within the jurisdiction and provides a specific time frame for achieving these objectives. According to the CIWMB's jurisdiction profile for Orange County, the County's HHWE was approved in 1995.

Countywide Siting Element

Counties are required to prepare a CSE that describes areas that may be used for developing new disposal facilities. The CSE also provides an estimate of the total permitted disposal capacity needed for a 15-year period if counties determine that their existing disposal capacity will be exhausted within 15 years or if additional capacity is desired.

Proposed regulations have been prepared to clarify and provide guidance to counties who will be preparing their CSEs. The CSE is addressed in Chapter 9, Article 6.5 of Title 14, Natural Resources Division 7, CIWMB which specifies requirements for goals, policies, criteria, location, GP consistency, strategies for disposal when disposal sites are not available and an implementation schedule. According to the CIWMB's jurisdiction profile for Orange County, the County's CSE was approved in 1996. The following CSE goals and objectives are relevant to the proposed project at Olinda Alpha Landfill:

- The County will minimize the amount of waste requiring disposal through source reduction, recycling and composting.

- The County will provide adequate long term landfill disposal capacity for wastes that will need to be landfilled after maximizing source reduction, recycling and composting.

- The County will operate an environmentally sound solid waste management system that protects public health and safety, protects natural resources and uses the best available technology to accommodate the needs of the County.

- The County will have at all times a minimum of 15 years of available disposal capacity. This disposal capacity will be preferably located within the County to minimize transportation costs. If subsequent studies indicate that no suitable sites can be identified in the County for future landfills, the County will establish agreements with public or private facilities outside the County.

- The County will ensure that new or expanded disposal facilities will at all times be in compliance with applicable federal, state and local statutes, permits, minimum operating standards and monitoring requirements. This includes, but is not limited to, the requirements of the CIWMB, regional water quality control boards, the LEA, local air pollution control districts, local jurisdictions, and all utilities or agencies that either have jurisdiction over the installation of improvements or provide services to disposal facilities.

Non-Disposal Facility Element

Each city and county is required to prepare, adopt and submit to the CIWMB, an NDFE which includes a description of new facilities and expansion of existing facilities, and all solid waste facility expansions (except disposal and transformation facilities) that recover for reuse at least five percent of the total volume of material received by the facility. A non-disposal facility (NDF) is defined as any solid waste facility required to obtain a state solid waste facility permit from the Solid Waste LEA with concurrence from the CIWMB except a disposal facility or a transformation facility. Based on this definition, NDFs include transfer stations, MRFs and composting facilities. The NDFE must also be consistent with the implementation of a local jurisdiction's SRRE. Each jurisdiction must also describe transfer stations located within and outside the jurisdiction which recover less than five percent of the material received.

Proposed regulations have been prepared that require the identification of NDFs in each jurisdiction. Each jurisdiction must prepare a NDFE that identifies all existing, expansion of existing and proposed solid waste facilities (except disposal facilities and transformation facilities) located within and outside the jurisdiction that they use or will use, and which recover for reuse and recycling at least five percent of the total volume of material received by the facility. According to the CIWMB's jurisdiction profile for Orange County, the County's NDFE was approved in 1995.

5.1.2 THRESHOLDS OF SIGNIFICANCE

Land use impacts would be considered significant and adverse if the proposed project would result in one or more of the following conditions:

- Physically divide an established community.
- Conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to the GP, Specific Plan, Local Coastal Program or ZO) adopted for the purpose of avoiding or mitigating an environmental effect.
- Conflict with adjacent, existing or planned land uses.

5.1.3 METHODOLOGY RELATED TO LAND USE AND PLANNING

The proposed project was compared to the County of Orange and City of Brea GP Land Use Elements for consistency with land use designations and regulations. In addition, the proposed project was also compared to the zoning designations in both jurisdictions.

5.1.4 POTENTIAL IMPACTS

There are no established communities on the landfill property including the proposed expansion area. Therefore, the proposed project would not physically divide an established community.

The proposed project is in an area designated for Public Facilities (4) in the County of Orange GP. This designation allows for use of the site for solid waste disposal. The Solid Waste Facility-Landfill (LS) Site Overlay is also applied to the land use designation of Olinda Alpha Landfill in the County of Orange GP. The proposed expansion footprint is entirely contained within the existing landfill property boundaries. The landfill's zoning designation is General Agriculture (A1) and contains a Public Facilities overlay. There are no site development regulations for landfill facilities regulated by zoning. Site development is regulated by the County of Orange and the LEA. Implementation of the proposed project will not conflict with the County of Orange GP land use designations or zoning for the landfill property.

Implementation of the proposed project would conflict with the existing MOU between the County of Orange and the City of Brea regarding Olinda Alpha Landfill. The MOU addresses issues related to the existing and future landfill, circulation and recreational facilities anticipated under the Orange County and City of Brea GPs for the landfill property. The MOU sets forth the permitted tonnage, operational guidelines and closure conditions for the landfill. The existing MOU identifies the landfill closure date as 2013. Under the proposed project, closure would be extended to approximately 2021 based on increased operational efficiencies, current population projections and existing disposal technologies. Therefore, the MOU would require modification to show this later closure date under the proposed project.

City of Brea GP designations cannot be imposed on property outside the City limits and owned by the County of Orange. The proposed project does not create any inconsistencies with the City of

Brea GP. Olinda Alpha Landfill is designated in the City of Brea GP as a Public Facility, which allows for use of the site for municipal waste disposal. The proposed landfill expansion footprint is entirely contained within the existing landfill property. Therefore, there would be no impacts to adjacent, existing or planned land uses in the City of Brea.

5.1.5 MITIGATION MEASURES

LU-1 Prior to acquiring revised landfill permits and finalization of design plans for the project, the County of Orange and the City of Brea will renegotiate the details of the MOU to allow the disposal of MSW over a longer period of time. Under the proposed project, closure would be extended to approximately 2021 based on increasing the site's air space capacity and increased operational efficiencies, current population projections and existing disposal technologies.

5.1.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of mitigation measure LU-1 will ensure consistency with the MOU between the County of Orange and the City of Brea. The impacts of the proposed project related to the MOU after implementation of mitigation measure LU-1 would be less than significant.

5.2 GEOLOGY AND SOILS

This Section summarizes information obtained from reports prepared for various projects related to operations and on going landfilling at the Olinda Alpha Landfill. These reports were obtained from IWMD. All technical reports and relevant material used in the preparation of this Section are listed in Section 13.0 (References).

5.2.1 EXISTING CONDITIONS

The Olinda Alpha Landfill is in the southern foothills of the central Puente Hills, in the northernmost part of Orange County. These hills form a west-northwest trending arc that separates the San Gabriel and La Habra Valleys and are characterized by west-northwest trending, moderately steep and high longitudinal ridges that are dissected by narrow, V-shaped intervening canyons. Ridge tops attain maximum elevations of about 1,800 feet above mean sea level (AMSL), rising approximately 1,000 feet above the adjacent floor of the La Habra Valley.

The Olinda Alpha Landfill was originally two separate landfills in adjacent southwest-draining canyons between Tonner and Carbon Canyons in the southern foothills of the central Puente/Chino Hills. A southwest trending ridge separating the two Canyons has been excavated and filled with refuse, thereby creating a single landfill. To the southeast of the landfill site, a ridge that rises to a maximum elevation of 1,443 feet AMSL separates the Olinda Alpha Landfill from the currently undeveloped canyons that are tributary to Carbon Creek. To the west, a ridge that rises to a maximum elevation of 1,138 feet AMSL separates the landfill from Tonner Canyon. The lowest elevations on the site are found along its southwest boundary where the mouth of Olinda Alpha Canyon is at an elevation of approximately 625 feet AMSL.

In the area of the Olinda Alpha Landfill, the stratigraphic section is dominated by upper Miocene sediments of the Puente Formation, which locally reach a thickness of 13,400 feet. According to Yerkes et al. (1965), the sediments now exposed in those hills accumulated in a deep, fault-bound marine trough. Massive sandstones and thick sequences of shales and siltstones suggest steady accumulation of sediment in deep water, punctuated by turbidity currents that accumulated graded sandstone beds. Lenses of conglomerate become more abundant in the upper members of the Puente Formation, suggesting the growth of submarine fans from nearby structural highs.

The marine Puente Formation was divided by Schoellhamer et al. (1954) and Durham and Yerkes (1964) into four members, which from oldest to youngest are the La Vida, Soquel, Yorba and Sycamore Canyon Members. The La Vida Member has an average stratigraphic thickness of 3,800 feet and consists of laminated to platy micaceous siltstones, interbedded with minor feldspathic sandstones, limestones and tuffs. The Soquel Member ranges in stratigraphic thickness from 500 to 3,000 feet and consists of massive to thickly bedded, concretionary, feldspathic sandstones that are interbedded with laminated silty shales. The Yorba Member has an average stratigraphic thickness of 3,000 feet and consists of platy to thinly bedded, light pinkish gray, diatomaceous and sandy siltstones interbedded with minor sandstone and pebble conglomerate beds. The Sycamore Canyon Member of the Puente Formation has an average regional stratigraphic thickness of 1,650 feet and consists of interbedded micaceous siltstone and coarse grained sandstones that contain as much as 30 percent interbedded conglomerates. In unfaulted sequences, the four members generally have gradational or interfingering contacts with one another, and can, therefore, exhibit considerable variations in thickness.

During the last two million years, the Puente Hills have been uplifted along the northwest trending Whittier Fault into a large antiform. Superimposed over this regional antiform are numerous minor anticlinal and synclinal folds, and a number of faults subparallel to the Whittier Fault. According to Yerkes et al. (1965), the Whittier Fault Zone can be traced for a distance of about 25 miles along the south slopes of the Puente Hills, from the Santa Ana River on the southeast to Whittier Narrows on the northwest.

South of the Whittier Fault are the La Habra and Yorba Linda Basins. Together, these Basins form a gently downwarped trough, or syncline, bound by the Puente Hills to the north and the Coyote Hills to the south (Turnbull and Wiebe, 1986). The Miocene Puente Formation is present beneath these basins at considerable depths with up to 6,000 feet of the marine sandstone and siltstones of the Pliocene Fernando Formation, approximately 1,500 feet of the marine sands of the early Pleistocene San Pedro Formation, and as much as 1,200 feet of continental clay, silt, sand and gravel of the mid to late Pleistocene La Habra Formation overlying it. Holocene erosion has stripped away some of the overlying materials and exposed older units along the edges of these Basins and has left a veneer of alluvium that overlaps the older sediments.

5.2.1.1 Site Geology

The Olinda Alpha Landfill occupies two southwest draining canyons and the intervening ridge between them. These canyons intersect a sequence of friable sandstones and interbedded silty shales of the Puente Formation, which are gently folded and locally cut by faults. Throughout the central area of the landfill property, beds typically dip between 15 and 25 degrees to the southwest. Near the southwest corner of the landfill property, three faults juxtapose different structural blocks. Two of the faults are branches of the Whittier Fault, and in the vicinity of these faults, bedding orientation changes abruptly, dipping 50 to 75 degrees to the north. Near the northeast end of Olinda Alpha Canyon, the sedimentary sequence is folded into a major antiform, which results in a shallow (15-25 degree) northeasterly dip.

5.2.1.2 Site Stratigraphy

Limited exposures of the Yorba and Sycamore Canyon Members of the Puente Formation are in fault contact with the Soquel Member in the southwest part of the landfill property.

<u>Soquel Member</u>

Distribution

All areas north of the northern branch of the Whittier Fault in the area of the Olinda Alpha Landfill property are underlain by the Soquel Member of the Puente Formation.

Lithology

Within the Olinda Alpha Landfill property, the Soquel Member of the Puente Formation consists of massive to thickly bedded, friable to slightly cemented, fine to medium-grained, pale yellow brown, feldspathic silty sandstone that is interbedded with laminated, stiff, light gray, silty shales and clayey siltstones. The proportion of sandstone to shale, as well as the thickness of homogeneous lithologic sequences vary substantially with stratigraphic position. In general, boreholes excavated within the lower stratigraphic intervals on the landfill property have an average sandstone to shale ratio of about 50:50 and a maximum thickness of individual homogeneous lithologic packages of about 15 feet for sandstone and 20 feet for shale. In contrast, those boreholes excavated within stratigraphically higher intervals on the landfill property have average sandstone to shale ratios of about 70:30, with homogeneous sandstone lenses reaching thicknesses of as much as 50 feet and shale lenses reaching only about eight feet in maximum thickness (GeoLogic Associates (GLA), 1994).

Engineering Properties

The Soquel Member sandstones exposed on the landfill property are characteristically massive to thickly bedded and fine- to medium-grained. They are friable to slightly cemented and can be excavated with conventional earthmoving equipment. On the basis of the observed surface and subsurface conditions, it is anticipated that a substantial volume of oversize fragments (i.e. cemented sandstone concretions) would be generated during excavation on the site.

Grain size analyses on three core samples and one bulk sample had sand to silt/clay ratios between 85:15 and 60:40. In addition, the sandstones have an average laboratory determined dry density of 102.9 ± 7 pounds per cubic foot (pcf, from an average of 37 analyses) and an average laboratory determined moisture content of 12% ± 6% (from an average of 43 analyses).

Given their granular nature and the intermediate permeability of the stockpiled soil derived from them, the Soquel sandstones are not expected to yield soils with permeability characteristics suitable for use as low permeability liner or cover. In addition, the presence of a significant quantity of silt and clay in the sandstones would be expected to reduce the permeability of the soils derived from them to levels below that which would be suitable for use as drainage media.

Soquel Member shales are laminated, stiff, friable and fissile. Grain size analyses on four core samples and ten bulk surface samples had sand to silt/clay ratios between 5:95 and 25:75.

The Soquel shales have an average laboratory determined dry density of 101 ± 10 pcf (from an average of 27 analyses) and an average laboratory determined moisture content of 19% ± 7% (from an average of 39 analyses). Atterberg limits were determined on 10 samples, with liquid limits ranging between 32 and 61, plastic limits between 15 and 28, and plasticity index between 15 and 33.

Laboratory determined permeabilities are sensitive to the method followed in sample preparation. During previous testing for this site, samples that were pre-wetted and mechanically disaggregated by gentle crushing prior to remolding have measured permeabilities between

1.8E-08 and 1.2E-07 centimeters per second (cm/sec, samples SS-11-1 through SS-13-1). In contrast, samples that were sieved to remove particles larger than four millimeters (mm), but were otherwise unprocessed, had reported permeabilities as high as 6.7E-06 cm/sec (samples SS-14-1 through SS-17-1). Samples SS-18-1 through SS-20-1 included thin interbedded sandstones and had comparatively higher permeabilities. These results indicate that Soquel shale materials could produce a low permeability soil product suitable for use in liner and cover systems only if carefully screened, processed and mechanically disaggregated prior to use.

<u>Landslide Debris</u>

Distribution

Two extensive landslide complexes were mapped in Olinda and Olinda Alpha Canyons prior to development of the landfill (Morton and Miller, 1981 [CDMG and OCEMA]). Parts of the headscarp of the Olinda landslide complex that remained after development of the landfill experienced movement during borrow excavation operations (GLA, 1997).

Lithology

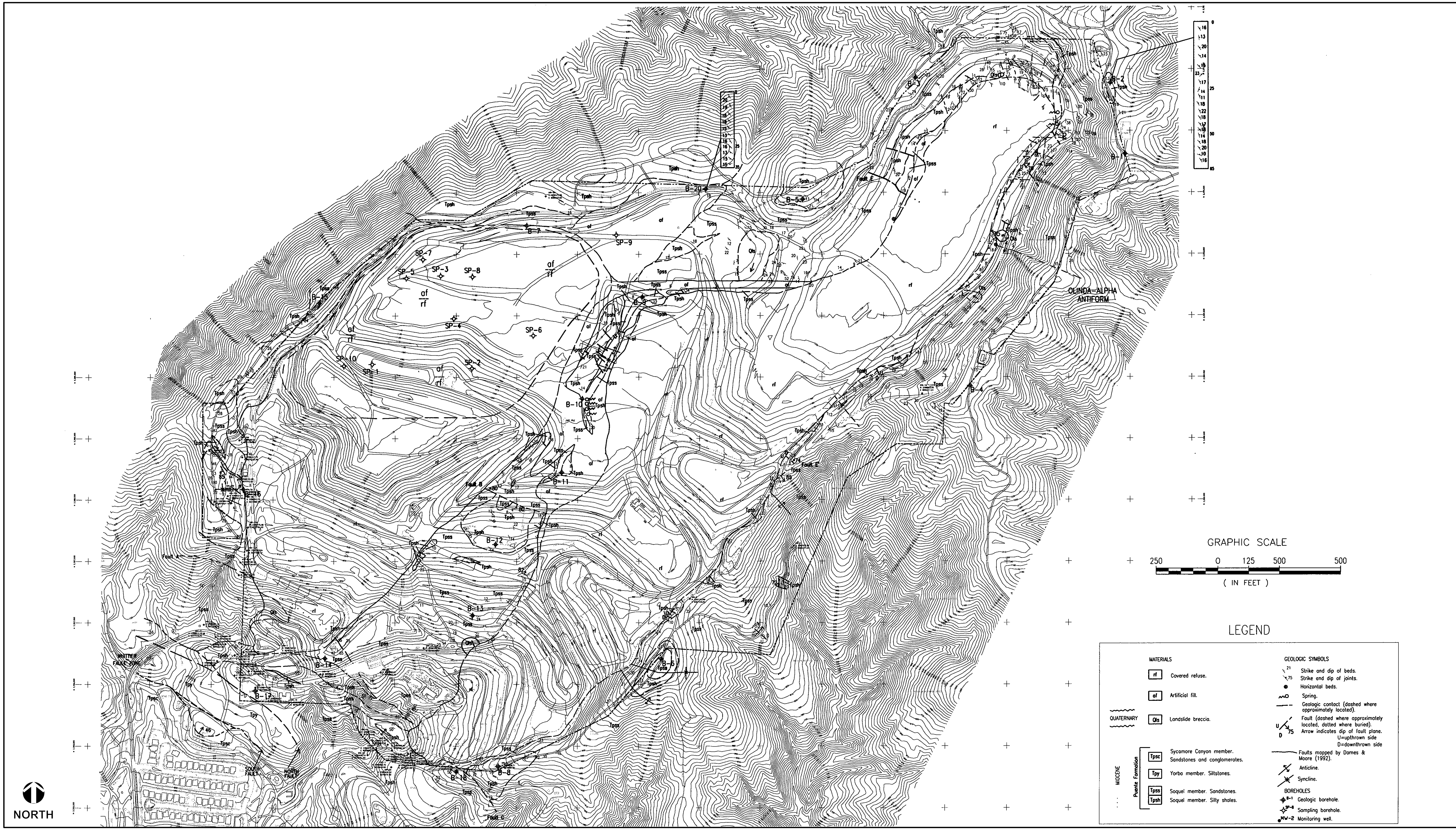
Landslide deposits typically consist of sandy breccias in which the coarse fragments consist of slightly indurated Soquel sandstones and shales. Where sliding is incipient, the sandstones and shales are fractured but not homogenized, and individual fragments in the landslide breccia can be several feet in diameter. In larger landslides that have moved long distances, many of the fragments have disaggregated to form a sandy silt matrix.

Engineering Properties

Landslide debris is easy to excavate and yields sandy soils that are considered suitable for use as general purpose fill. Because new landslides are generally removed or remediated quickly, they are used as daily cover as they occur. Therefore, they were not evaluated for other landfill construction uses.

5.2.1.3 Structural Geology

Structurally, the Olinda Alpha Landfill property and its immediate surroundings can be divided into five blocks with distinctive structural attitudes as shown on Figure 5.2-1. Block 1, located to the southwest of the landfill, is bound on the north by the south main strand of the Whittier Fault. Block 2 is bound by the two main strands of the Whittier Fault. The poorly exposed, light colored silstones that form Block 2 are tentatively assigned to the Yorba Member of the Puente Formation, and are characterized by such intense, small scale deformation that Gath et al. (1992) interpreted the whole block as a pop up wedge formed by differential movement along the main strands of the Whittier Fault. Block 3 is bound by the north strand of the Whittier Fault and by Fault A, and is characterized by consistently steep northerly dips (50 to 75 degrees) on the sandstones and silty shales of the Soquel member of the Puente Formation. Block 4 is bound by Fault A to the south and forms the south flank of an antiform whose axis is exposed near the northeast corner of the Olinda Alpha parcel (hereafter referred to as the Olinda Alpha antiform).



Source: GeoLogic Associates (2004).

Figure 5.2-1
Site Geology

This block is formed by Soquel sandstones and silty shales with generally shallow (15 to 25 degrees) southwesterly dips, overprinted by low amplitude folds. Block 5 forms the north flank of the Olinda Alpha antiform, and is characterized by shallow (15 to 25 degree) east-northeasterly dips on Soquel sandstones and silty shales.

5.2.1.4 Recent Slope Stability History

In 1994, The Earth Technology Corporation, in cooperation with GLA, prepared a slope stability report titled “Stability Analysis Report, Master Grading Plans,” which analyzed the conceptual design for the vertical expansion of the Olinda Alpha Landfill to elevation 1,300 feet AMSL. As a part of this expansion, the ridge (Center Ridge) between the Olinda and Olinda Alpha Landfills was to be excavated so that the two separate landfills could be merged into one.

The combined landfill was then to be raised to design grades up to approximately 1,300 feet AMSL. As presented in the original design report, the excavated Center Ridge was originally proposed to be lined, and as a result, substantial interim stabilization was recommended. Prior to excavation of the Center Ridge, however, a liner exemption was granted by the RWQCB-SA (as further discussed in Section 5.3.4) and, as a result, the nature and extent of the interim buttressing requirements were reduced. During construction of the Center Ridge, a number of relatively small and non-critical landslides occurred within the temporary back-cuts of the Center Ridge excavation. These failures typically occurred along claystone beds and were mitigated by flattening the excavation or constructing relatively small stabilizing buttresses.

These interim construction failures allowed for additional back-calculation of the shear strength of claystone beds within the Puente Formation on the site. In the end, the more recently back-calculated strength parameters were in strong agreement with the shear strength values used by Earth Tech/GLA in the 1994 Slope Stability Report (i.e., phi = 11 degrees and cohesion = 50 psf), providing an additional level of confidence in the nature of these critical materials.

The excavation of the Center Ridge Area was completed in late 2000, and refuse has subsequently been placed in this area.

5.2.2 THRESHOLDS OF SIGNIFICANCE

The CEQA Guidelines indicate that a project will have significant effect on the environment related to geology, seismicity, soils and groundwater if it will “…expose people or structures to major geologic hazards… .”

For this EIR, the Olinda Alpha Landfill expansion plan was determined to have a significant effect on the environment related to geology, seismicity and soils if a project impact met the language of the CEQA Guidelines or was not able to be designed to existing seismic standards for a landfill. Appropriate designs and construction practices can avoid or substantially reduce potentially significant adverse effects of the project.

Title 27 of the California Code of Regulations (CCR) sets rules and guidelines for the design, construction, management, closure and post closure maintenance of all Class III municipal solid waste landfills. These rules are enforced by the California Integrated Waste Management Board, its local enforcement agency (LEA) and the California State Water Quality Control Board.

Specific matters of geological importance for the proposed landfill expansion concern the static and dynamic stability of proposed bedrock cut slopes and refuse fill slopes. For design purposes, the static factor of safety against slope and landfill element failure is 1.5 (forces acting against failure versus forces acting to cause failure).

Dynamic stability concerns the performance of slopes during seismic events. In the current standard of practice, a horizontal seismic coefficient of 0.15 is applied during stability analyses. If the factor of safety against slope failure involving landfill environmental components is not equal to or greater than 1.5, then a more rigorous method of stability analysis must be employed. The more rigorous dynamic stability analysis consists of calculating the amount of displacement that is expected to occur as a result of seismic forces acting on the site. The seismic forces are calculated either deterministically or probabilistically and the amount of displacement of the slope or landfill liner system can be calculated. The Santa Ana Regional Water Quality Control Board requires all systems be designed to withstand the Maximum Credible Earthquake (MCE) event with liner or slope displacements equal to or less than acceptable distances.

5.2.3 METHODOLOGY RELATED TO GEOLOGY AND SOILS

5.2.3.1 General

The methodology for the geology, seismicity and soils analysis was based on compilation and review of existing readily available reports; and review of aerial photographs, geologic mapping, geologic logging of exploratory trenches, test pits, boreholes, soil and bedrock sampling and geotechnical analyses, monitoring well construction, groundwater sampling and chemical analyses, aquifer testing, and slope stability analyses of subgrade, interim refuse fill and final landfill slopes. These geotechnical studies were undertaken to establish the design parameters for the landfill which meet current regulatory requirements. The reports used to prepare this section included site specific geologic, geotechnical and hydrogeologic information collected by consultants for the IWMD; regional geologic data compiled by the California Division of Mines and Geology (now California Geological Survey (CGS)) and the United States Geological Survey (USGS); and published reports from the United States Soil Conservation Service (SCS) and the California Department of Water Resources.

The information presented here regarding impacts and potential mitigation measures for the development of landfill areas is based on-site specific data and or conservative estimates or interpretations where required. Engineering analyses of proposed cut and fill slopes and final landfill slopes were performed using engineering data obtained during previous landfill development investigations. The technical references for this data collection and analyses are provided in Section 13.0 (References).

5.2.3.2 Slope Stability of the Proposed Expansion

The slope stability of the proposed lateral/vertical expansion of the Olinda Alpha Landfill has been analyzed by GLA and found to be acceptable; that is, all factors-of-safety were greater than 1.5 and seismic displacements were found to be within acceptable limits.

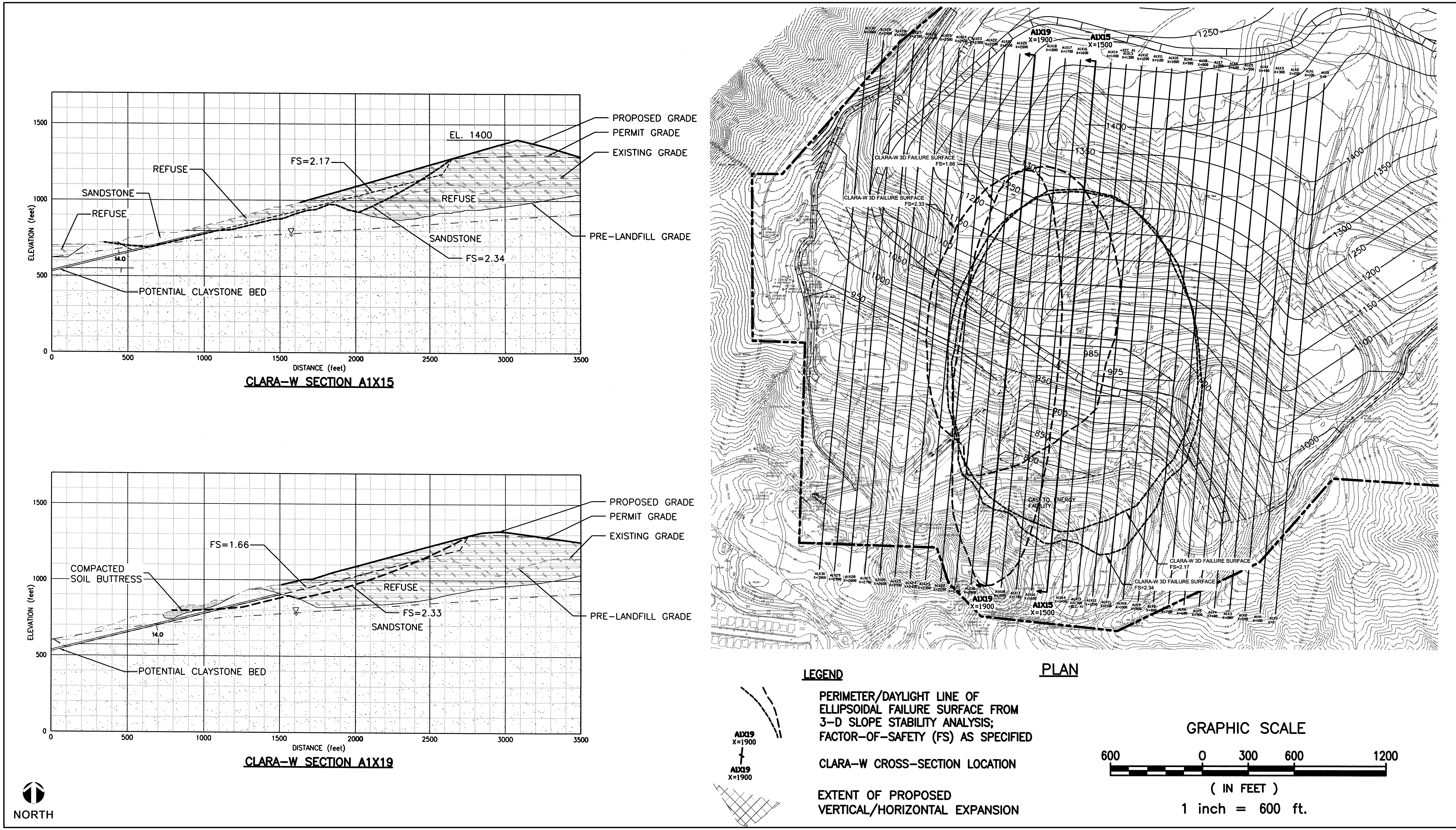
Because of the complex topography and the strong influence of the claystone beds on slope stability of the site, GLA used the three-dimensional (3-D) CLARA-W slope stability computer program (O. Hungr Geotechnical Research, 2003) to evaluate the proposed lateral/vertical expansion. Table 5.2-1 presents material properties used in this stability evaluation. These parameters were based on laboratory analyses, back-calculation, and experience with similar materials. Since the claystone beds at the site are critical to slope stability, the parameters used for this material were the same as were used by Earth Tech/GLA in the 1994 report titled, "Stability Analysis Report, Master Grading Plans" (i.e., slightly lower than were back-calculated from more recent construction slope failures).

TABLE 5.2-1
MATERIAL PROPERTIES

Material	**Unit Weight** (pcf)	**Friction Angle** (deg.)	**Cohesion** (psf)
Refuse Fill	72	33	100
Compacted Buttress Soil	120	28.5	500
Sandstone	130	34	400
Claystone	125	11	50

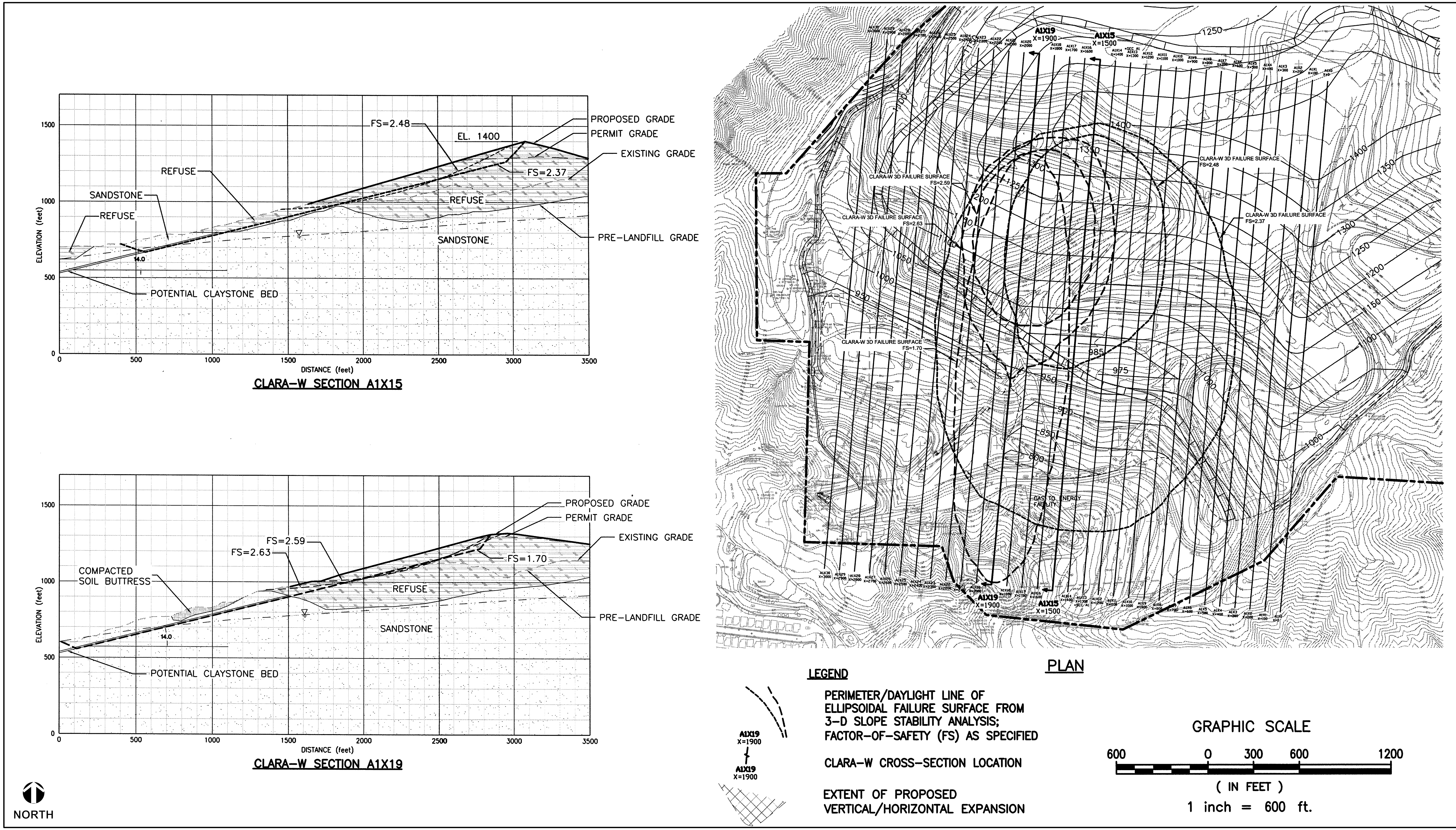
Since the claystone is interbedded with sandstone at the site, accurately determining the stratigraphy for a given slope is not practical. As a result, numerous 3-D slope stability runs were performed assuming a range of worst-case claystone geometrics, including the assumption of claystone beds dipping from 10 to 14 degrees out of slope. Since claystone beds dipping steeper than 14 degrees would not generally be exposed in topographically lower slopes, they are expected to be more stable, and were not analyzed.

Based on slope orientation and site stratigraphy, 3-D slope stability analyses were performed at two critical areas: the highest, southern facing slope for the vertical expansion and the northeastern facing natural slope abutting the proposed lateral expansion at the northeastern portion of the site (see Figures 5.2-2 to 5.2-4). These figures show plan and section views of potential failure surfaces in these two critical areas. The multiple, parallel lines represent the cross sections used in the 3-D stability analysis. The bold lines near the center of these parallel lines represent the center of the most critical potential failure surfaces, and it is along these lines that the displayed cross sections were shown. For the south-facing slope, Figure 5.2-2 shows potential failure surfaces that would "daylight" at the Permit Grade, while Figure 5.2-3 shows potential failure surfaces that would "daylight" at the higher, Proposed Grade. The Permit Grade is well below the adjacent natural topographic ridge in the northeast portion of the site; accordingly, 3-D stability analyses were only conducted for the higher Proposed Grade, as shown in Figure 5.2-4.



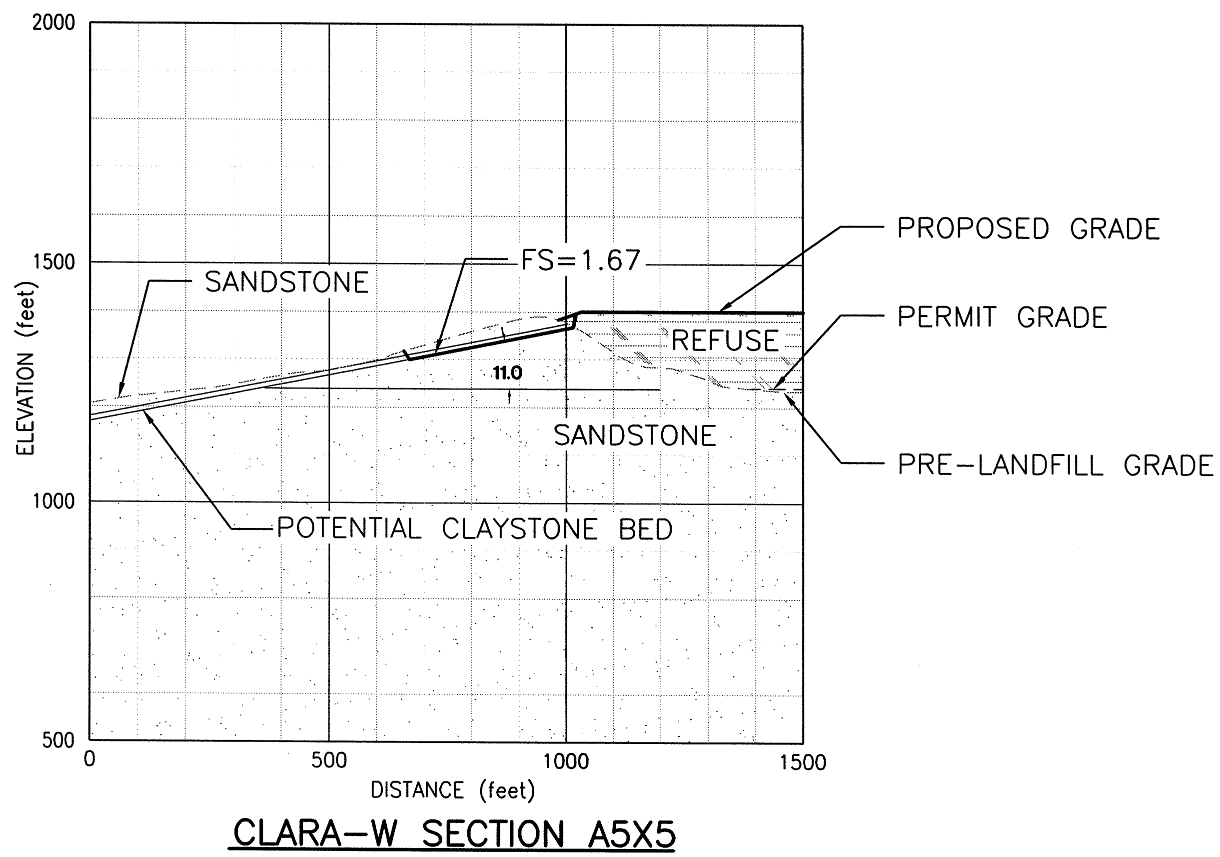
Source: GeoLogic Associates (2004).

Figure 5.2-2
South-Facing Slope: Potential Failures Daylighting at Permit Grade

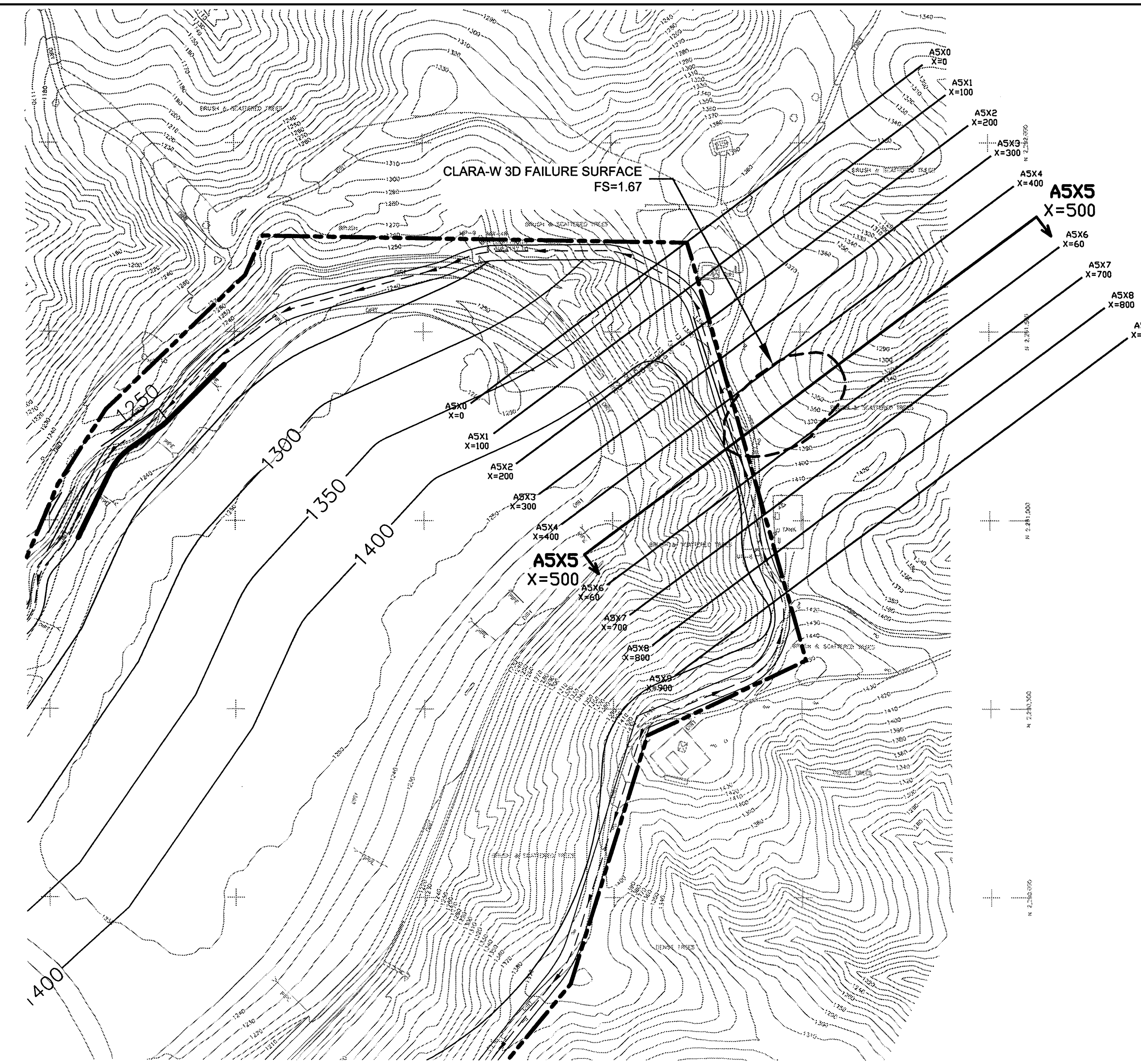


Source: GeoLogic Associates (2004).

Figure 5.2-3
South-Facing Slope: Potential Failures Daylighting at Proposed Grade



CLARA-W SECTION A5X5



PROPOSED GRADE PLAN

LEGEND

PERIMETER/DAYLIGHT LINE OF ELLIPSOIDAL FAILURE SURFACE FROM 3-D SLOPE STABILITY ANALYSIS; FACTOR-OF-SAFETY (FS) AS SPECIFIED

A5X5 X=500 — A5X5 X=500 CLARA-W CROSS-SECTION LOCATION

EXTENT OF PROPOSED VERTICAL/HORIZONTAL EXPANSION

GRAPHIC SCALE

400 0 200 400 800

(IN FEET)

1 inch = 400 ft.

NORTH

Source: GeoLogic Associates (2004).

Figure 5.2-4
Potential Failures in Northeast-Facing Slope

5.2.4 POTENTIAL IMPACTS

5.2.4.1 Material Resources

Economically useful geologic resources do not occur in the proposed lateral expansion footprint area, with the exception of materials that may be suitable for cover or construction in further development of the landfill. Although the site is not located directly in a Mineral Resource Zone as defined by CSG, it is located near oil production areas south of the Whittier Fault.

5.2.4.2 Slope Stability

Since the proposed expansion would raise the landfill from the currently permitted elevation of 1,300 feet AMSL to a proposed maximum elevation of 1,415 feet AMSL, 3-D stability analyses were performed to search for critical potential failure surfaces that daylight at either the toe of the proposed vertical expansion (i.e., the existing 1,300-foot AMSL permitted grade) or near the top of the proposed grade (i.e., 1,415 feet AMSL). The critical factors-of-safety for the southern facing slope varied from approximately 1.66 to 2.63 (see Figures 5.2-2 and 5.2-3). It should be noted that the grading plan shown in these figures and used in the stability analyses was a preliminary plan. The finalized grading plan as shown in Figure 4.5-2 reflects a slight lowering of the deck and slope crest in some areas. Accordingly, the results of the stability analyses presented herein are slightly conservative with respect to the current design.

The lateral expansion slope at the northeastern portion of the site was only analyzed for the proposed grade since the lower, permitted grades do not overlie the critical failure surface. The critical factor-of-safety for this slope was approximately 1.67 (see Figure 5.2-4).

5.2.4.3 Seismicity

The active Whittier Fault abuts the southern part of the Olinda Alpha Landfill site. The Maximum Credible Earthquake (MCE) at this location is a moment magnitude 6.8 event on this fault, an event expected to generate peak bedrock accelerations of about 0.75g at the site. In order to estimate seismicly-induced permanent displacement during the MCE, a procedure developed by Bray and Rathje (1998) for municipal solid waste landfills was used. Based on a yield acceleration of 0.16 g for the more critical southern facing slope, no significant seismic displacements are anticipated at the site during the MCE.

5.2.5 MITIGATION MEASURES

G-1 Prior to construction of the lateral expansion area, additional geologic data will be obtained and subsequent slope stability analyses will be conducted to verify assumptions made for the stability analysis included in Appendix L.

G-2 Geologic mapping will be conducted during construction to identify any changes in geologic structure that may impact the stability analysis conducted for the lateral expansion design.

5.2.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of the above mitigation measures, the potential for impacts to geology and soils will be less than significant.

5.3 HYDROGEOLOGY AND WATER QUALITY

5.3.1 EXISTING CONDITIONS

5.3.1.1 Regional Hydrogeology

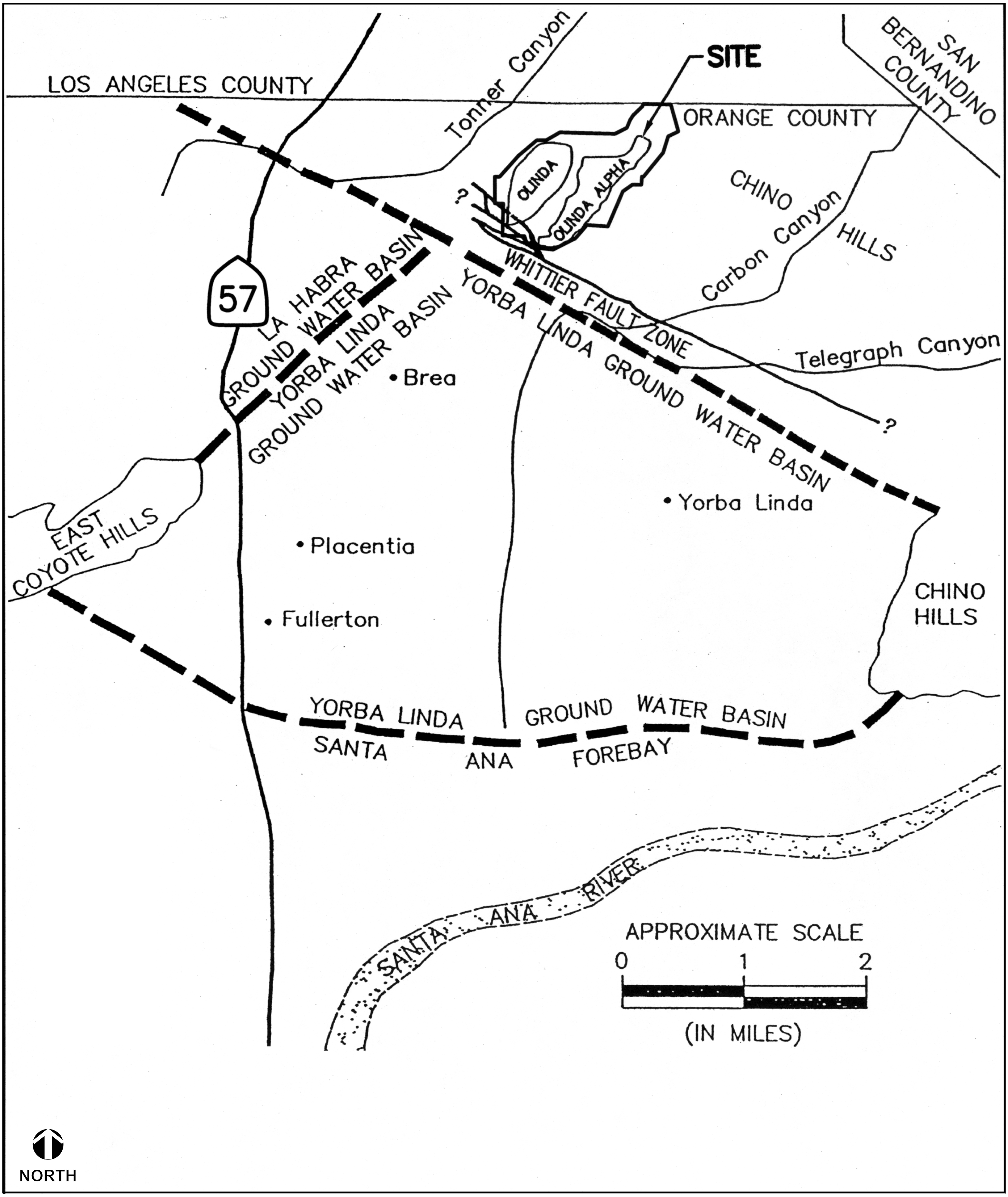
Olinda Alpha Landfill is located in the southern foothills of the Puente Hills, in the northernmost part of Orange County as shown on Figure 5.3-1. The Olinda Alpha Landfill consists of three contiguous waste management units (WMUs): Olinda Canyon to the west, Olinda Alpha Canyon to the east, and Center Ridge between the two canyons. The Miocene bedrock of the Puente Hills is not regarded to be a water bearing resource due to the low hydraulic conductivities and poor water quality that make the commercial exploitation of groundwater impractical (California Department of Water Resources (CDWR), 1961 and 1967). As a result, the Puente Formation is regarded to be a bedrock aquitard which is a lithologic unit that can store groundwater but can only transmit it slowly.

In contrast, fresh water-yielding sand and gravel aquifers occur throughout the Pleistocene sedimentary section in the Yorba Linda and La Habra Basins. According to Turnbull and Wiebe (1986), these permeable units are separated from each other by silty or clayey intervals, which in some instances act as confining horizons. For convenience, the aquifers are grouped by formational name as follows: the unconfined alluvial aquifer, the underlying La Habra aquifer and the deeper San Pedro aquifer. Underlying the Pleistocene section are the bedrock aquitards of the Fernando and Puente Formations (including the Sycamore Canyon aquitard that daylights near the landfill, immediately south of the Whittier Fault Zone).

In addition to the regional aquifers and bedrock aquitard, the alternating sequence of sandstones and shales typical of the Puente Formation leads to the development of small volume perched groundwater zones where a shale interval retards the downward migration of vadose water through a body of sandstone. Day lighting of these perched groundwater zones is responsible for the low yield seeps and springs sometimes exposed by grading on the Olinda Alpha Landfill property.

Finally, Holocene unconsolidated deposits, such as landslide debris or canyon alluvium, could also have high hydraulic conductivities, but their limited thicknesses do not allow for the storage or transmission of large volumes of water. From the hydrogeologic standpoint, they can best be regarded as small perched groundwater zones with limited continuity with the underlying aquitard.

Along the south flank of the Puente Hills, the Whittier Fault Zone brings the bedrock aquitard of the Puente Hills into contact with the regional aquifers of the Yorba Linda and La Habra Basins. The hydrogeologic impact of the Fault is uncertain in the area of the landfill because, although the faulted rocks are strongly sheared and altered to clay, the configuration of the water table does not back-up against the Fault, as would be expected if it acted as a hydrogeologic barrier.



Source: Geosyntec (1993a).

Figure 5.3-1
Regional Hydrogeology

5.3.1.2 Local Hydrogeology

Local hydrogeologic conditions on the Olinda Alpha Landfill property are monitored by 28 groundwater monitoring wells. Twenty one groundwater extraction wells are located at the toe of Olinda and Olinda Alpha Canyons and are part of a Corrective Action System (CAS) to treat landfill impacted groundwater. Some of the groundwater monitoring wells are used to determine the effectiveness of the CAS.

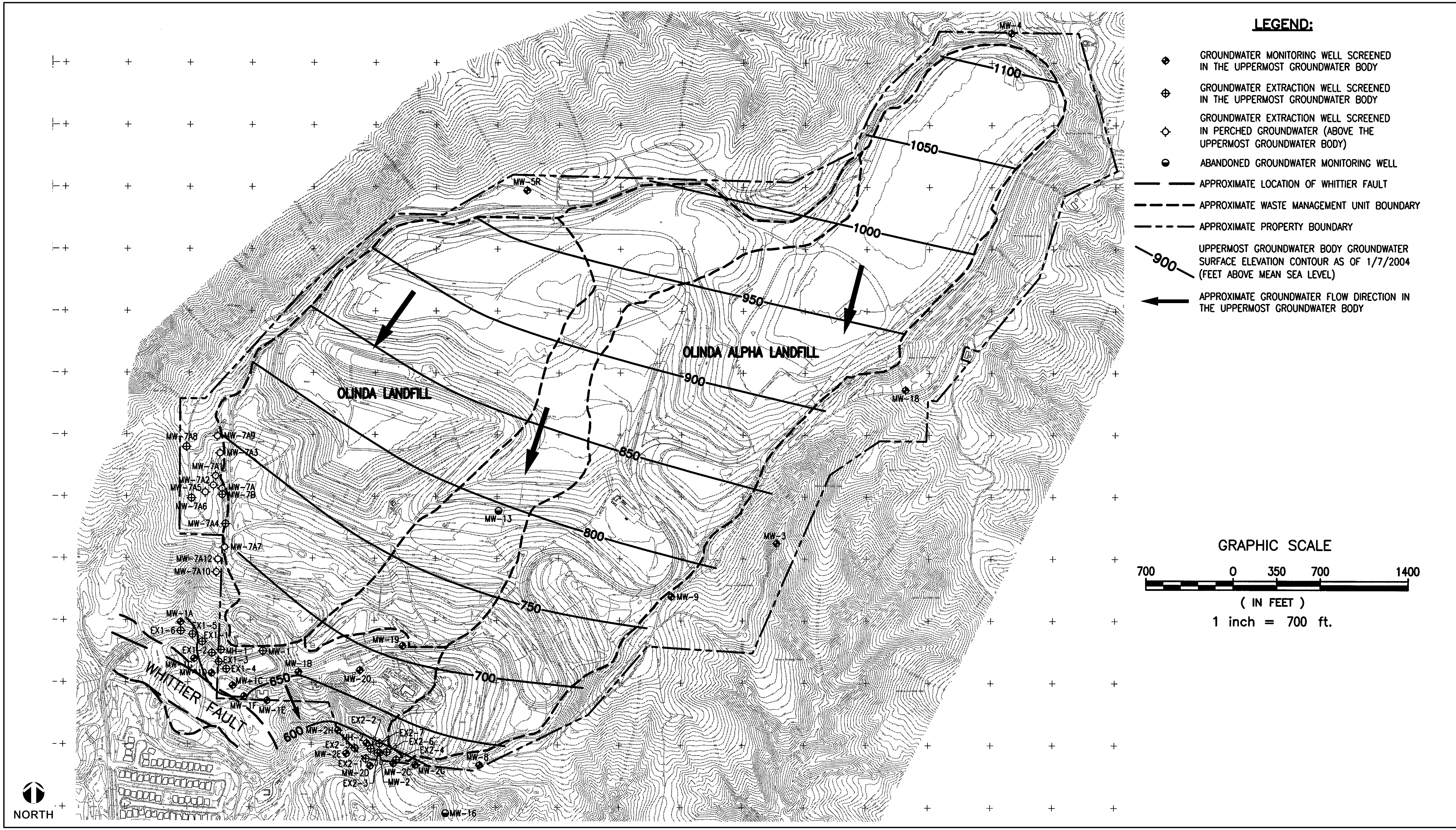
Groundwater equipotential lines developed for the site from monitoring well data consistently show flow from north to south towards the Whittier Fault as shown on Figure 5.3-2. Locally, especially along the ridge tops surrounding the landfill property, the groundwater flow direction is away from the ridge tops towards the adjacent canyons. Near the western edge of the Olinda Landfill property, a perched groundwater body is locally controlled by the dip of siltstone beds so that LFG impacted fluids originating in close proximity to the landfill are flowing toward an adjacent canyon rather than the typical situation where fluids originating within the landfill flow toward the mouth of Olinda or Olinda Alpha Canyons (GeoSyntec, 1994).

Groundwater occurs primarily in silty sand layers within the continuous groundwater below the Olinda Alpha Landfill property. Slug tests and laboratory testing of in situ samples collected from borings converted to monitoring wells yielded hydraulic conductivity values of 1.00E-05 to 1.00E-08 cm/sec (GeoSyntec, 1993). Slug tests performed in well MW-7A which monitors the perched groundwater body on the west ridge of the Olinda Canyon unit yielded a calculated hydraulic conductivity of 2.00E-05 cm/sec (GeoSyntec, 1993).

5.3.1.3 Groundwater Monitoring

Groundwater underlying the Olinda Alpha Landfill property is monitored by wells that are sampled as required by the site Waste Discharge Requirements (WDRs) and Monitoring and Reporting Program (M&RP) (Order No. 99-33) for Olinda Alpha Landfill. Groundwater monitoring is performed semi-annually with an annual summary report as required by the WDRs (WDR Order No. 99-33). A more rigorous Constituent of Concern (COC) testing program is employed every five years under which a larger, more broad-based list of analytes is analyzed for and reported. The COC testing is a method of re-evaluating the site groundwater chemistry and the M&RP can be amended or altered to reflect changes to the groundwater regime or chemistry. The site is currently in a Corrective Action Program (CAP) to remediate volatile organic compounds (VOCs) from groundwater at the mouths of the Olinda and Olinda Alpha Canyons and from perched groundwater flowing away from the western boundary of the Olinda Canyon part of the landfill.

The M&RP specifies four types of groundwater monitoring programs to be implemented at Olinda Alpha Landfill. The Detection Monitoring Program (DMP) monitors and analyzes groundwater samples from approved points of compliance for the landfill to identify potential releases. The DMP includes an analysis of GW chemistry to identify trends or changes in the organic/inorganic qualities of the groundwater. A CAP is currently in place and monitors the efficacy of the remediation system (which consists of source controls and a groundwater extraction and treatment system). A Groundwater Extraction Monitoring Program (GEP) tests



Source: GeoLogic Associates (2004).

Figure 5.3-2
Site Hydrogeology

water from the extraction wells and seeps to monitor the long term chemical concentration trends of the impacted water before it is treated. Lastly, the Groundwater Treatment Monitoring Program (GTP) monitors the quality of the treated groundwater or seep effluent to test the effectiveness of the treatment system.

Prior to 1992, the monitoring network consisted of eight wells (MH-1, MH-2, MW-1, MW-2, MW-3, MW-4, MW-5 and MW-6) (Hinkle, 1988). Another 16 monitoring wells were added to the system between July 1992 and September 1993 (MW-1A, MW-1B, MW-2A, MW-2B, MW-2C, MW-7B and MW-8 through MW-17) (GeoSyntec, 1993). Finally, three additional wells were installed in 1993 to monitor the hydrogeologic characteristics of a lens of perched water located beneath the ridge that forms the west boundary of the site (MW-7A, MW-7A1 and MW-7A2) (GeoSyntec, 1993). An extraction well array was also added to remediate the perched aquifer flowing away from the west side of the Olinda Canyon unit. This system is currently inactive. The existing site monitoring system consists of the wells shown in Table 5.3-1.

TABLE 5.3-1
OLINDA ALPHA LANDFILL MONITORING SYSTEM WELLS

WELL	AQUIFER	STATUS	MONITORING PROGRAM
MW-3	Bedrock	Downgradient	Detection Monitoring
MW-4R	Bedrock	Upgradient	Detection Monitoring
MW-5R	Bedrock	Upgradient	Detection Monitoring
MW-8	Bedrock	Downgradient	Detection Monitoring
MW-9	Bedrock	Downgradient	Detection Monitoring
MW-18	Bedrock	Downgradient	Detection Monitoring
MW-19	Bedrock	Downgradient	Detection Monitoring
MW-20	Bedrock	Downgradient	Detection Monitoring
MW-1C	Bedrock	Monitoring	Corrective Action
MW-1D	Bedrock	Monitoring	Corrective Action
MW-1E	Bedrock	Monitoring	Corrective Action
MW-1F	Bedrock	Monitoring	Corrective Action
MW-1G	Bedrock	Monitoring	Corrective Action
MW-2C	Bedrock	Monitoring	Corrective Action
MW-2D	Bedrock	Monitoring	Corrective Action
MW-2E	Bedrock	Monitoring	Corrective Action
EX1-1 through EX1-6	Bedrock	Extraction	Remediation
MW-1	Bedrock	Extraction	Remediation
EX2-1 through EX2-7	Bedrock	Extraction	Remediation
MW-7A	Perched	Extraction – Inactive	Remediation
MW-7A1	Perched	Extraction – Inactive	Remediation
MW-7A3	Perched	Extraction – Inactive	Remediation
MW-7A4	Perched	Extraction – Inactive	Remediation
MW-7A5	Perched	Extraction – Inactive	Remediation
MW-7A7	Perched	Extraction – Inactive	Remediation
MW-7A10	Perched	Extraction – Inactive	Remediation

Source: GeoSyntec, 2003.

In addition to the monitoring system wells included in Table 5.3-1, the following wells are inactive and may be used to measure groundwater levels at the site: Wells MH-1, MH-2, MW-

1A, MW-1B, MW-2, MW-2G, MW-2H, MW-7A2, MW-7A6, MW-7A8, MW-7A9, MW7A12 and MW-7B.

5.3.1.4 Groundwater Quality

Concentrations of inorganic chemical compounds (e.g. total dissolved solids, sulfate, chloride) are historically variable around the Olinda Alpha Landfill property and are, therefore, not considered good indicators of a release from the landfill. According to GeoSyntec (1993), significant concentrations of VOCs were consistently detected in three areas of the site: the perched water body on the west ridge of Olinda Canyon, the toe of Olinda Canyon unit and the toe of Olinda Alpha Canyon unit.

Prior to establishment of a groundwater remediation system, a total of 21 different VOCs were detected in downgradient wells at the Olinda and Olinda Alpha units. Of the 21 different VOCs detected, 11 were above the California State Department of Health Services established Maximum Contaminant Levels (MCL). The total VOC concentration in groundwater samples collected from the perched groundwater body was determined to be as high as 640 microgram per liter (ug/L) in September 1993. The total historical VOC concentrations in groundwater collected from the Olinda and Olinda Alpha Canyon monitoring wells has ranged from 91 ug/L and 56 ug/L respectively (GeoSyntec, 1993) to non-detectable (GeoSyntec, 2003).

5.3.1.5 Site Corrective Action Program

The CAP was instituted to remediate VOCs present in groundwater at the mouths of Olinda and Olinda Alpha Canyons and for the perched groundwater flowing away from the west side of Olinda Canyon. The CAP consists of pump and treat systems that extract impacted groundwater from the wells in alluvium and bedrock, treating the water using ultra violet radiation to breakdown the VOCs, and using the treated effluent for site construction and operations or dust control. The total VOC concentrations for the Olinda, Olinda Alpha and seep collection water varies from a historical high of nearly 160 part per billion (ppb) in the spring of 1999 for water from the Olinda Canyon collection tank to non-detectable concentrations at various times for water from all three tanks.

The RWQCB-SA approved an alternative liner system for the Center Ridge part of the landfill. The alternative liner consists of a leachate collection and recovery system (LCRS) on top of scarified and recompacted bedrock prior to placement of refuse. Leachate is collected and stored in a 10,000 gallon tank and hauled off-site for proper disposal.

5.3.2 THRESHOLDS OF SIGNIFICANCE

Groundwater chemistry data collected from the DMP, CAP and GEP at Olinda Alpha Landfill is subject to analyses to determine whether or not a release of inorganic, metals or VOCs has occurred. The statistical analysis methods are specified in Title 27 of the CCR. If a release is detected, the Regional Water Quality Control Board (RWQCB-SA) is notified and the landfill operators are required to perform a study to evaluate the impacts and propose remedial activities to alleviate the problem. Impacts to hydrogeology and water quality would be considered significant and adverse if the proposed project would result in the following conditions:

- Have a significant adverse impact on groundwater quality or otherwise substantially degrade water quality.

For inorganic and metals analyses, the data can be compared within the pooled data set for each respective well or by comparison of the downgradient data with the upgradient well chemistry. The statistical methods require that the effects of seasonality (the effects of the cyclic nature of the weather systems in southern California impacting chemistry) be accounted for. In addition, the statistical approach requires an analysis for long term trends that may be occurring within the data set.

Because VOCs are not typical of the upgradient groundwater chemistry at Olinda Alpha Landfill, a non-statistical approach to inspection of the groundwater database is undertaken. A VOC release is indicated if one of the following two conditions occurs:

- Two or more of the VOCs in the required testing schedule exceed the laboratory Method Detection Level (MDL).
- One or more of the VOCs in the required testing schedule exceeds the laboratory Practical Quantitation Level (PQL).

Confirmation testing for VOCs is required if a tentative VOC release is indicated.

5.3.3 METHODOLOGY RELATED TO HYDROGEOLOGY AND WATER QUALITY

Potential impacts on water quality were assessed by comparing the groundwater and surface water quality data available for the site with water quality objectives established by local, state, and federal regulatory agencies. Surface water, groundwater and landfill-impacted liquids are currently monitored on a semi-annual basis in accordance with the terms of Order No. 99-33 issued by the Santa Ana RWQCB-SA. Groundwater, surface water (seeps and springs) and condensate samples are collected from established monitoring wells or designated sampling locations and analyzed for a suite of constituents including general minerals, metals, and VOCs. The chemistry results are statistically or deterministically analyzed to evaluate whether or not a release has occurred, or whether the nature of a release is changing over time. This assessment was based on the latest groundwater monitoring reports provided by IWMD (GeoSyntec, October 2003).

5.3.4 POTENTIAL IMPACTS

The Olinda Alpha Landfill consists of three contiguous WMUs: Olinda Canyon to the west, Olinda Alpha Canyon to the east and Center Ridge between the two canyons. The Olinda and Olinda Alpha WMUs are unlined and have no LCRS in place. The Center Ridge WMU also does not have a liner because an alternative liner exemption was granted. The alternative liner exemption was granted based on an analysis showing that the leachate volumes calculated to be generated and the low hydraulic conductivity of the native, in place soils would not allow for significant transport of VOCs from the waste unit and that any VOC impacted groundwater would be collected and hauled away (GeoLogic Associates, 1996). It was also determined that the Central Ridge WMU does not overlie a water bearing area as identified by the DWR and as shown in the Basin Plan. Therefore, no beneficial uses are identified for the area underlying the Olinda Alpha Landfill property. Studies indicate that the Whittier Fault Zone acts as a barrier to the movement of groundwater to the La Habra - Yorba Linda Groundwater Sub-basin, which is located south of the Fault. The area immediately south of the Fault Zone is an oil producing area that has naturally occurring petroleum seeps present at ground surface. As a result, the water quality in this area is severely impaired by naturally occurring hydrocarbons.

The LCRS under the Central Ridge portion of the landfill and proposed for the lateral expansion areas will aid in reducing the impacts to groundwater upgradient of the groundwater extraction and treatment system. In addition, the lateral expansion area will have a composite liner system that meets federal and state requirements for lateral expansions which will need to be approved by the RWQCB-SA. This design may be amended based on the geologic conditions encountered and if allowed by the RWQCB-SA. Impacts from the expansion area and Central Ridge are expected to be insignificant because the area of coverage is small and the LCRS provides very efficient capture in the lined areas especially when compared to the unlined landfill.

VOCs have been detected in groundwater near the mouth of the Olinda and Olinda Alpha Canyons WMUs. A CAS is in place at the site to collect and treat groundwater impacted with VOCs. The system consisting of groundwater extraction wells and a treatment plant are operational and detection monitoring downgradient from the extraction wells demonstrates system effectiveness. Detections of VOCs in groundwater are likely to continue during the extended operations and throughout the post-closure period. Throughout that time frame, the CAS may be required, as necessary, to reduce impacts to a level of insignificance.

5.3.5 MITIGATION MEASURES

HW-1 A composite liner or an alternative to the prescriptive composite liner and LCRS will be placed in the lateral expansion area to intercept and collect leachate for disposal off-site or use as dust control, as approved by the RWQCB-SA. A subdrain system will be installed, as necessary, to intercept seeps below the liner. The prescriptive or alternative liner, LCRS and subdrain will be approved by the RWQCB-SA and comply with federal and state requirements (27 CCR).

HW-2 The site will continue to comply with the site's Waste Discharge Requirements and Monitoring and Reporting Program requirements imposed by the RWQCB-SA for the protection of water quality.

HW-3 The Corrective Action System in place at the landfill will continue operating during the extended landfill operations if detections of VOCs in groundwater continue.

5.3.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of the above mitigation measures, the potential for impacts to groundwater will be less than significant.

5.4 SURFACE WATER HYDROLOGY

5.4.1 EXISTING CONDITIONS

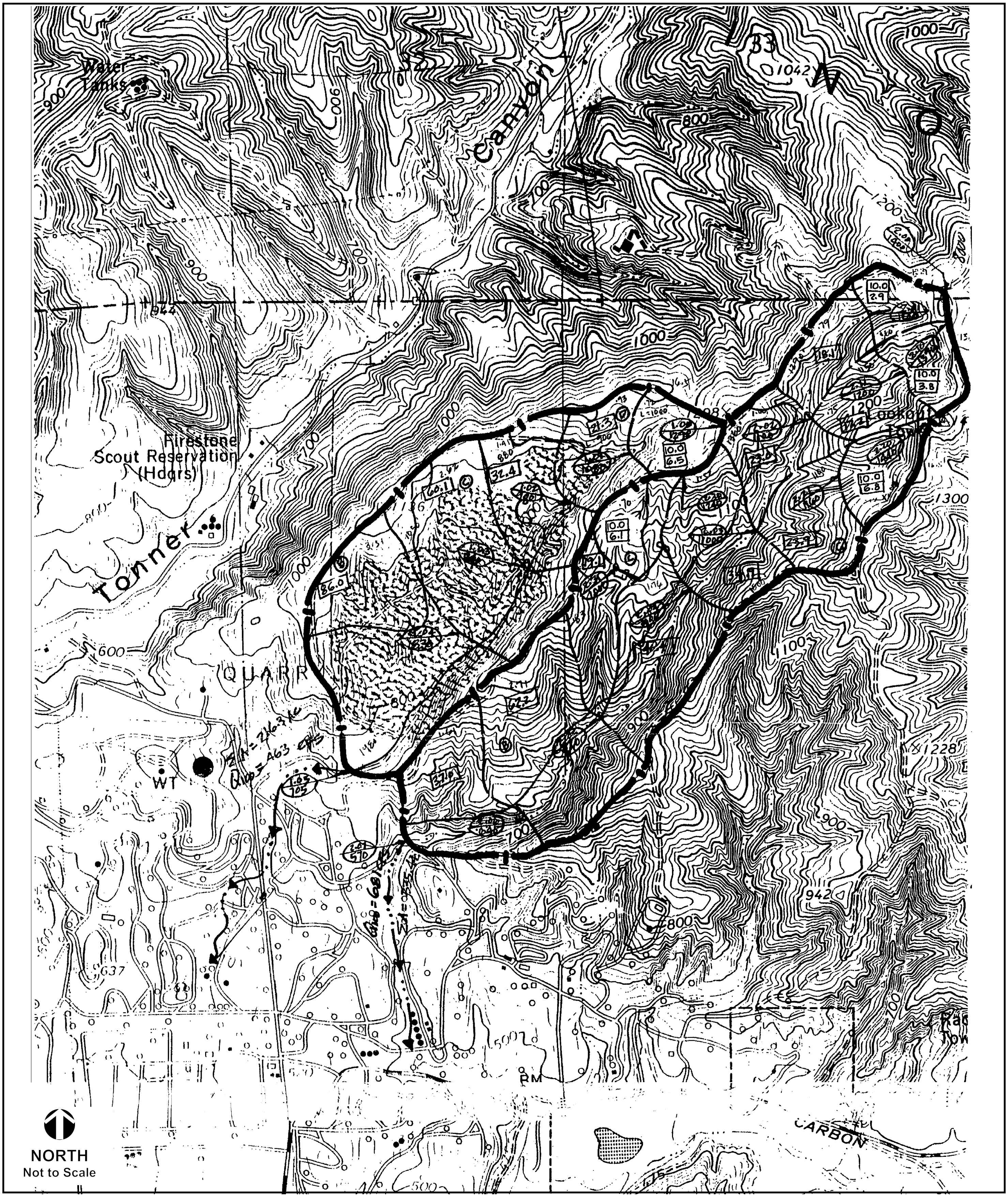
According to the Watershed and Coastal Resources Division of the Resources and Development Management Department (RDMD) of Orange County, Olinda Alpha Landfill is in the northeast part of the Coyote Creek Watershed that drains to the San Gabriel River and then to the Pacific Ocean.

Olinda Alpha Landfill was originally two separately permitted landfills, the Olinda Landfill and the adjacent Olinda Alpha Landfill which were geologically separated by a ridge between two canyons. In the "Olinda/Olinda Alpha Landfill Vertical Expansion Project, Master Storm Drain Design" (MSDD) report (Bryan A. Stirrat and Associates, April 11, 1994) prepared for the permitted plan, the calculated run-off for the landfill was divided into two main tributaries. The pre-landfill hydrology for the westerly tributary of Olinda Alpha Landfill was 216.3 acres and had a 100-year peak discharge of 463 cubic feet per second (CFS) as shown on Figure 5.4-1. The easterly tributary of the old Olinda Alpha Landfill was 335.4 acres with a 100-year peak discharge of 681 CFS. The currently-permitted developed condition for Olinda Alpha Landfill has a top deck maximum vertical elevation of 1,300 feet AMSL.

The primary function of the surface water drainage control system for Olinda Alpha Landfill is to minimize erosion and minimize the potential infiltration of surface water run-on into the refuse disposal areas. The current drainage control system for Olinda Alpha Landfill, as shown on Figure 5.4-2, consists of permanent perimeter drainage channels along the north, east and west boundary of the site, earthen berms, down-drains, sloping fill deck areas, intermediate slope bench drains and detention/desilting basins (Basins A and B). These Basins were designed to collect developed condition peak flows, but release flows to pre-developed conditions.

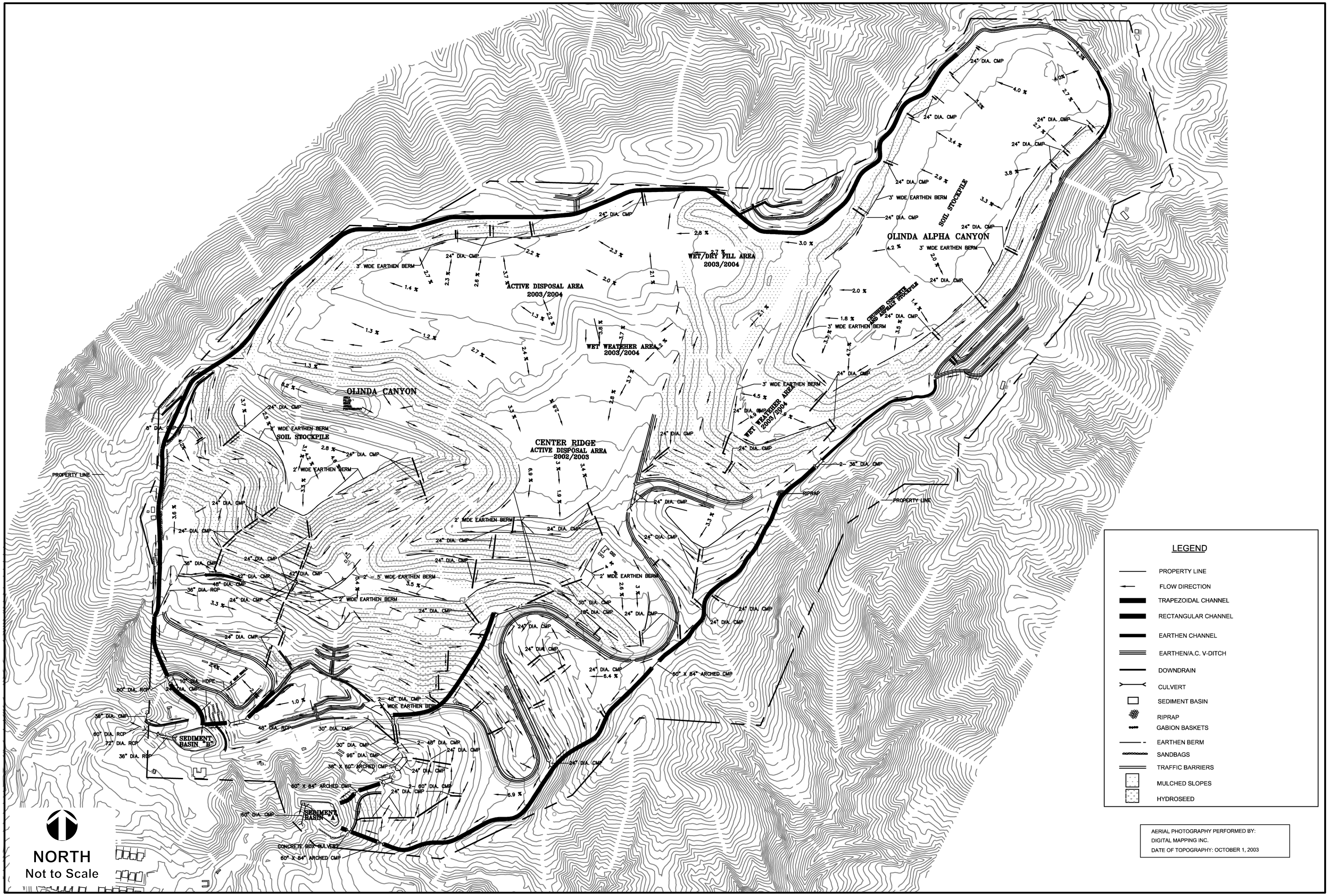
The flatter surface areas or decks of the disposal area are graded to promote lateral sheet flow run-off to down drains on the slopes. Surface water run-off from the disposal area slopes are controlled by intermediate benches or access roads which are graded to direct flows toward the inside of the bench or road and then into one of the down drain inlets on the bench or into the perimeter drainage channels.

All surface waters collected by the various drainage controls on the landfill property are eventually directed to the perimeter drainage channels which run along the entire perimeter of the disposal areas and discharge into detention basins. The perimeter drainage channels are constructed of various materials including concrete, armor-flex and corrugated steel pipe (CSP). Concrete channels and CSP are generally used for those native soil areas where surface water velocities are relatively higher due to steeper slopes. CSP is also used as culverts to carry surface water beneath on-site access roads. Armor-flex channels are used in areas where there is known refuse fill that cannot be removed. The east perimeter channel in the Olinda Alpha Canyon unit discharges into Detention Basin A located downstream of this Canyon. Surface water flows from the constructed west perimeter channel in Olinda Canyon directly discharge into Detention Basin B. Figure 5.4-2 shows the location of the existing drainage control features and Figure 5.4-3 presents the final drainage control features when the site is fully developed.



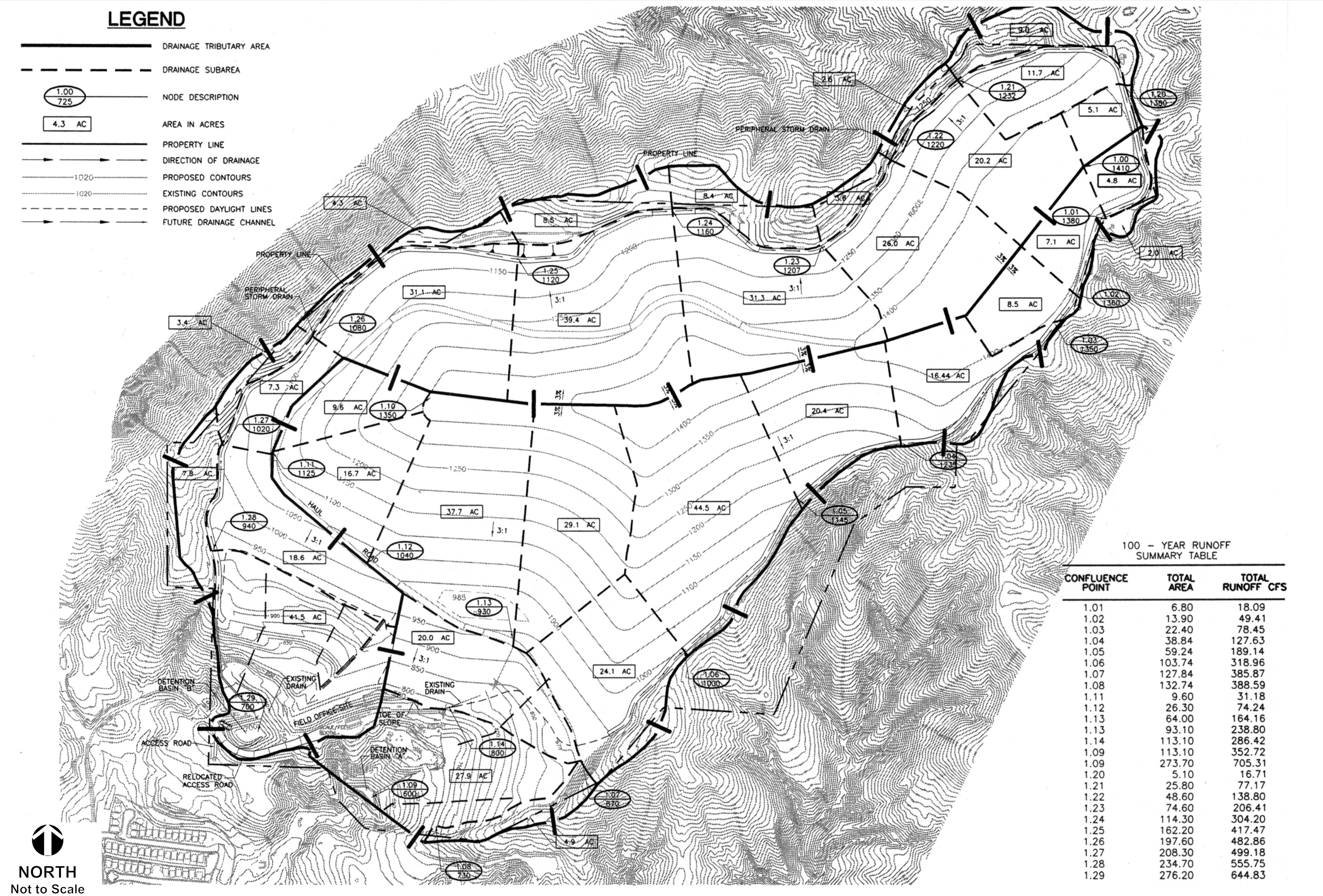
Source: Bryan A. Stirrat & Associates (2004).

Figure 5.4-1
100 Year Pre-Landfill Condition Hydrology Map



Source: Bryan A. Stirrat & Associates (2004).

Figure 5.4-2
Storm Water Drainage & Erosion Control System - 2003



100 - YEAR RUNOFF SUMMARY TABLE

CONFLUENCE POINT	TOTAL AREA	TOTAL RUNOFF CFS
1.01	6.80	18.09
1.02	13.90	49.41
1.03	22.40	78.45
1.04	38.84	127.63
1.05	59.24	189.14
1.06	103.74	318.96
1.07	127.84	385.87
1.08	132.74	388.59
1.11	9.60	31.18
1.12	26.30	74.24
1.13	64.00	164.16
1.13	93.10	238.80
1.14	113.10	286.42
1.09	113.10	352.72
1.09	273.70	705.31
1.20	5.10	16.71
1.21	25.80	77.17
1.22	48.60	138.80
1.23	74.60	206.41
1.24	114.30	304.20
1.25	162.20	417.47
1.26	197.60	482.86
1.27	208.30	499.18
1.28	234.70	555.75
1.29	276.20	644.83

Source: Bryan A. Stirrat & Associates (2004).

Figure 5.4-3
100 Year Developed Condition (with Final Drainage Control Features) Hydrology Plan

5.4.2 THRESHOLDS OF SIGNIFICANCE

The CEQA Guidelines define the potential impacts of a project as normally significant if it will "…cause substantial flooding, erosion or siltation…"

For flood events, Section A.2 of the Orange County Hydrology Manual states "It is the goal of the Agency to provide 100-year return frequency flood protection for all habitable structures and other non-flood proof structures." Landfill regulatory requirements in Title 27 of the CCR dictate separation and desiltation of all storm flows coming in contact with landfill operations. Section 20365(a) and Table 4.1 of 27 CCR require that "Units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtipping under the precipitation conditions specified in Table 4.1 for each class of waste management unit." For Olinda Alpha Landfill, Table 4.1 requires surface water drainage systems to be designed for a 100-year, 24-hour storm event. Finally, federal law dictates that landfills operate under an Industrial National Pollution Discharge Elimination System (NPDES) Permit to discharge storm flows. The criteria and restrictions of the NPDES Permit and the Stormwater Pollution Prevention Plan (SWPPP) and Best Management Practices (BMPs) that accompany the NPDES Permit were also considered in assessing the hydrologic impacts of the proposed Olinda Alpha Landfill expansion.

For the purposes of evaluating the potential hydrological impacts of the expansion, a significant impact was defined as an impact which does not meet the language and intent of the CEQA Guidelines, the site regulations for landfills (27 CCR), the Orange County Hydrology Manual, the project description and the applicable NPDES guidelines and BMPs.

5.4.3 METHODOLOGY RELATED TO SURFACE WATER HYDROLOGY

The Orange County Public Facilities and Resources Department (now called the RDMD) Hydrology Manual (1999) and the Advance Engineering Software (AES) computer program Rational Method were used to calculate the 100-year, 24-hour run-off peak for the entire Olinda Alpha Landfill with the proposed expansion. The AES computer program was specifically designed for Orange County and uses the latest rainfall data, nomographs, charts and equations for the Rational Method required in the hydrology manual. AES is also the accepted software used by RDMD which is the agency responsible for the major flood control facilities downstream of the landfill.

The Rational Method (Q=CIA) described in the Hydrology Manual relates rainfall intensity (I), run-off coefficient (C) and the drainage area (A) to the direct peak run-off (Q) from the drainage area. The values of C and I are based on drainage area characteristics such as land use, soil type, land surface and the time of concentration. Time of concentration (TC) is defined as the interval of time required for the flow at any point to reach its maximum flow rate under uniform rainfall intensity.

Once the peak flows for the proposed Olinda Alpha Landfill expansion grades were calculated, a unit hydrograph and basin analysis was performed using the AES software for both basins to check for adequate sizing.

5.4.4 POTENTIAL IMPACTS

5.4.4.1 Surface Water Flows

The run-off tributaries used for the Olinda Alpha Landfill MSDD are consistent with the pre-developed condition run-off tributaries and associated flows. The developed condition hydrology plan is presented in Figure 5.4-3. Flows from the deck of the landfill are directed via berms to a network of down drains and benches down the slopes to the perimeter channels (east and west channels). Once the run-off has been routed to the perimeter channels it is then directed to the detention/desilting basins. Because the detention/desilting basins were designed to receive developed condition peak flows and release at pre-developed flows, the layout of the expansion design conforms to the original design intent. Although the developed peak Q will change from the MSDD, the basins have sufficient capacity to limit the run-off out of the basins to predeveloped conditions; thus resulting in no additional impact to downstream drainage tributaries.

Interim drainage control improvements in place at the landfill, as shown in Figure 5.4-2, will continue to be developed as the landfill reaches its ultimate proposed grades. Improvements to the lower segment of the east channel (approximately 3,000 linear feet from the Basin) are to be reconstructed in the summer of 2004. The reconstructed channel alignment and materials were designed to accommodate a greater flow capacity and to allow for differential settlement. As indicated in the design report for the reconstruction of the east channel, the capacity for the channel is 476 CFS which accommodates ultimate flows to be directed into that channel. The total peak run-off for the east tributary at the permitted and proposed final grades is 767 CFS and 705 CFS, respectively. The balance of the peak run-off for the east tributary will require an alternate drainage feature (i.e., trapezoidal channel along the access road, a series of small down drains along the slopes from the deck) to be constructed prior to reaching permitted final grades and are required regardless of the proposed expansion of the site. These improvements would be in addition to the permanent portion of the channel to be reconstructed in summer of 2004.

For the west tributary of the site, the proposed final grades will increase the peak flow in the west channel by 30 CFS over the permitted plan flows. The west channel capacity has been analyzed with the additional flow at critical sections of the channel and it has been determined that the west channel has sufficient capacity to convey the increased flow (see Appendix K).

At the point of peak confluence, Basin A will have a peak inflow of 705 CFS which is 62 CFS less than the MSDD peak inflow calculation of 767 CFS for flow into this Basin. Basin B will have a peak inflow of 645 CFS which is 30 CFS more than the MSDD peak inflow of 615 CFS to the basin. Basin B has been analyzed and has enough capacity to store the additional peak flow and maintain the peak outflow to pre-developed conditions (see Table 5.4-1 and Appendix K).

Detention Basins A and B were designed for the purpose of limiting the run-off from Olinda Alpha Landfill to the pre-developed condition and provide desilting for the run-off. The Basins will continue to serve that function with the proposed vertical and lateral expansion for the project. The complete hydrology study and hydraulic calculations are included in Appendix K. The pre-developed condition and developed condition hydrology plans are provided in Figures 5.4-1 and 5.4-3, respectively.

TABLE 5.4-1
OLINDA ALPHA LANDFILL EXPANSION
STORMWATER RUN-OFF AND BASIN DISCHARGES

	East Tributary (CFS)		West Tributary (CFS)	
	Peak Inflow	**Basin A Discharge**	**Peak Inflow**	**Basin B Discharge**
Pre-developed	681	NA	463	NA
MSDD	767	618	615	457
Expansion	705	642	645	463

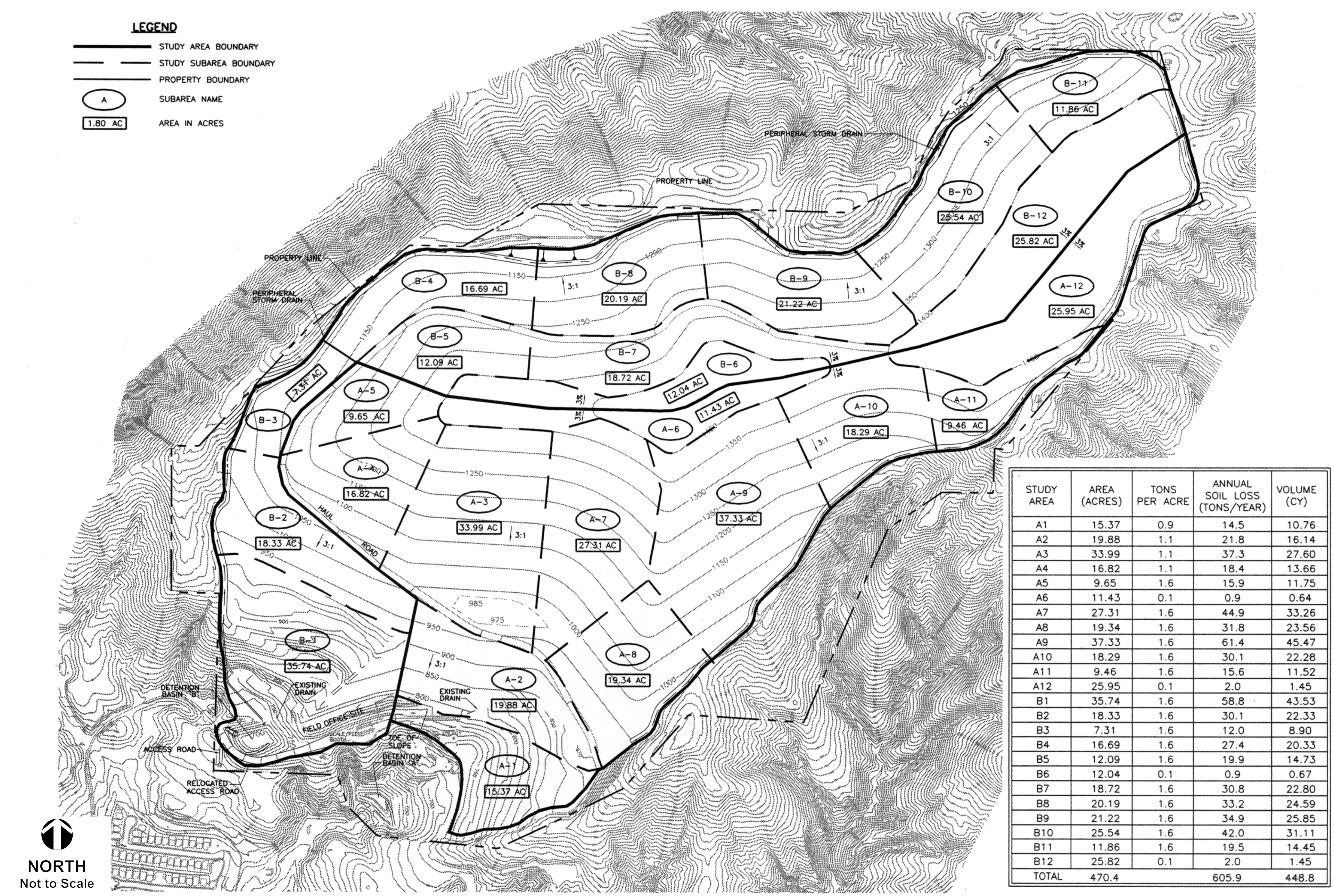
5.4.4.2 Erosion and Soil Loss

Erosion in and around active landfill areas is potentially significant because of the large area of exposed soil. The calculated soil loss for the Olinda Alpha Landfill (including the expansion area) averages 1.3 tons per acre per year (see Figure 5.4-4). Appendix K provides the soil loss analysis and Figure 5.4-4 shows the "with project" condition soil loss plan. Erosion will be controlled on the face of the active landfill by maintaining a two to three percent slope on all exposed surfaces. Similar to existing landfill operations, the slopes will be designed with benches at 40-foot interval; fiber rolls will be placed on the slopes in between the benches to reduce soil erosion; processed green material (PGM) will be used as an erosion control measure; and prior to the winter season, sand bags will be installed at strategic locations at the site and benches and decks will be regraded to have positive flows to down drains. The amount of silt picked up on the active landfill surface will be reduced further by the two existing detention/desilting basins.

5.4.5 MITIGATION MEASURES

H-1 As part of a Joint Technical Document (JTD) to be prepared by IWMD in support of a revised SWFP and WDRs for the proposed expansion, the IWMD shall present the assumptions, methods and calculations used to calculate the potential flow quantities for run-on, run-off and sediment content of storm water flow used in sizing drainage and sediment control facilities for Olinda Alpha Landfill in conformance with 27 CCR regulations.

H-2 As part of a JTD to be prepared by IWMD in support of a revised SWFP and WDRs for the expansion, the IWMD shall include surface drainage plans for Olinda Alpha Landfill expansion final grading plans, including any berms, down drain systems, perimeter drainage channel improvements and the location of off-site discharge points for run-off water in compliance with 27 CCR regulations.



STUDY AREA	AREA (ACRES)	TONS PER ACRE	ANNUAL SOIL LOSS (TONS/YEAR)	VOLUME (CY)
A1	15.37	0.9	14.5	10.76
A2	19.88	1.1	21.8	16.14
A3	33.99	1.1	37.3	27.60
A4	16.82	1.1	18.4	13.66
A5	9.65	1.6	15.9	11.75
A6	11.43	0.1	0.9	0.64
A7	27.31	1.6	44.9	33.26
A8	19.34	1.6	31.8	23.56
A9	37.33	1.6	61.4	45.47
A10	18.29	1.6	30.1	22.28
A11	9.46	1.6	15.6	11.52
A12	25.95	0.1	2.0	1.45
B1	35.74	1.6	58.8	43.53
B2	18.33	1.6	30.1	22.33
B3	7.31	1.6	12.0	8.90
B4	16.69	1.6	27.4	20.33
B5	12.09	1.6	19.9	14.73
B6	12.04	0.1	0.9	0.67
B7	18.72	1.6	30.8	22.80
B8	20.19	1.6	33.2	24.59
B9	21.22	1.6	34.9	25.85
B10	25.54	1.6	42.0	31.11
B11	11.86	1.6	19.5	14.45
B12	25.82	0.1	2.0	1.45
TOTAL	470.4		605.9	448.8

Source: Bryan A. Stirrat & Associates (2004).

Figure 5.4-4
100 Year Developed Condition (with Final Drainage Control Features) Soil Loss Plan

H-3 Diversion and drainage facilities shall be evaluated, designed, constructed and operated to accommodate the anticipated volume of precipitation and peak flows from surface run-off under the precipitation conditions specified in Title 27 of the CCR. Drainage facilities for the landfill expansion shall be designed to prevent washout of the waste management unit during a 100-year storm event.

H-4 The landfill (including the expansion area) will continue to operate under an NPDES Permit to discharge storm flows. The criteria and restrictions of the NPDES Permit and the SWPPP and BMPs that accompany the NPDES Permit will be adhered to.

H-5 Positive drainage will be ensured in the expansion area by maintaining a two to three percent slope on all landfill deck surfaces.

H-6 During all landfilling operations in the expansion area, sediment and erosion control plans will continue to be prepared and implemented on an annual basis to reduce sediment and control erosion on the landfill site.

5.4.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The potential short and long term hydrological impacts of the proposed landfill expansion will be mitigated to a less than significant level after implementation of mitigation measures H-1 to H-6, described above.

5.5 TRANSPORTATION AND CIRCULATION

This Section summarizes the assumptions, methodologies, findings and recommendations of the traffic impact study conducted for the proposed vertical and horizontal expansion of Olinda Alpha Landfill. The traffic study addresses existing traffic conditions and potential traffic impacts on the surrounding street system resulting from the proposed project and several alternatives. Appendix F provides detailed traffic data used in the traffic impact analysis.

5.5.1 EXISTING CONDITIONS

This Section summarizes existing 2004 traffic and conditions in the study area and on the road system which provides access to and from the landfill.

5.5.1.1 General Characteristics of the Existing Landfill

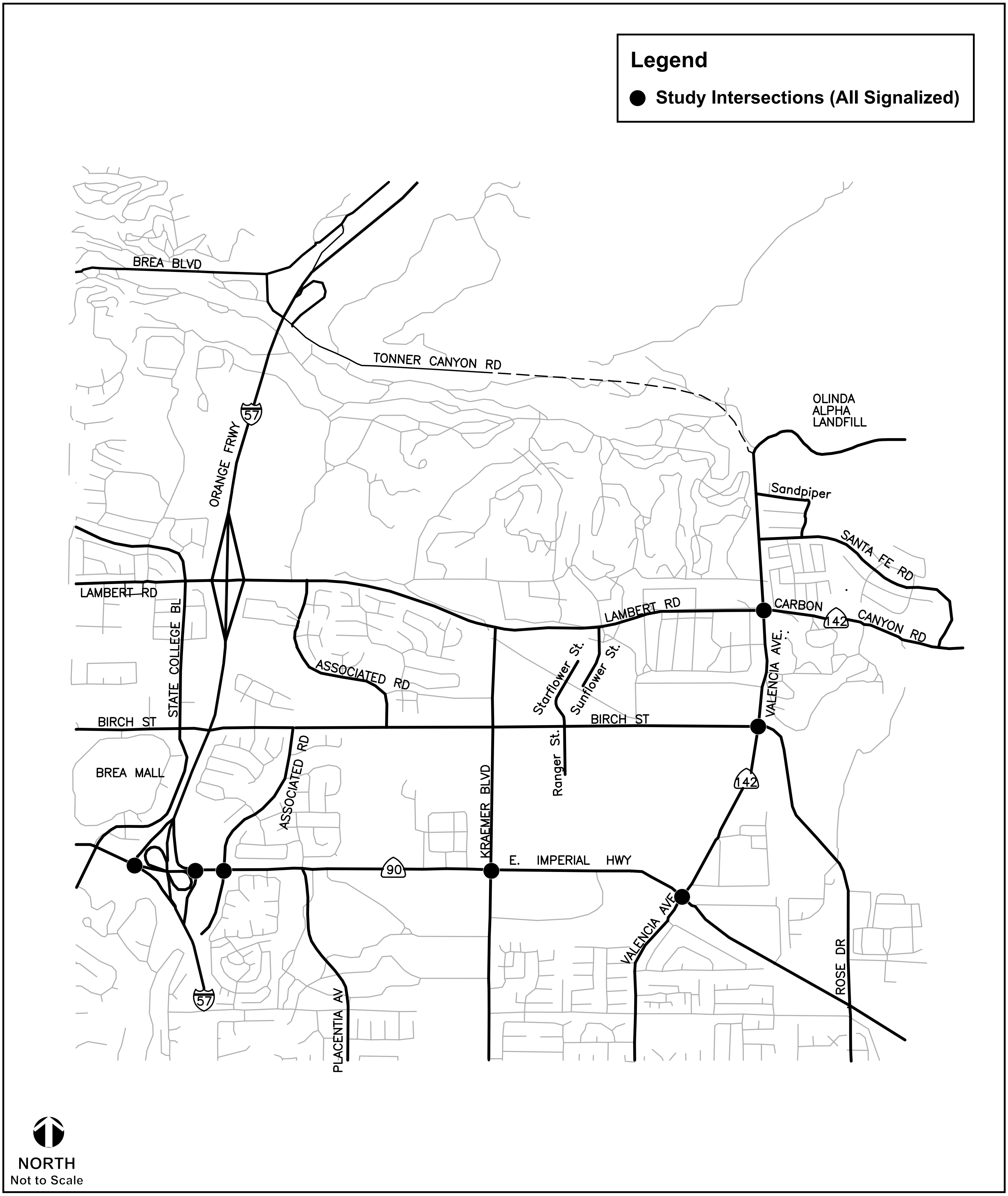
Olinda Alpha Landfill is located at 1942 Valencia Avenue near the City of Brea and north of the Olinda Ranch residential development northeast of the Lambert Road-Carbon Canyon Road/Valencia Avenue intersection, as shown on Figure 5.5-1. The landfill is open Monday through Saturday from 6:00 AM to 7:00 AM for transfer trucks only and from 7:00 AM to 4 PM for all other commercial and non-commercial deliveries. Commercial haulers based both within and outside the County deliver to the site. Refuse disposal by private citizens is allowed and is limited to Orange County residents.

The current Olinda Alpha Landfill Solid Waste Facility Permit (SWFP) allows a daily maximum of no more than 8,000 tons per day (TPD) of municipal solid waste (MSW). In addition, an MOU with the City of Brea limits daily MSW disposal to an annual average daily tonnage limit of 7,000 TPD. The landfill also accepts an average of approximately 3,000 to 4,000 TPD of exempt commodities which include dirt, asphalt and green waste.

5.5.1.2 Current Level of Traffic Generated by the Existing Landfill

To monitor daily levels of tonnage and vehicular movements to Olinda Alpha Landfill, IWMD maintains a computer tracking system which records a variety of information about vehicles passing across the scales into the landfill including the cumulative tonnage of incoming refuse each day as well as the number of waste hauling vehicles, by vehicle type, that enter the landfill each day. Review of this computer data indicated the following vehicular activity crossing the scales into the landfill occurred during fiscal year (FY) 2003 (period between July 1, 2002 and June 30, 2003). In addition to this vehicular activity across the scales, there is other vehicular activity associated with the landfill, related to employee trips, trips associated with the Brea Green Recycling facility, mail, and miscellaneous other trips.

The following information about traffic volumes at the landfill includes only vehicular movements across the scales, into the main landfill. Movements across the scales include MSW, cover soil and green waste.



Source: Bryan A. Stirrat & Associates (2004).

Figure 5.5-1
Study Area - Study Intersections

1) The average number of vehicles crossing the scales at the landfill daily (based on 308 days of operation) was 888 vehicles which correspond to two-way average daily traffic (ADT) of 1,776 vehicle trips. This ADT level represents the average day of movements across the scales into the landfill during fiscal year 2003.

2) On 5% of total days (approximately 12 days in an average year), the total ADT across the scales was less than 2,200 daily two-way trips.

3) On 1% of the total days (approximately 12 days in an average year), the total ADT across the scales was less than 2,400 daily two-way trips.

4) Saturday ADT to the landfill is 88 percent of weekday ADT.

5) The highest weekday activity hour at the landfill occurs between 11 AM and 12 noon, with an average of 112 vehicles entering the landfill (about two vehicles per minute).

6) The highest average weekday hour for entering traffic volume represents 12.3% of the daily total traffic volume.

Table 5.5-1 summarizes the total of all the vehicular trips into and out of the landfill for an average day including average movement of vehicles across the scales into the main landfill area plus other trips into the landfill such as employees, trips to the Brea Green Recycling facility and other miscellaneous trips.

TABLE 5.5-1
VEHICULAR TRIPS TO/FROM OLINDA ALPHA LANDFILL ON AN AVERAGE DAY

Total loads of waste brought to Olinda Alpha Landfill (crossing the scales)	888 x 2 =	1,776	trips
Total loads to Brea Green Recycling	107 x 2 =	214	trips
Armored car pickup	1 x 2 =	2	trips
Mail/package delivery	2 x 2 =	4	trips
Total landfill employees	49 x 2 =	98	trips
Total Brea Green Recycling employees	5 x 2 =	10	trips
Total Shepherd employees	7 x 2 =	14	trips
Total Getty Synthetic Fuels (GSF) employees	10 x 2 =	20	trips
Total on-site salvage company employees	7 x 2 =	14	trips
If 10 percent of the employees left the site at lunch	8 x 2 =	16	trips
Estimated Total Trips – Average Day		**2,168**	**trips**

Source: Olinda Alpha Landfill Site Manager (2004).

Because the scales to the landfill open at 6 AM, the landfill employees listed in Table 5.5.-1 arrive at the landfill very early for work. All employees related to landfill activities arrive at the landfill before 7:30 AM. Therefore, on an average day 178 (8%) of the total 2,168 trips to the landfill are employee, mail or armored car trips which occur outside the morning peak hour on the area road network outside the landfill which begins at 7:30 to 7:45 AM.

5.5.1.3 Level of Service

The level of service (LOS) concept was developed to evaluate the operating conditions of components of a transportation circulation system, most commonly intersections and road links. The *Highway Capacity Manual 2000* (HCM, Transportation Research Board, National Research Council, Washington, D.C.) defines LOS as a quality measure describing operating conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. LOS is rated from A to F, with LOS A representing the best operating conditions and LOS F representing the worst. Specific criteria for road segments and intersections are described in the following sections.

5.5.1.4 Traffic Study Area

The traffic study area was determined based on the results of a field survey which determined the primary routes used by traffic destined to and from Olinda Alpha Landfill. This field study of vehicles leaving the landfill was conducted on a typical morning in December 2002. Highly visible colored stickers were placed in a prominent and visible position on the front of the majority of vehicles leaving Olinda Alpha Landfill on that study day. Observers in place at the key intersections along Valencia Avenue between Lambert Road and Imperial Highway and on Imperial Highway from Valencia Avenue to State Route (SR 57) observed and recorded the numbers of trucks with stickers (indicating they were vehicles accessing the landfill) and their directions of movement through these intersections.

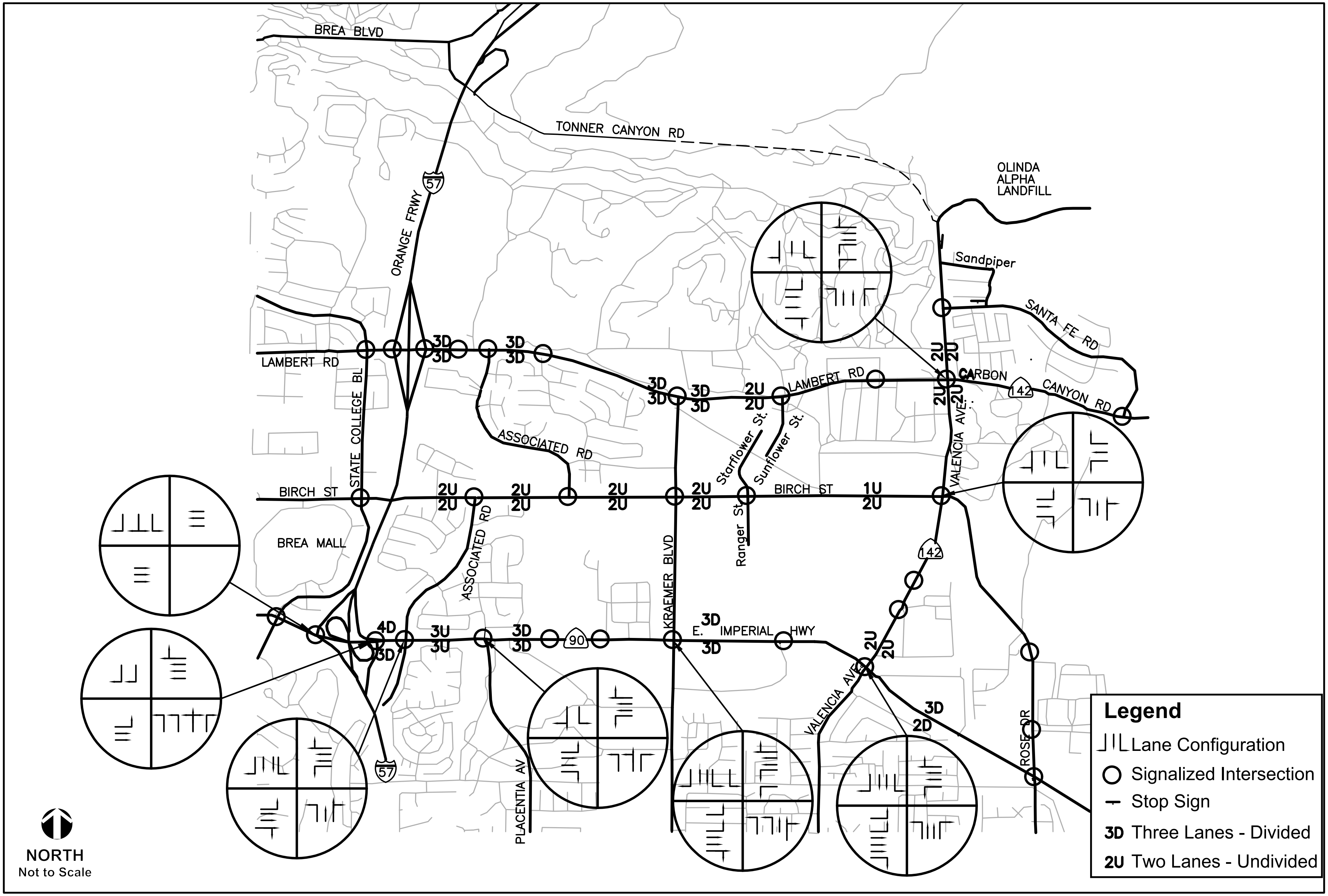
Based on the existing distribution of landfill related traffic, the intersections on Valencia Avenue between Lambert Road and Imperial Highway and on Imperial Highway between Valencia Avenue and SR 57 were the obvious choices for detailed impacts analysis. Figure 5.5-1 shows the study area including the existing road system and key study intersections which were analyzed in the traffic study. Figure 5.5-6, shown later in Section 5.5.3.3, shows the percentage distributions which resulted from the survey.

5.5.1.5 Existing Circulation System

Olinda Alpha Landfill is served by an extensive existing road system which provides access to the landfill as well as to other existing development and inter-regional traffic throughout the area. Figure 5.5-2 shows the locations of traffic control devices, lane configurations at key intersections and the number of lanes on major roads in the study area for the traffic analysis. The freeways and key arterial roads that handle the predominance of landfill traffic in the vicinity of the project site are discussed later in this Section.

The 2003 Congestion Management Program (CMP) for Orange County identifies roads and freeways that are included on the latest CMP Highway System. In the project area, the following roads/freeways are included on the CMP network:

- Valencia Avenue from Lambert Road/Carbon Canyon Road to Imperial Highway.
- Imperial Highway from Rose Avenue to SR 57.
- SR 57 in the entire study area.



Source: Bryan A. Stirrat & Associates (2004).

Figure 5.5-2
Traffic Controls - Lane Configuration

The following intersections are designated as CMP intersections on the CMP Highway Network:

- Imperial Highway at Valencia Avenue.
- SR 57 Southbound (SB) freeway ramps at Imperial Highway.
- SR 57 Northbound (NB) freeway ramps at Imperial Highway.

Freeways in the Study Area

State Route 57 (SR 57). Regional access to the landfill is provided primarily by SR 57 with connections from SR 57 to the entire Los Angeles/Orange County freeway system. SR 57 is an eight-lane (four lanes in each direction) access-controlled facility, with two high occupancy vehicle lanes (one in each direction), which connects the City of Pomona to the north to the Cities of Anaheim and Orange to the south. A full-access interchange is provided at Imperial Highway about six miles from the landfill and at Lambert Road about three miles from the landfill. Because the City of Brea prohibits trucks over 3,000 pounds from using Lambert Road east of SR 57 to Valencia Avenue, the overwhelming majority of trucks accessing the landfill from SR 57 use Imperial Highway (to/from Valencia Avenue) for access to/from the landfill.

Major Roads in the Study Area

Imperial Highway (State Route 90, SR 90) is a designated Smart Street in the project area on both the Orange County Master Plan of Arterial Highways (MPAH, September 22, 2003) and on the Master Plan of Roadways (MPR) in the City of Brea General Plan (August 19, 2003). The Smart Street concept seeks to improve traffic capacity and smooth traffic flow through measures such as traffic signal synchronization, bus turnouts, intersection improvements and addition of travel lanes by removing on-street parking and consolidating driveways. Imperial Highway is a major east-west inter-regional road which carries traffic across the Los Angeles/Orange County region for about 40 miles from Playa Del Rey in El Segundo to Nohl Ranch Road in Anaheim Hills. In the study area, Imperial Highway is about 110 feet curb-to-curb with a 26-foot wide center area for median and/or left turn lanes. There are eight signalized intersections along Imperial Highway in the two mile segment from SR 57 to (and including) Valencia Avenue.

This road is six lanes (three lanes in each direction) between SR 57 and Valencia Avenue with a raised median divider from State College Boulevard to the SR 57 SB off-ramp, from the State Route 57 (SR 57) NB off-ramp to slightly east of Associated Road, and from slightly east of Placentia Avenue to Rose Drive. The speed limit on Imperial Highway varies from 50 miles per hour (mph) east of Associated Road to 40 mph west of Associated Road and across SR 57. This road is on the 2003 CMP Highway System for Orange County in the study area.

Valencia Avenue is designated as a Primary Arterial in the project area on both the County of Orange MPAH and the City of Brea MPR. This road is a four-lane undivided (two lanes each direction) road which is about 84 feet curb-to-curb from Imperial Highway to Lambert/Carbon Canyon Road. North of, and between Lambert Road/Carbon Canyon Road and Sante Fe Avenue (the entrance to Olinda Ranch), Valencia Avenue narrows to about 69 feet east curb-to-west side edge line and narrows further to a two-lane road as it begins the ascent to the scales at the entrance to Olinda Alpha Landfill. This road is on the 2003 CMP Highway System for Orange

County between Imperial Highway and Lambert Road/Carbon Canyon Road in the project study area. There are six signalized intersections on Valencia Avenue between (and including) Imperial Highway and Santa Fe Avenue (a new signal was installed in December 2003). The speed limit on Valencia Avenue is 45 mph from north of Imperial Highway past Olinda Ranch.

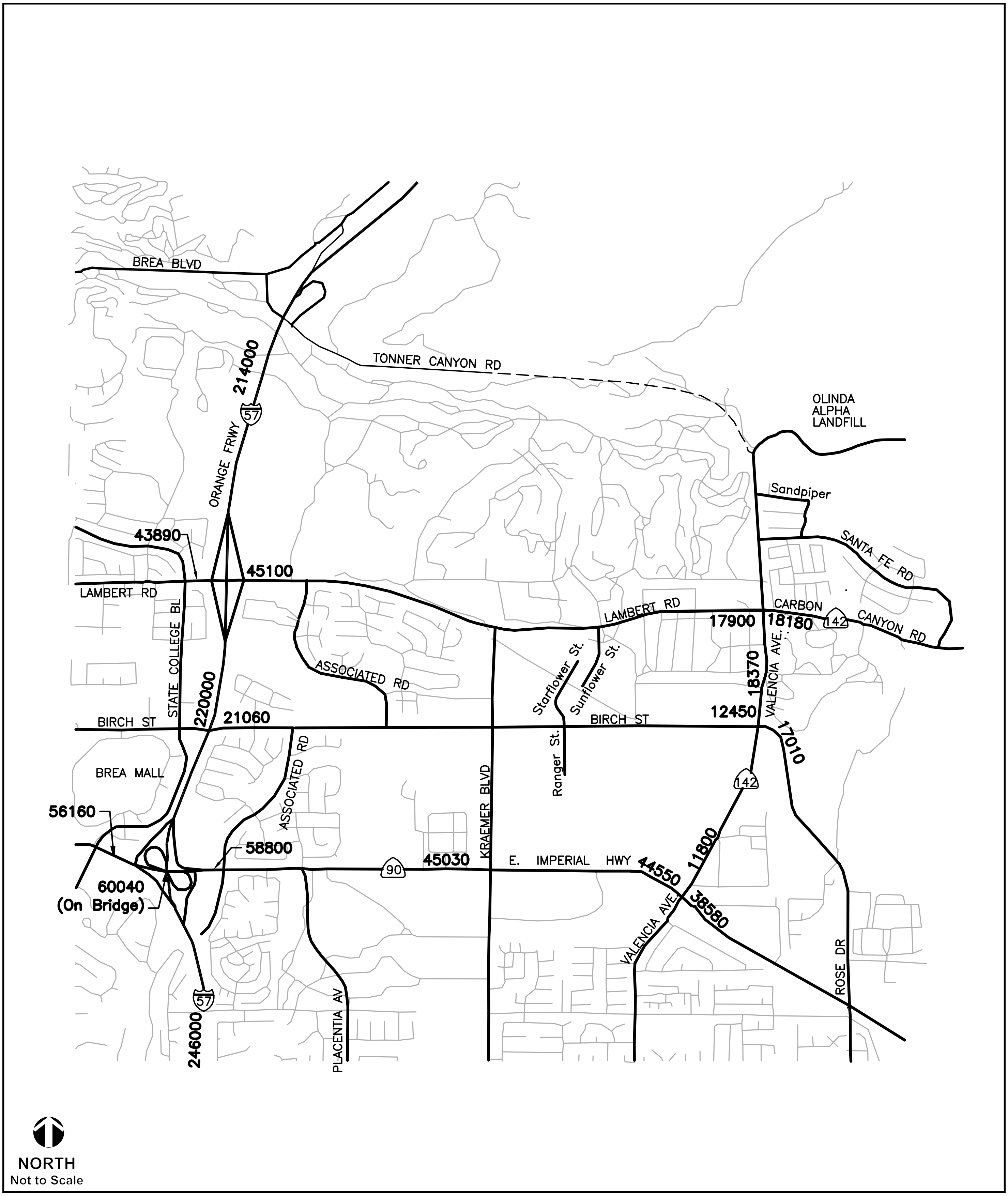
Valencia Avenue is shown, on both the MPAH and the City of Brea MPR, as a future extension from the landfill area through Tonner Canyon to connect to SR 57 at the current Tonner Canyon partial interchange. The City of Brea MPR indicates "…the Valencia Avenue extension between the entrance to the Olinda Alpha Landfill and State Route 57 will be deleted following parallel changes to the OCTA MPAH" (City of Brea General Plan (August 19, 2003), Figure CD-8, Master Plan of Roadways). A formal request to the Orange County Transportation Authority (OCTA) from the City of Brea to delete the Valencia Avenue/Tonner Canyon Road connection from the MPAH is on-hold pending further discussion relative to the Four Corners Traffic Study. Refer to Section 2.3.3 (Tonner Canyon Road) for additional discussion regarding Tonner Canyon Road.

Lambert Road is designated as a Major Arterial in the project area on both the Orange County MPAH and the City of Brea MPR. Lambert Road is a six-lane road (three lanes each direction, with a raised median between one block east of Kraemer Boulevard and SR 57) which connects to SR 57 with a full diamond interchange. As indicated earlier, trucks over 3,000 pounds are prohibited by the City of Brea on Lambert Road between SR 57 and Valencia Avenue. Therefore, this road is not a viable access route to/from the landfill. Lambert Road is not included on the CMP Highway System for Orange County.

5.5.1.6 Existing Traffic Volumes

Figure 5.5-3 presents the existing 2004 ADT for the freeways and major roads in the study area. Detailed traffic count summary sheets for data collected in January 2004 for the surface street system is provided in Appendix F-1. Traffic volumes on the freeway are based on the Caltrans 2002 volumes on the California State Highway System.

As Figure 5.5-3 indicates, SR 57 carries an annual average daily traffic (AADT) of about 246,000 vehicles between Yorba Linda Boulevard and Imperial Highway, an AADT of 220,000 vehicles between Imperial Highway and Lambert Road and an AADT of 214,000 vehicles between Lambert Road and Tonner Canyon Road. The AADT is two-way traffic. The peak hour volume on the Imperial Highway/Lambert Road segment of SR 57 is slightly less than 18,000 vehicles (total of both directions). The LOSs on SR 57 in the study area are over capacity for both peak hours in both directions, ranging from LOS F0 to F3 according to the 2003 Caltrans District 12 CMP Data in Appendix A (Freeway Levels of Service Tables) in the OCTA 2003 CMP.



Source: Bryan A. Stirrat & Associates (2004).

Figure 5.5-3
Average Daily Traffic

Figure 5.5-3 also shows that Imperial Highway carries from 60,040 ADT at SR 57, decreasing to 44,550 ADT east of Valencia Avenue. Daily traffic volumes on Valencia Avenue vary from 11,800 ADT north of Imperial Highway to 18,370 ADT between Lambert Road/Carbon Canyon Road and Rose Avenue/Birch Streets. North of Lambert Road, daily volumes on Valencia vary between 2,320 and 3,560 ADT adjacent to the Olinda Ranch development. Existing ADT count data (ADT count machines record one vehicle for each two axles) on this segment of Valencia Avenue were adjusted to account for the high percentage of multi-axle vehicles on this road segment, close to Olinda Alpha Landfill.

Daily volumes on Lambert Road vary from a high of 45,100 ADT near SR 57 to 18,180 ADT east of Valencia Avenue (Carbon Canyon Road). East of Valencia Avenue, Carbon Canyon Road carries 18,180 ADT.

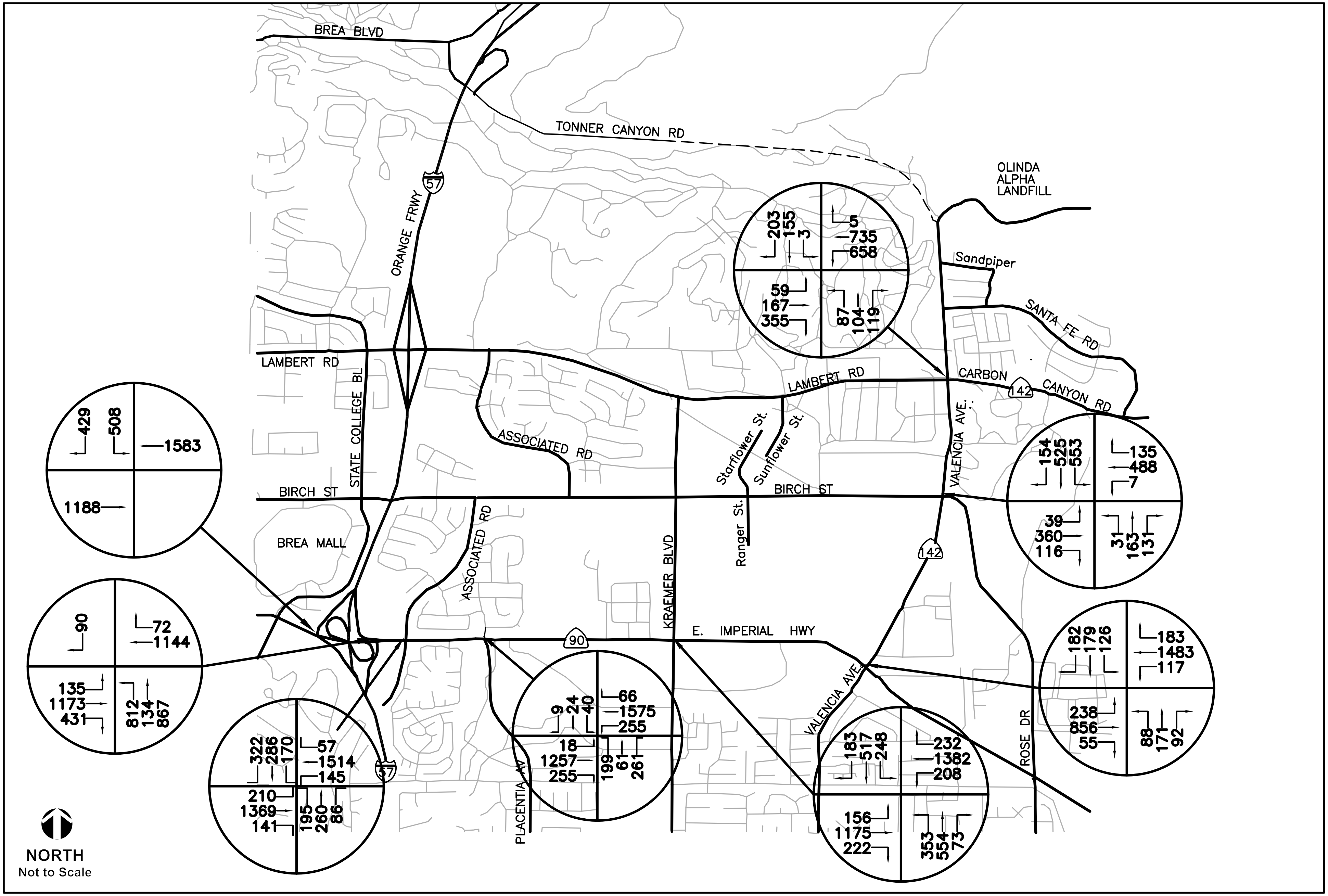
5.5.1.7 Existing Peak Hour Turning Movements

The existing peak hour turning movements for each of the key study intersections in the study area are summarized on Figures 5.5-4 and 5.5-5 for the morning street peak hour (defined as the highest hour between 7 AM and 9 AM) and for the mid-morning peak hour (defined as the highest hour between 10 AM and 12 noon). The mid-morning period was selected for the existing conditions analysis because the landfill peak traffic hour occurs within that period. Detailed traffic count information for existing traffic volumes in the study area is provided in Appendix F-2.

5.5.1.8 Existing Intersection Levels of Service

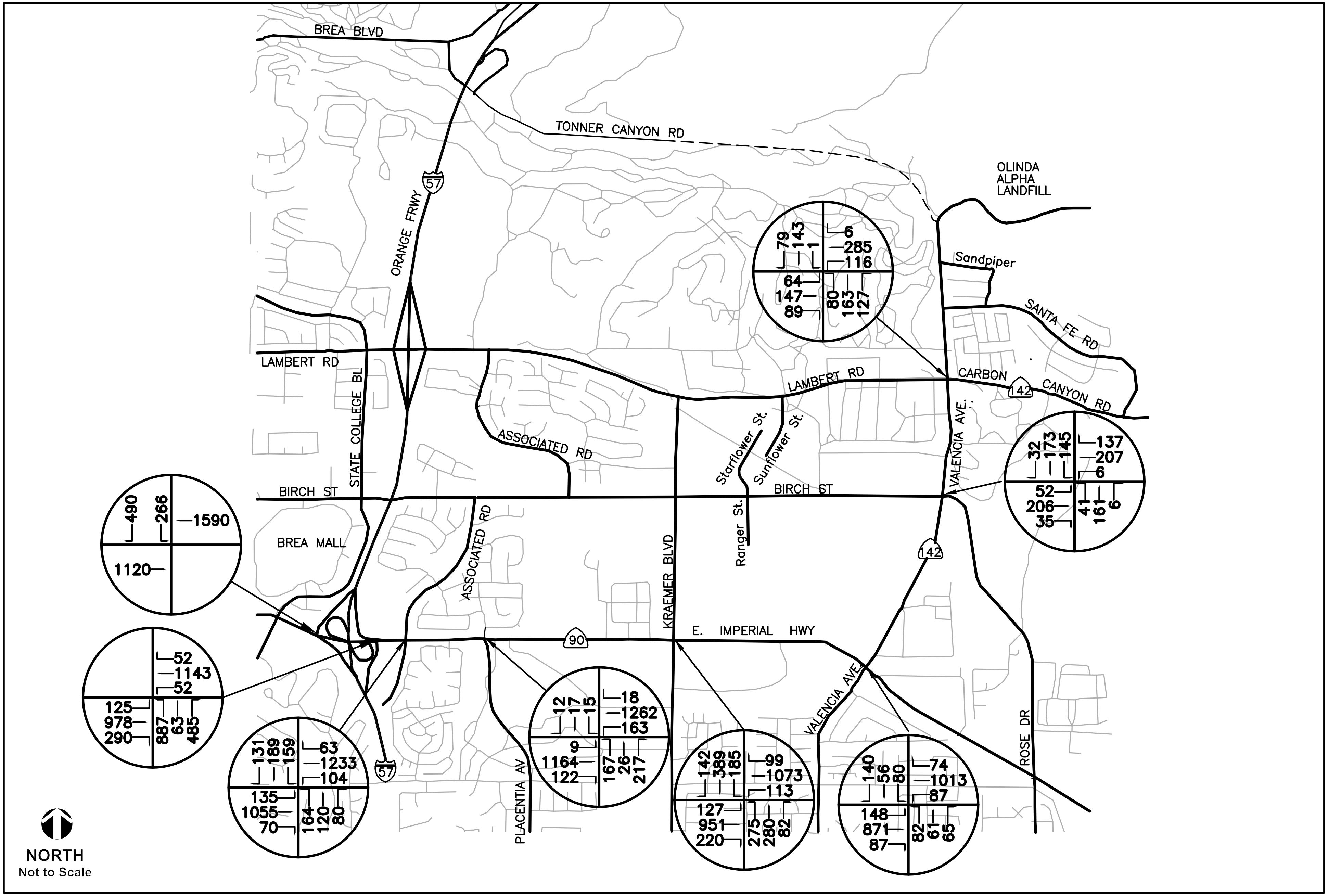
LOS analyses were performed for intersections using the Intersection Capacity Utilization (ICU) technique adopted by the Orange County CMP, the County of Orange and the City of Brea. The LOS analysis was conducted for the peak hour during the AM street peak period (7 AM to 9 AM) in the morning and for the peak hour during the mid-morning peak period of 10 AM to 12 noon. The peak hour volumes during these hours shown on Figures 5.5-4 and 5.5-5 together with the lane configurations shown on Figure 5.5-2 were used for these calculations. The detailed LOS computation worksheets are provided in Appendices F-3 and F-4. Table 5.5-2 summarizes the results of the LOS analysis for the key signalized intersections in the study area. As Table 5.5-2 shows, all the key study area intersections in the vicinity of the landfill currently operate at acceptable service levels during the morning peak street hour.

Table 5.5-2 also shows that all intersections are operating at a very good LOS A during the mid-morning peak hour, at the time when landfill traffic is at its highest, with the exception of the intersection of Imperial Highway and Placentia Avenue which operates at an ICU of 0.604 which is slightly outside the LOS A condition. This existing analysis clearly indicates that the morning peak street traffic hour, as compared to the mid-morning which has excellent service levels, is the more critical time period. Therefore, the analysis of project impacts associated with the proposed expansion of the landfill focuses only on the AM peak traffic hour. The landfill closes at 4 PM and, therefore, landfill related traffic does not occur during and would not impact the PM peak traffic. Therefore, no analysis of the PM peak hour traffic existing conditions is provided.



Source: Bryan A. Stirrat & Associates (2004).

Figure 5.5-4
Existing 2004 AM Peak Hour Turning Movement Counts



Source: Bryan A. Stirrat & Associates (2004).

Figure 5.5-5
Existing 2004 AM Mid Morning Peak Hour Turning Movement Counts

TABLE 5.5-2
EXISTING SIGNALIZED INTERSECTION LEVELS OF SERVICE

#	Intersection	AM Peak Hour (1)		Mid-Morning Peak Hour (2)	
		ICU	LOS	ICU	LOS
1	Lambert Road/Carbon Canyon Road & Valencia Avenue	0.635	B	0.257	A
2	Valencia Avenue & Birch Street/Rose Avenue	0.735	C	0.337	A
3	Valencia Avenue & Imperial Hwy	0.592	A	0.427	A
4	Imperial Hwy & Kraemer Blvd.	0.668	B	0.512	A
5	Imperial Hwy & Placentia Avenue	0.728	C	0.604	B
6	Imperial Hwy & Associated Road	0.761	C	0.547	A
7	Imperial Hwy & SR 57 SB Off-Ramp	0.544	A	0.510	A
8	Imperial Hwy & SR 57 NB Off-Ramp	0.736	C	0.559	A

(1) Peak hour during 7:00 to 9:00 AM peak period.
(2) Peak hour during 10:00 AM to 12:00 noon peak period.
Source: Bryan A. Stirrat & Associates (2004).

5.5.2 THRESHOLDS OF SIGNIFICANCE

The County of Orange Growth Management Plan Transportation Implementation M, Appendix IV-1, page 25, "Summary of Impacts," indicates that adverse impacts occur when (a) intersections currently operating at better than LOS D are projected to operate at worse than LOS D as a result of the project, (b) intersections already operating at LOS D to which additional traffic is added by the project, and (c) traffic added to deficient intersections. These criteria were applied to the intersections analyzed in Section 5.5.4 (Potential Impacts) to assess the significance.

5.5.3 METHODOLOGY RELATED TO TRANSPORTATION AND CIRCULATION

The following section describes the transportation and circulation methodology used in this traffic analysis.

5.5.3.1 Regulatory Framework

Because this project is located in unincorporated northern Orange County, this traffic study has been prepared in consideration of the Orange County Transportation Authority's CMP Traffic Impact Analysis Guidelines (2003), and in accordance with the County of Orange Growth Management Plan Transportation Implementation Manual, adopted by the Board of Supervisors March 15, 2004, contained in Appendix V-1 of the County of Orange General Plan (July 2, 2003). Because the project is in the SOI of the City of Brea and landfill traffic uses roads in Brea, comments from the City received through the Notice of Preparation (NOP) process, at a scoping hearing held in Brea on January 22, 2004 and at a meeting with City staff on January 27, 2004, have been considered in this traffic study.

5.5.3.2 Signalized Intersections

Signalized intersections were analyzed using the ICU method adopted by both the County of Orange and the City of Brea. The ICU value is a quantitative ratio which compares intersection volume to capacity on a critical movement basis within the intersection. Based on the ICU, intersection LOS is defined as shown in Table 5.5.-3.

TABLE 5.5-3
LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

LOS	Description	ICU
A	Very low delay. Most vehicles do not stop at the intersection.	0.00 to 0.60
B	More vehicles stop than with LOS A, causing higher delays.	0.61 to 0.70
C	The number of vehicles stopping becomes significant, though many still pass through the intersection without stopping.	0.71 to 0.80
D	The influence of congestion becomes more noticeable. Many vehicles stop and the proportion of vehicles not stopping declines.	0.81 to 0.90
E	Results in delay considered to be unacceptable.	0.91 to 1.00
F	Considered unacceptable to most drivers, often occurs with over saturation, when arriving traffic exceeds the capacity at the intersection.	Above 1.00

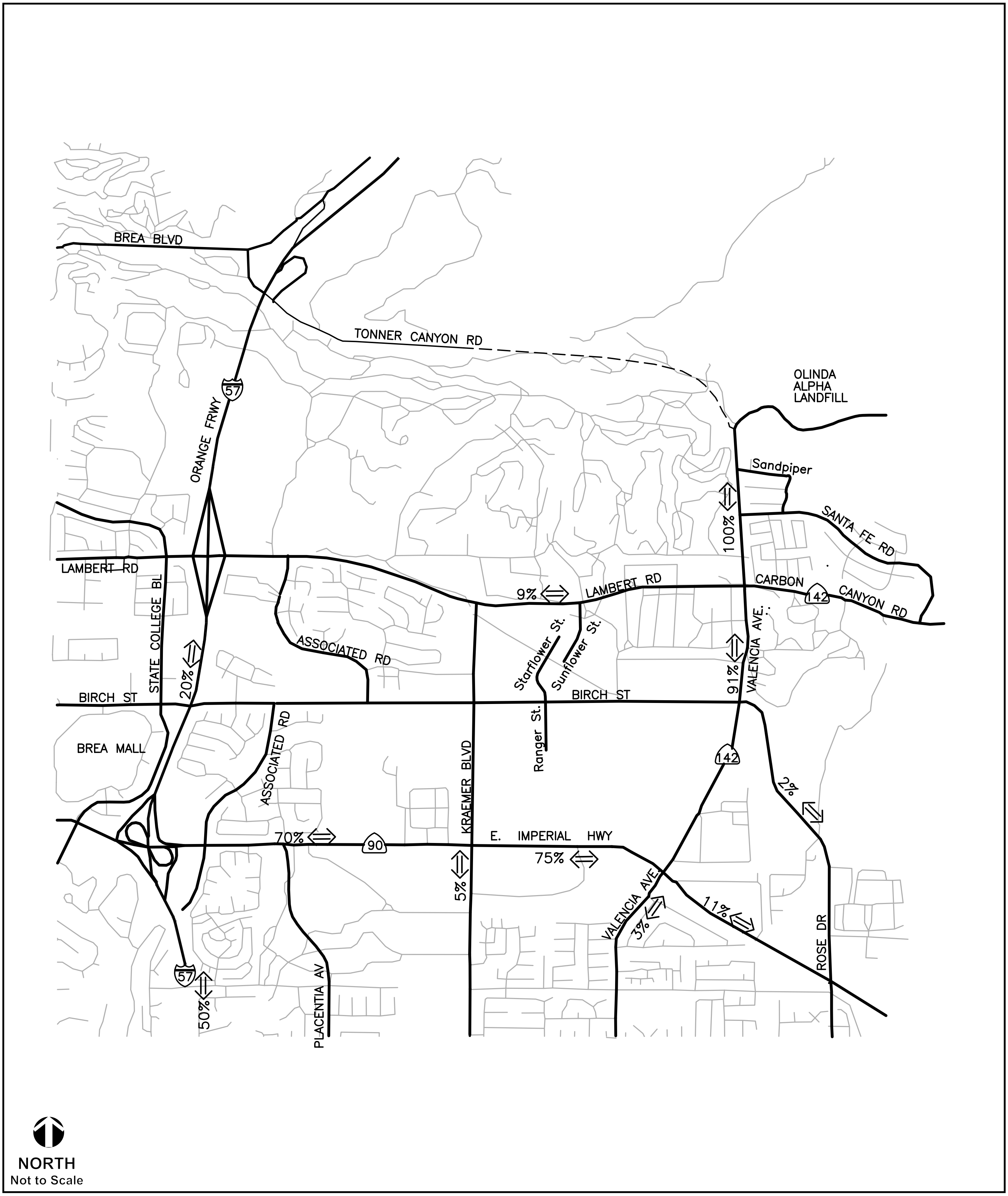
The ICU analysis for this study used standard technical parameters including default saturation rates, defined as the maximum number of vehicles that can pass through a lane per hour of green time at a signalized intersection; and a lost time (clearance interval) of 0.05 added to the sum of the critical ICU values for the intersection. A saturation flow rate of 1,700 vehicles per hour of green time per lane (vphgl) was used in the analysis, except for an exclusive right turn lane where right turn on red is permitted where a 15 percent increase in the saturation flow rate of the right turn lane (1,955 vphgl) was used.

Intersection capacities generally control overall road capacities. Therefore, intersection analysis is generally considered the most critical element of analysis in a traffic study. This study has concentrated on intersection analysis on the key roads serving the Olinda Alpha Landfill.

LOS D intersection operation is considered acceptable by both the County of Orange and the City of Brea. The Orange County CMP considers LOS E acceptable for intersections on the CMP road network.

5.5.3.3 Project Trip Distribution

Project trip distribution is the process of quantifying the percentage of landfill traffic which would use the various roads in the study area for access to and from the landfill. The trip distribution of landfill vehicles crossing the scales was determined based on the field survey described earlier in Section 5.5.1.4. The percentage distribution to the road network of landfill vehicles crossing the scales as determined by that field study is shown on Figure 5.5-6. As shown, the overwhelming majority of vehicles accessing the landfill use Valencia Avenue, Imperial Highway and SR 57 as travel routes to and from the landfill.



Source: Bryan A. Stirrat & Associates (2004).

Figure 5.5-6
Anticipated Project Traffic Distribution

This trip distribution study, in addition to quantifying the trip distribution of landfill related traffic, was also instrumental in determining the key intersections to be analyzed for potential impacts.

5.5.3.4 Project Trip Generation

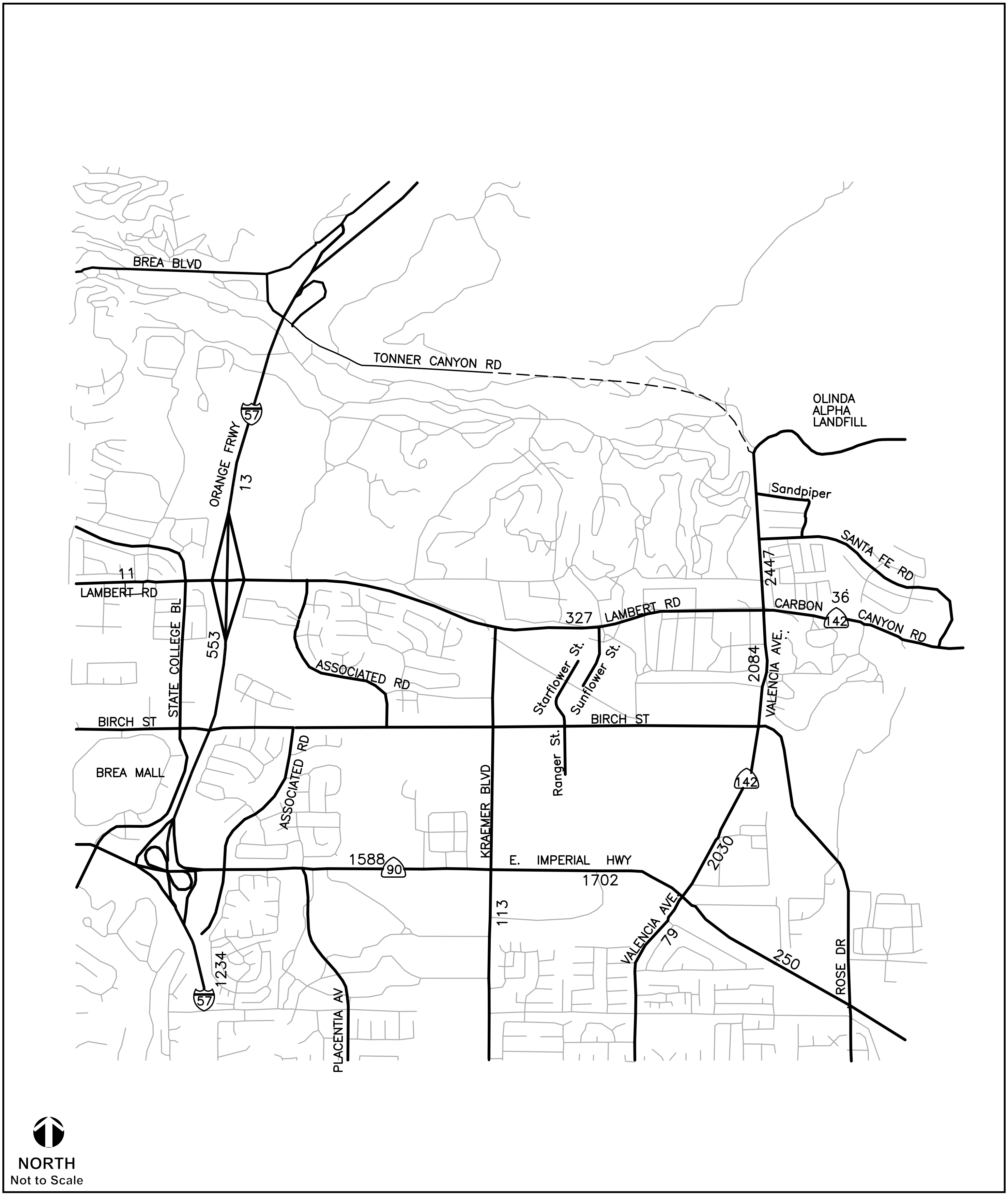
Trip generation is defined as the number of trips that originate or terminate at a project site. Trip generation rates for various land uses have been developed and are usually available through sources such as the Institute of Traffic Engineers Trip Generation Handbook (Sixth Edition, 1997) and similar publications. However, no trip generation rates have been developed for landfills because they are such a specialized land use. Therefore, trip generation for the Olinda Alpha Landfill was determined from a substantial amount of existing data available from the computer tracking system which IWMD maintains specifically for the landfill.

Unlike some types of land uses, traffic generation activity at a landfill such as Olinda Alpha varies considerably throughout the year. To determine an appropriate level of trip generation for analysis of project impacts, the total vehicular traffic across the scales into the landfill for fiscal year 2003 (FY 03) was sorted, from the highest traffic day to the lowest traffic day. Daily traffic volumes across the scales ranged from a high of 1,248 vehicles inbound to a low of 364 vehicles inbound. The average inbound volume was 888 vehicles. The traffic volumes recorded across the scales include movement into the landfill of MSW, dirt cover and green waste.

For this traffic analysis, the level of traffic across the scales into the landfill at the 85th percentile was selected as an appropriate level to use for the analysis of project impacts. The traffic on the 85th percentile analysis day is greater than the traffic on 85 percent of the days at the landfill during FY03. The "Fiscal Year 03 Inbound Traffic to the landfill Ranked by Day of Count, All Gates Total" (IWMD, 2003) indicates that the daily inbound vehicular volume is 1,012 vehicles at the 85th percentile (See supporting data in Appendix F-5). This is 29 percent higher than the highest traffic volume day of FY03 of trucks carrying only MSW inbound to the landfill. Because the permitted maximum level allowed at Olinda Alpha of 8,000 tons (maximum day) and 7,000 tons per day (annual average per the MOU with the City of Brea) both apply to MSW only, the analysis level of 1,012 vehicles used in this study is conservative relative to those MSW limit levels.

5.5.3.5 Daily Trip Generation

Figure 5.5-7 shows the total 24-hour traffic volume distributed to the road network serving Olinda Alpha Landfill for the 85th percentile analysis day. The total daily volume (2,447 vehicles – total of both inbound and outbound) is a combination of the vehicular volume across the scales into the landfill (2,025) including MSW, dirt and green waste; vehicular volume (244 vehicles) into the Brea Green recycling facility (this traffic does not cross the scales into the main landfill area); and vehicular traffic associated with employees, mail delivery and other miscellaneous trips (178). The distribution of employee trips to the road network was developed by assigning employee trips to the network in a logical manner based on the employees' home zip codes as provided by the IMWD landfill operator. The distribution of landfill traffic only was distributed to the network based on the trip distribution shown on Figure 5.5-6.



Source: Bryan A. Stirrat & Associates (2004).

Figure 5.5-7
Future Daily Project Traffic

5.5.3.6 AM Peak Hour Trip Generation

Based on data from the "Olinda Alpha Landfill Average Hourly Transaction Count Per Lane" (provided in the Appendix F), the 7:30 to 8:30 AM peak hour represents 9.2 percent of the total daily inbound traffic to Olinda Alpha Landfill. Because the daily inbound traffic crossing the scales at the 85th percentile level is 1,012 vehicles, the AM peak hour inbound trips crossing the scales on that analysis day was estimated at 93 vehicles (0.092 x 1,012 = 93). In addition, there are 11 inbound AM peak hour vehicle trips to the Brea Green facility (which do not cross the scales) for a total inbound AM peak hour volume of 104 vehicles (rounded to 105 for analysis purposes). Because all landfill employees arrive for work before 7:30 AM, no employee traffic is included in the total AM peak hour volume.

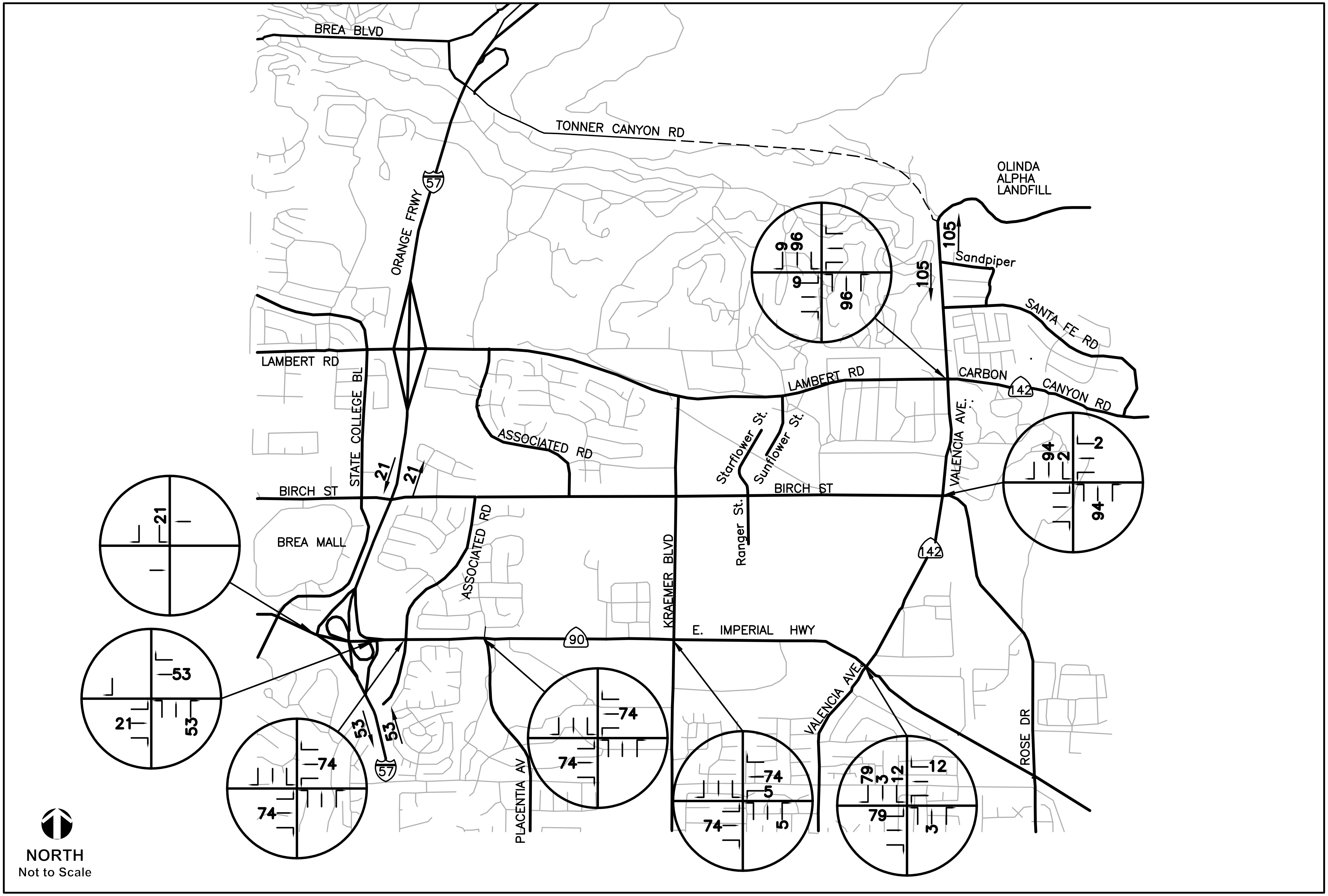
Figure 5.5-8 shows the AM peak hour project traffic distributed to the key study area intersections on the road network serving the Olinda Alpha Landfill. As Figure 5.5-8 shows, landfill traffic varies from a high of 210 vehicles (both directions) on Valencia Avenue north of Lambert Road to 24 vehicles (both directions) on Imperial Highway east of Valencia Avenue and only four vehicles (both directions) on Rose Drive between Valencia Avenue and Imperial Highway.

5.5.4 POTENTIAL IMPACTS

5.5.4.1 General Project Understanding

It is important to understand the characteristics of the Olinda Alpha Landfill expansion project from a traffic perspective to determine the extent to which a traffic impact analysis is required by the agencies which oversee development activities in Orange County, and in particular, the unincorporated County area where the project is located.

The proposed project involves an expansion of Olinda Alpha Landfill to accommodate an additional 14.2 million tons of MSW. However, it is critical to understand that this additional capacity would only extend the life of the landfill from its current permitted closure date in 2013 to 2021. Under the proposed project, no additional waste would be brought to the landfill so as to exceed the current maximum daily tonnage limit of 8,000 TPD (which is allowable under the existing solid waste facility permit for the landfill) or the annual average daily tonnage limit of 7,000 TPD (which is allowable under the existing County MOU with the City of Brea). In addition, the landfill will continue to accept an average of 3,000 to 4,000 TPD exempt commodities. The proposed project would result in more years of MSW disposal at the landfill, but would not result in any change in the current maximum daily and annual average daily tonnage limits at the landfill. The proposed project does not include any change in the operating schedule, number of employees, or types and maximum numbers of pieces of equipment at the landfill. Therefore, between the time the expansion occurs and 2013, the proposed project would not result in increased vehicle trips on a daily basis beyond the level of trips which are currently occurring at the landfill and, as shown later, landfill trips currently comprise a small part of the total existing traffic on most roads in the project area.



Source: Bryan A. Stirrat & Associates (2004).

Figure 5.5-8
Future Project Traffic AM Peak Hour

Between 2013, the currently permitted closure date for the landfill, and 2021, the projected date of closure based on current population projections, daily tonnage, compaction densities, approved landfill elevations and disposal technologies, as a result of the proposed project, the current daily level of trips to and from the landfill would continue to occur for those additional eight years. Those trips would have been removed from the street system serving Olinda Alpha Landfill (between 2013 and 2021) if this project were not to occur and shifted to other roadways serving the landfill(s) which would be utilized to handle the demand previously taken to Olinda Alpha Landfill. If the landfill were to close in 2013, the property is proposed to be reused as a County regional park. Because this park would generate some currently undetermined level of trips, the net reduction of trips (landfill trips) to the street network due to the landfill closure would be reduced by the extent of the trips generated by the park use. However, for a conservative analysis in this EIR, that net reduction (trip credit) has not been considered.

On-site soil available for use as cover material is projected to be available until 2015 at which time soil for cover will need to be imported to Olinda Alpha Landfill. However, import of refuse from out-of-county will cease in 2015. After 2015, and prior to the projected new closure date of 2021, it is assumed that the additional trips required for soil import and the reduction of trips associated with the cessation of out-of-county import will offset each other, resulting in no net increase in trips to the landfill during this period (see Section 4.4.1 for further discussion).

Connection of Tonner Canyon Road to Valencia Avenue

As discussed earlier in Section 2.3.3, the future connection of Tonner Canyon Road to Valencia Avenue is shown on the MPAH and on the City of Brea MPR. This connection has been suggested as an optional access route to Olinda Alpha Landfill. That potential access route is not planned to be constructed within the timeframe of this study and is not included as part of the proposed landfill expansion project and, therefore, it is not evaluated in this traffic analysis. Refer to Section 2.3.3 for additional discussion regarding Tonner Canyon Road.

5.5.4.2 Assessment of Impacts

This Section discusses the potential impacts of the continuation of the operation of Olinda Alpha Landfill past its current closure date of 2013 to the projected closure date of 2021. The potential traffic impacts of the project are discussed first in terms of impacts on LOS at the key study area intersections in 2021 both with and without the project. The year 2021 was selected as a worst case scenario because the background traffic (traffic other than landfill traffic) will be highest at the end of the landfill extension period because background traffic will continue to grow over time as development in the region occurs. As indicated earlier, the level of landfill related traffic will not increase between existing 2004 conditions and the projected 2021 closure date.

The future 2021 analysis is based on a comparison between (a) conditions without the project, which assume that the landfill will close in 2013 and that from 2013 on, the landfill traffic would be removed from the road network, and (b) conditions with the project which assume the current existing level of landfill traffic would still exist in 2021 together with future projected background traffic in 2021.

The future 2021 with project conditions traffic volumes for each of the study area intersections area were obtained from the City of Brea GP Traffic Analysis (Austin Foust Associates, Inc., City of Brea GP Final Environmental Impact Report, April 2003). (See data in Appendix F-6). The traffic analysis for the GP utilized a tri-city model for long range (2025) projections for buildout of the GP in Brea. Using these projections is conservative because the target year for the GP was 2025 which is beyond the 2021 analysis year for the Olinda Alpha Landfill expansion project. Additionally, the GP Traffic Analysis includes all currently known planned and approved projects in the landfill vicinity because that study was completed in 2003.

The GP Traffic Analysis examined two levels of GP development and two potential road network alternatives. The traffic study for the Olinda Alpha Landfill expansion project used the most intensive land use development alternative (defined as 20 percent residential and 80 percent commercial) and the road scenario termed “proposed circulation system” assumed for the General Plan analyses. This represents a worst case background traffic condition for the landfill expansion. The “proposed circulation system” in the GP analysis assumed the following changes to the adopted MPR in the Brea Circulation Element and to the MPAH:

a. The deletion of future Tonner Canyon Road and the northward extension of Valencia Avenue from the MPAH.
b. Re-classification of Whittier Boulevard west of Puente Street from a four-lane secondary to a two-lane roadway and the re-classification of Puente Street south of Whittier Boulevard from a four-lane secondary to a two-lane local roadway.
c. The re-classification of Brea Boulevard south of Imperial Highway from a six-lane major to a four-lane primary.

The “proposed circulation system” scenario represents the most likely road configuration to be in place in the City of Brea in both 2021 and 2025. The long range projections in the GP Traffic Analysis assumed Olinda Alpha Landfill would continue operating until 2025. The GP Traffic Analysis and the analysis for the landfill expansion also assumed that currently committed (that is, funded) intersection improvements in the City of Brea will be in place in the future, for 2025 (GP) and 2021 (landfill expansion).

Worksheets showing the long range 2025 with project intersection volumes, future lane configurations and ICU values and projected Levels of Service are shown in the traffic study appendices. Some of the ICU and LOS values in the traffic study for the Olinda Alpha Landfill expansion may differ slightly from those in the GP Traffic Analysis. This is because the County of Orange allows some different capacity utilization values than the City of Brea. In addition, the with project analysis for the landfill expansion included a 2.0 Passenger Car Equivalent (PCE) adjustment for each movement impacted by landfill traffic, as described later.

5.5.4.3 Level of Service Analysis Without the Project

Figure 5.5-9 shows the projected 2021 AM peak hour traffic volumes for each of the study area intersections for the without project traffic conditions. These values were obtained by subtracting the project (landfill) traffic values shown on Figure 5.5-8 from the AM peak hour volume values in the GP Traffic Analysis for the GP/Proposed Circulation System scenario which included all future traffic including the landfill. It was assumed that after landfill traffic was subtracted from future volumes which included the landfill traffic, the remaining traffic movements at all study area intersections were comprised of five percent or less trucks, which is customary for the majority of roads on a street network. Figure 5.5-9 shows the projected 2021 daily traffic volumes on the study area road network without the project.

Table 5.5-4 summarizes the results of the LOS calculations at the study area intersections without the project in 2021. Calculation data sheets for this analysis are provided in Appendix F-7.

TABLE 5.5-4
FUTURE 2021 SIGNALIZED INTERSECTION LOS WITHOUT THE PROJECT

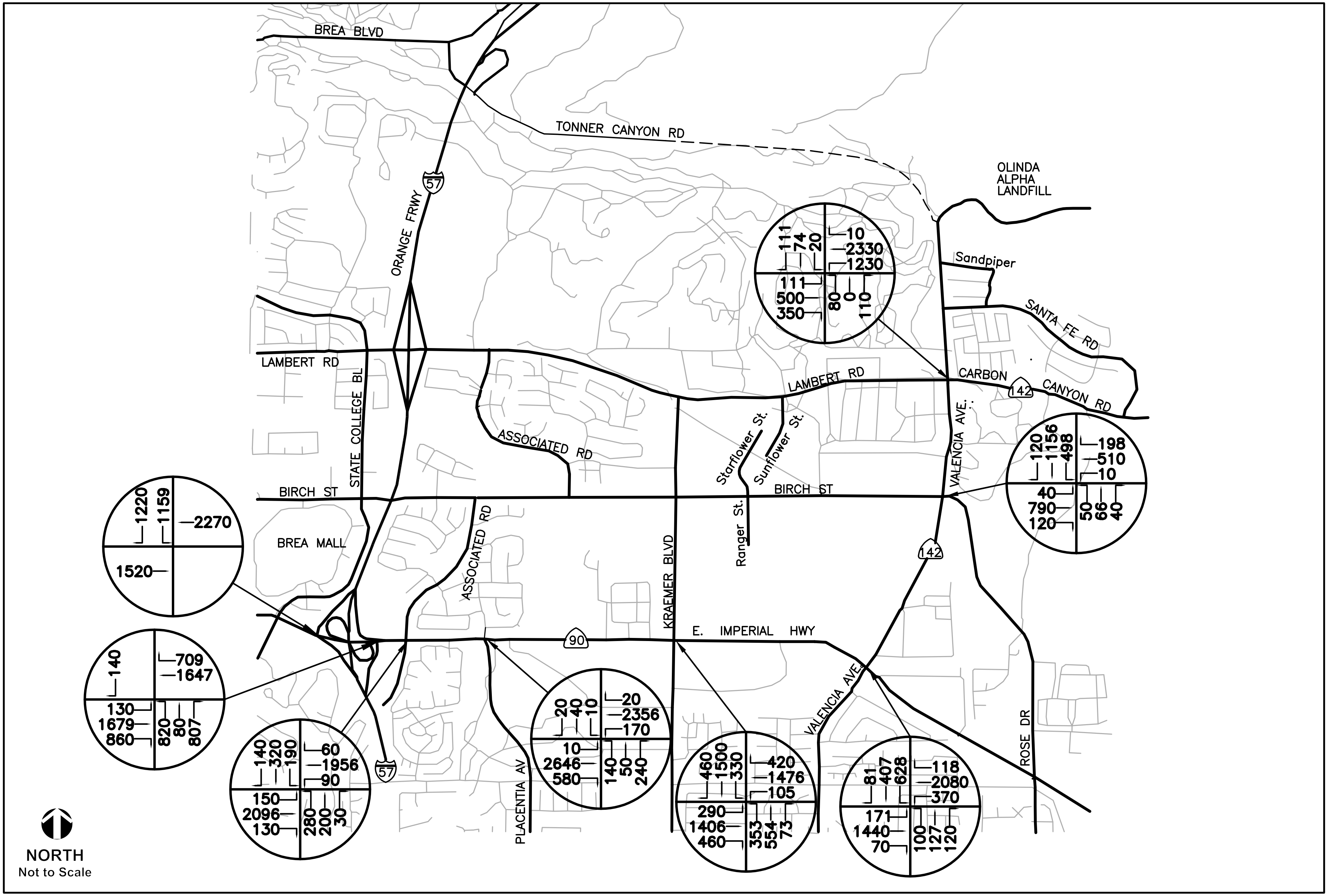
Intersection	AM Peak Hour (1)	
	ICU	LOS
Lambert Road/Carbon Canyon Road & Valencia Avenue	0.780	C
Valencia Avenue & Birch Street/Rose Avenue	0.693	B
Valencia Avenue & Imperial Hwy	0.981	E
Imperial Hwy & Kraemer Blvd.	0.893	D
Imperial Hwy & Placentia Avenue	0.799	C
Imperial Hwy & Associated Road	0.689	B
Imperial Hwy & SR 57 SB Off-Ramp	0.962	E
Imperial Hwy & SR 57 NB Off-Ramp	0.804	D

(1) Peak hour during 7:00 to 9:00 AM peak period.
Source: Bryan A. Stirrat & Associates, 2004

5.5.4.4 Level of Service With the Project

Because a large part of the projected landfill traffic is trucks, a PCE adjustment was made to the project traffic and then added to the without project traffic to arrive at the with project traffic volume used in the ICU/LOS calculations summarized in Table 5.5-5. In general, the volume of trucks on most roads is typically five percent or less of the total vehicle volume. In those situations, capacity calculations do not customarily utilize adjustments for trucks, because trucks comprise a relatively small percentage of the traffic volume being analyzed. As shown later, the percentage of trucks in the traffic stream on Imperial Highway between SR 57 and Valencia Avenue falls within the customary five percent or less range typical of most roads, because the background traffic on Imperial Highway (approximately 40,000 to 58,000 vehicles daily without landfill traffic) is very high.

To be conservative, however, a PCE adjustment of 2.0 (Highway Capacity Manual 2000, Transportation Research Board, Page 16-10, Adjustment for Heavy Vehicles) was applied to all landfill traffic at all the study area intersections to account for the additional space occupied by these vehicles and for the difference in operating capabilities of heavy vehicles compared to passenger cars.



Source: Bryan A. Stirrat & Associates (2004).

Figure 5.5-9
Future AM Peak Hour Volumes Without Project Traffic

Table 5.5-5 summarizes the LOS calculations with the landfill expansion project at the study area intersections for 2021. Calculation sheets are provided in Appendix F-8.

TABLE 5.5-5
2021 SIGNALIZED INTERSECTION LOS WITH THE PROJECT

#	Intersection	AM Peak Hour (1)		Impact
		ICU	LOS	Y/N
1	Lambert Road/Carbon Canyon Road & Valencia Avenue	0.807	D	N
2	Valencia Avenue & Birch Street/Rose Avenue	0.748	C	N
3	Valencia Avenue & Imperial Hwy	1.027	F	Y
4	Imperial Hwy & Kraemer Blvd.	0.925	E	Y
5	Imperial Hwy & Placentia Avenue	0.828	D	N
6	Imperial Hwy & Associated Road	0.718	C	N
7	Imperial Hwy & SR 57 SB Off-Ramp	0.970	E	N(2)
8	Imperial Hwy & S R 57 NB Off-Ramp	0.860	D	N

(1) Peak hour during 7:00 to 9:00 AM peak period.
(2) 1% measurable traffic impact criteria not satisfied for Imperial Highway at the SB 57 Ramps (0.962 x 1.01= 0.972).
Source: BAS (2004).

Figure 5.5-10 shows the projected 2021 AM peak hour volumes at the study area intersections with the landfill expansion project. Figure 5.5-11 shows the projected 2021 daily traffic volumes with the project and other anticipated background traffic growth in the study area.

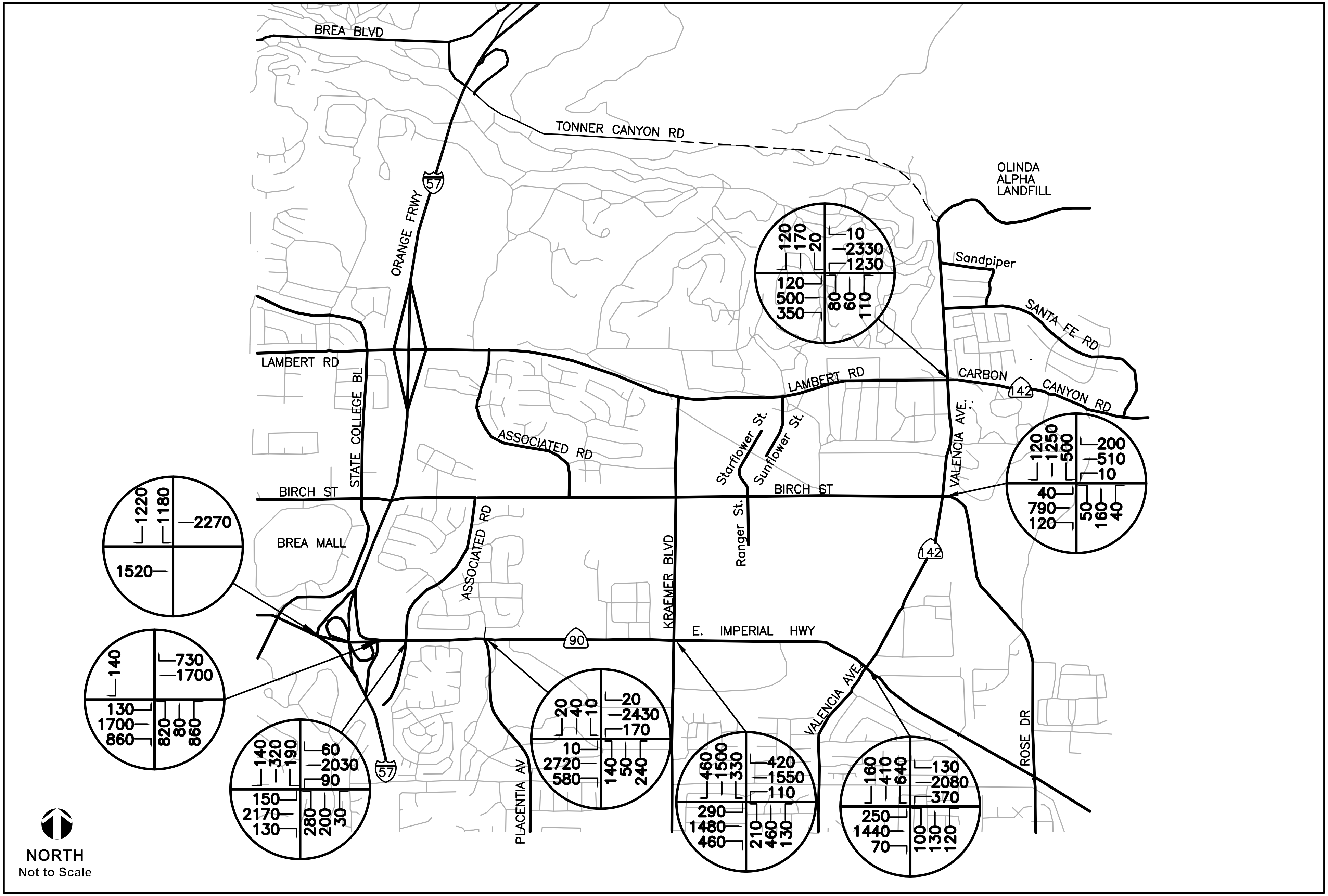
Figure 5.5-12 shows the relationship between landfill traffic and total projected traffic in 2021 at various locations along the primary roads serving Olinda Alpha Landfill. As the figure shows, the landfill traffic is less than 2,000 daily vehicles out of a total of 50,000 to 61,000 total vehicles (or less than four percent of the total vehicles) on Imperial Highway from SR 57 to Valencia Avenue, about 10 to 17 percent of the total vehicles on Valencia Avenue between Lambert Road and Imperial Highway, and about 50 percent of the total vehicles on Valencia Avenue north of Lambert Road directly south of the landfill.

Based on the criteria outlined in Section 5.5.2, the following two intersections will experience significant adverse impacts in 2021as a result of project traffic:

- Valencia Avenue and Imperial Highway.
- Imperial Highway and Kraemer Boulevard.

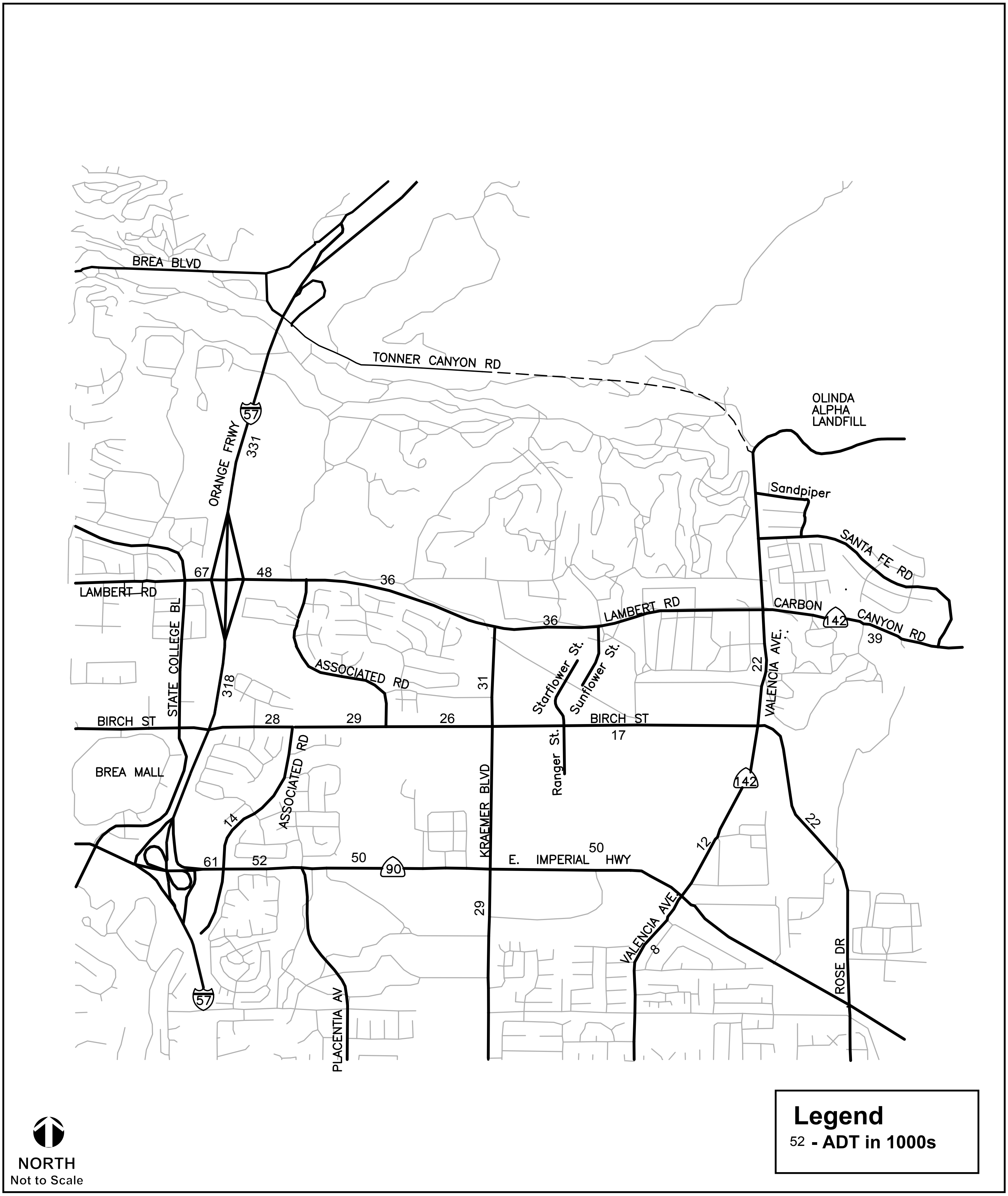
5.5.4.5 Other Traffic Issues

Several other traffic issues which were a result of observations made during the course of this study or issues raised by community members or others are discussed in the following Sections.



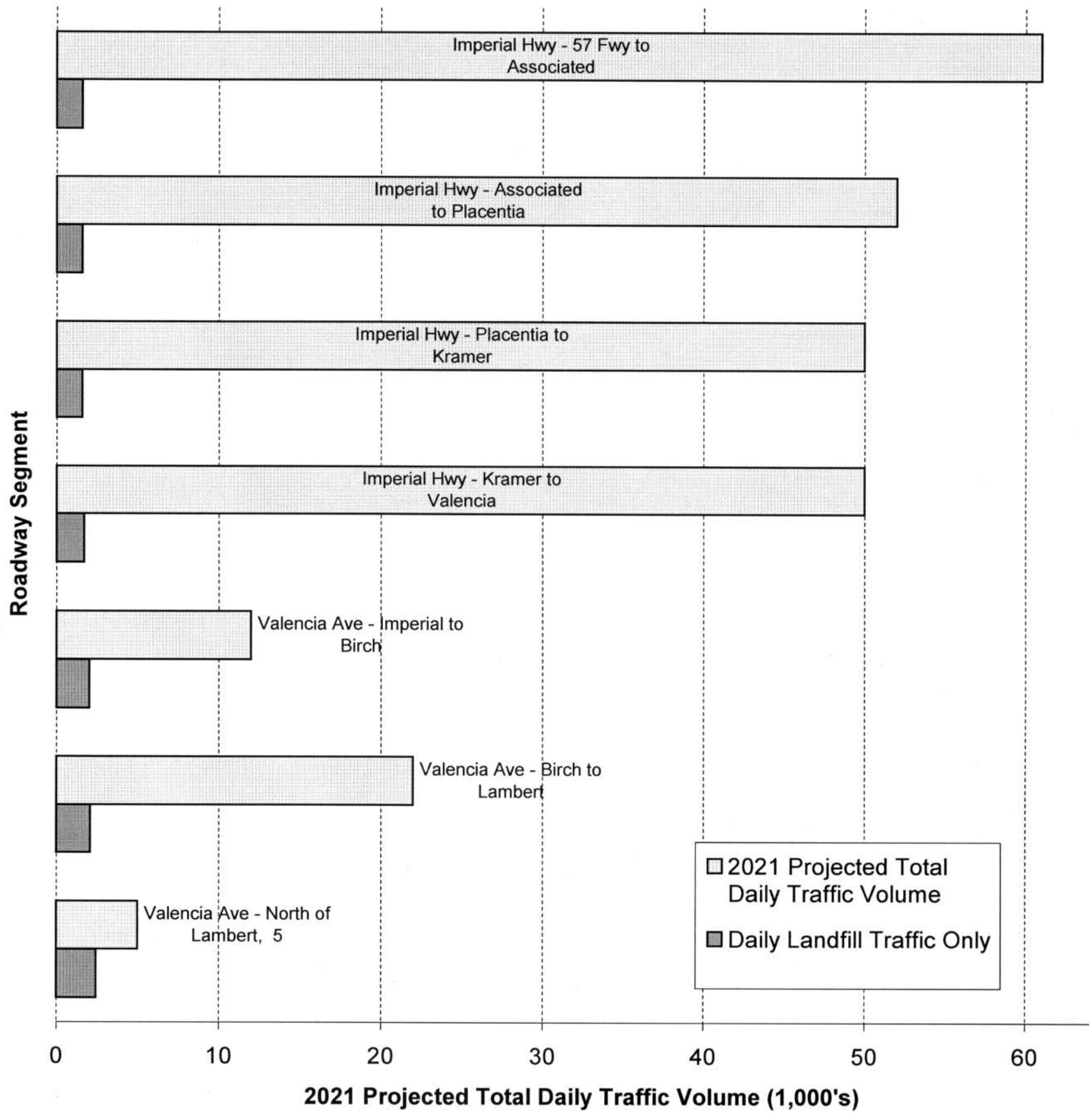
Source: Bryan A. Stirrat & Associates (2004).

Figure 5.5-10
Future AM Peak Hour Volumes With Project Traffic



Source: Austin-Foust Associates, Inc. City of Brea General Plan Analysis (2004).

Figure 5.5-11
2021 Projected Total Daily Traffic With Project



Segment	Landfill	Total
Imperial Hwy - 57 Fwy to Associated	1,588	61,000
Imperial Hwy - Associated to Placentia	1,588	52,000
Imperial Hwy - Placentia to Kramer	1,588	50,000
Imperial Hwy - Kramer to Valencia	1,702	50,000
Valencia Ave - Imperial to Birch	2,030	12,000
Valencia Ave - Birch to Lambert	2,084	22,000
Valencia Ave - North of Lambert	2,447	5,000

Source: Bryan A. Stirrat & Associates (2004).

Figure 5.5-12
Daily Landfill Traffic Compared to Total Daily Projected Traffic 2021

Brea Sports Park/Brea Olinda Alpha Unified School District Project

The City of Brea is proceeding with the implementation of a sports park and school on an approximately 37 acre site on the north side of Birch Street from Valencia Avenue to slightly east of Flower Hill Street. The sports park would be on a 23 acre site, part of which abuts Valencia Avenue. The school, expected to serve an estimated 850 elementary or middle school students, would be on a 13 acre site west of the sports park. Three access points are proposed from Birch Street and one from Valencia Avenue (to the sports park). The City prepared a Program EIR for this project in August 2002. That EIR noted on pages ES-3 and 2-3 that access would be only from Birch Street, although Figures 2-3 and 3K-1 in that EIR also indicated access from Valencia Avenue.

The Program EIR for the Sports Park/School did not identify any potential impacts between activity at this proposed site and traffic from the Olinda Alpha Landfill on Valencia Avenue. The only traffic impacts identified in the Program EIR were intersection improvements and concern that parking is provided on-site so as to not have overflow parking impacts on adjacent neighborhoods.

Nevertheless, there is some possibility that persons including children walking to either the sports park or school could walk on Valencia Avenue which does handle large volumes of truck traffic associated with the landfill. However, because the landfill is closed on Sunday, no interaction would occur with Landfill traffic and sports park traffic (or school activity) on that day. Likewise, late afternoon activity at the sports park or school would occur after the landfill closure at 4 PM, Monday through Saturday.

The large majority of school children are driven to school by parents or are brought on school buses which must be made available (although at a cost) for students more than 1.5 miles from school. It appears that the potential for conflict between school children and vehicles on Valencia Avenue is small. Further, the basic ability to provide appropriate safety for students is under control of the City, working through its Traffic Commission and Traffic Engineer. School crossing guards (one potential safety measure) at the two signalized intersections on Valencia Avenue at Lambert Road and Birch streets are a decision which would be assessed by the Traffic Commission, Traffic Engineer and City Police Department in consideration of need and available funding. It should be noted that 88 percent of the daily traffic on Valencia Avenue near the proposed sports park is not landfill related traffic, but other traffic using this segment of Valencia Avenue. Other potential safety measures such as prohibiting parking along Valencia Avenue to enhance visibility and minimize conflicts between parked vehicles and on street traffic, and measures to limit mid-block pedestrian crossings along Valencia Avenue could also occur at the discretion of the City.

Lambert Road Truck Limitations

The landfill expansion traffic study found that some truck traffic is using Lambert Road west of Valencia Avenue in violation of the current weight limitations on this segment of Lambert Road. The weight restriction signing and enforcement are not within the authority of IWMD, but are within the authority of the City of Brea. The City could re-visit the current truck route signing prohibitions to assure that the signing has optimum target value, and that the message to trucks is presented in a clear understandable manner. For example, there is only one very small "truck route" sign with arrows "left and straight" for southbound Valencia Avenue north of Lambert Road at a location where trucks from the landfill need clear direction regarding prohibitions which exist on Lambert Road. Similarly, there is a small "commercial vehicles over 6,000 pounds gross prohibited" sign mounted extremely high on a pole for eastbound Lambert Road traffic near the SR 57 NB off ramp which is difficult to see given the complexity of traffic volumes and movements in this area.

<u>Speed Limits</u>

The establishment of, signing for and enforcement of speed limits are the responsibility of the City of Brea. Therefore, the City has the ability to adjust speed limits so long as the appropriate traffic and engineering surveys are conducted to post other than prima facie limits. It would be the City's prerogative to review the current speed limits on roads in the vicinity of the landfill, particularly the signing along Imperial Highway between SR 57 and Valencia Avenue to assure speed limits are adequately presented.

<u>Left Turn Storage</u>

During the conduct of the traffic study for the landfill expansion, it was observed that traffic in the eastbound left turn lanes at Imperial Highway and Valencia Avenue often backed into the through lanes or the through traffic backs up and prevents vehicles wishing to turn left from accessing the left turn lanes. The current left turn lanes are 200 feet long with a 100 foot transition. It appears these lanes could be extended west by removing parts of the existing raised median. Two small trees in the median may need to be relocated. It would be the responsibility of the City of Brea to evaluate this intersection and determine the need for this type of improvements.

5.5.5 MITIGATION MEASURES

Imperial Highway at its intersections with Valencia Avenue and Kraemer Boulevard will experience a significant adverse impact as a result of project traffic in 2021. The following mitigation measures address these adverse impacts.

T-1 <u>Imperial Highway at Valencia Avenue</u>. IWMD will contribute a 9.2 percent fair share of the cost to modify the southbound Valencia Avenue approach at Imperial Highway. The fair share allocation is a standard County RDMD guideline for intersections operating at a LOS E without a project and LOS F with a project as the LOS is unacceptable. Under both scenarios, IWMD will contribute its fair share to the incremental impact to the southbound Valencia Avenue approach at Imperial Highway which would change that LOS E to LOS F (Refer to Appendix F-9 for supporting calculation sheets).

The proposed modifications include one additional southbound left turn lane and re-configuration of the rest of the southbound lanes (i.e. one through and one right turn lane) to one through lane and one optional through/right lane. This measure can be accomplished with re-striping only and with no additional street widening.

This improvement will result in an ICU of 0.836 (LOS D) with mitigation compared to an ICU of 0.981 (LOS E) without mitigation.

T-2 Imperial Highway and Kraemer Boulevard. IWMD will contribute a 100 percent fair share to the cost to modify the eastbound Imperial Highway approach at Kraemer Boulevard. The 100 percent fair share allocation is a standard County RDMD guideline for intersections operating at a LOS D without a project (an acceptable LOS) and LOS E with a project (an unacceptable LOS). Since the projected traffic associated with the Olinda Alpha Landfill expansion project, on its own, would cause the LOS D at the Imperial Highway and Kraemer Boulevard intersection to operate at LOS E, IWMD will contribute 100 percent of the cost to improve the LOS to an acceptable LOS D.

The proposed modifications are to provide an eastbound right turn only lane. This mitigation measure requires widening on the south side, relocation of street light poles and other street furniture.

5.5.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The mitigation described above for the intersections of Imperial Highway and Valencia Avenue and Imperial Highway and Kraemer Boulevard will mitigate the adverse project traffic impacts to below a level of significance.

5.6 AIR QUALITY

The potential impacts of the proposed Olinda Alpha Landfill expansion related to air quality are evaluated in detail in the Air Quality Analysis (LSA Associates, Inc., 2004) provided in Appendix G of this document and summarized in this Section.

5.6.1 EXISTING CONDITIONS

Olinda Alpha Landfill is in northern Orange County which is part of the South Coast Air Basin (Basin) and is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

5.6.1.1 Meteorology

The Basin is a coastal plain with connecting broad valleys and low hills bordered on the southwest side by the Pacific Ocean and surrounded by high mountains on the other sides. Because the Basin lies in a semi-permanent high pressure zone of the eastern Pacific, the climate is typically mild; however, hot weather, Santa Ana winds and winter storms occur periodically.

The annual average range of temperatures recorded at the Yorba Linda climatological station near Olinda Alpha Landfill are 49.6º Fahrenheit (F) to 77.5ºF. Annual precipitation recorded at the climatological station averaged 13.89 inches from 1948 to 2003. Patterns in temperature and rainfall can vary greatly depending on fluctuations in weather.

The Basin's shallow marine layer and low average wind speeds limit the capacity for horizontal contaminant dispersion. Summer conditions, with stagnant wind flow, high temperatures and increased sunlight, represent the worst case conditions for air pollution during which contaminants are trapped and accumulate. Vertical dispersion of contaminants in the Basin is limited by temperature inversions in the atmosphere close to the earth's surface. Because of moderate to high temperatures during the summer, inversion layers tend to last longer and trap more pollutants than those that occur during the winter. If enough warming occurs, summer inversion layers will break up and vertical dispersion of contaminants will ensue. On days of no inversion or high wind speeds, ambient air pollution concentrations are lowest. During periods of low inversions and low wind speeds, air pollutants are transported primarily on-shore into Riverside and San Bernardino Counties. During winter, extremely low inversions and air stagnation during the night and early morning hours cause accumulation of carbon monoxide (CO) and nitrogen oxides (NO_x). During summer, longer daylight hours and brighter sunshine cause a reaction between hydrocarbons (HC) and NO_x to form photochemical smog.

5.6.1.2 Air Pollution Constituents

Federal and state ambient air quality standards (AAQS) have been established for ozone (O_3), CO, NO_x, sulfur dioxide (SO_2), lead and particulate matter (PM_{10} and $PM_{2.5}$) as listed in Table 5.6-1. Table 5.6-2 summarizes the health effects of each pollutant and Table 5.6-3 summarizes the attainment status of each of these criteria pollutants in the Basin.

TABLE 5.6-1
STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	**Method[4]**	**Primary[2,5]**	**Secondary[2,6]**	**Method[7]**
Ozone (O_3)	1-Hour	0.09 ppm (180 μg/m^3)	Ultraviolet Photometry	0.12 ppm (235 μg/m^3)[8]	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	–		0.08 ppm (157 μg/m^3)		
Respirable Particulate Matter (PM_{10})	24-Hour	50 μg/m^3	Gravimetric or Beta Attenuation*	150 μg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 μg/m^3*		50 μg/m^3		
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No Separate State Standard		65 μg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 μg/m^3*	Gravimetric or Beta Attenuation*	15 μg/m^3		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Nondispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Nondispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	–	Gas Phase Chemiluminescence	0.053 ppm (100 μg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1-Hour	0.25 ppm (470 μg/m^3)		–		
Lead	30-day average	1.5 μg/m^3	Atomic Absorption	–	–	High Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 μg/m^3	Same as Primary Standard	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	–	Ultraviolet Fluorescence	0.030 ppm (80 μg/m^3)	–	Spectrophotometry (Pararosaniline Method)
	24-Hour	0.04 ppm (105 μg/m^3)		0.14 ppm (365 μg/m^3)	–	
	3-Hour	–		–	0.5 ppm (1300 μg/m^3)	
	1-Hour	0.25 ppm (655 μg/m^3)		–	–	
Visibility-Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24-Hour	25 μg/m^3	Ion Chromatography*			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 μg/m^3)	Ultraviolet Fluorescence			
Vinyl Cloride[9]	24-Hour	0.01 ppm (26 μg/m^3)	Gas Chromatography			

Source: ARB (July 2003).

Footnotes:

1 California standards for ozone; carbon monoxide (except Lake Tahoe); sulfur dioxide (1 and 24 hour); nitrogen dioxide; suspended particulate matter, PM_{10}, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2 National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the USEPA for further clarification and current federal policies.

3 Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25º C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25º C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4 Any equivalent procedure that can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5 National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6 National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7 Reference method as described by the USEPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the USEPA.

8 New federal eight-hour ozone and fine particulate matter standards were promulgated by USEPA on July 18, 1997. Contact the USEPA for further clarification and current federal policies.

9 The California Air Resources Board (ARB) has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

TABLE 5.6-2
HEALTH EFFECTS SUMMARY OF THE MAJOR CRITERIA AIR POLLUTANTS

Pollutants	Sources	Primary Effects
Ozone (O_3)	Atmospheric reaction of organic gases with nitrogen oxides in the presence of sunlight.	Aggravation of respiratory and cardiovascular diseases. Irritation of eyes. Impairment of cardiopulmonary function. Plant leaf injury.
Nitrogen Dioxide (NO_2)	Motor vehicle exhaust. High temperature stationary combustion. Atmospheric reactions.	Aggravation of respiratory illness. Reduced visibility. Reduced plant growth. Formation of acid rain.
Carbon Monoxide (CO)	By-products from incomplete combustion of fuels and other carbon- containing substances, such as motor exhaust. Natural Events, such as decomposition of organic matter.	Reduced tolerance for exercise. Impairment of mental function. Impairment of fetal development. Death at high levels of exposure. Aggravation of some heart diseases (angina).
Suspended Particulate Matter ($PM_{2.5}$ and PM_{10})	Stationary combustion of solid fuels. Construction activities. Industrial processes. Atmospheric chemical reactions.	Reduced lung function. Aggravation of the effects of gaseous pollutants. Aggravation of respiratory and cardiorespiratory diseases. Increased cough and chest discomfort. Soiling. Reduced visibility.
Sulfur Dioxide (SO_2)	Combustion of sulfur-containing fossil fuels. Smelting of sulfur-bearing metal ores. Industrial processes.	Aggravation of respiratory diseases (asthma, emphysema). Reduced lung function. Irritation of eyes. Reduced visibility. Plant injury. Deterioration of metals, textiles, leather, finishes, coatings, etc.
Lead (Pb)	Contaminated soil (e.g., from leaded fuels and lead-based paints).	Impairment of blood function and nerve construction. Behavioral and hearing problems in children.

Source: ARB 2001.

TABLE 5.6-3
CRITERIA POLLUTANTS ATTAINMENT STATUE IN THE BASIN

Pollutant	**State**	**Federal**
Ozone (one-hour)	Nonattainment	Extreme Nonattainment
Ozone (eight-hour)	Not applicable	Nonattainment (Preliminary)
PM_{10}	Nonattainment	Serious Nonattainment
$PM_{2.5}$	Not applicable	Nonattainment (Preliminary)
CO	Nonattainment (Los Angeles County only)	Nonattainment
NO_2	Attainment	Attainment/Maintenance
Lead	Attainment	Attainment
All others	Attainment/Unclassified	Attainment/Unclassified

Source: ARB 2003.

Ozone

O_3 is formed by photochemical reactions between NO_x and reactive organic gases (ROG) rather than being directly emitted from a source. O_3 is a pungent colorless gas typical of southern California smog. Elevated O_3 concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, the elderly and young children. O_3 levels peak during summer and early fall. The entire Basin is designated as a nonattainment area for both the federal and state one-hour O_3 standards. The United States Environmental Protection Agency (USEPA) has classified the Basin as an extreme nonattainment area for O_3 and has mandated that the Basin achieve attainment by 2010. The entire Basin is expected to be designated as a nonattainment area for the federal eight-hour O_3 standard based on the collected ambient air quality data.

Carbon Monoxide

CO is formed by the incomplete combustion of fossil fuels and is generated almost entirely from automobiles. It is a colorless odorless gas that can cause dizziness, fatigue and impairment to central nervous system functions. The entire Basin is designated as a nonattainment area for federal CO AAQS. However, Orange County has not exceeded the federal CO AAQS in the past five years. Orange County has been designated by the California Air Resources Board (ARB) to be an attainment area for the state CO AAQS.

Nitrogen Oxides

Nitrogen dioxide (NO_2), a reddish-brown gas, and nitric oxide (NO), a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. These compounds are referred to as nitrogen oxides or NO_x. NO_x is a primary component of photochemical smog. It also contributes to other pollution, including a high concentration of fine particulate matter, poor visibility and acid deposition (acid rain). NO_2 decreases lung function and may reduce resistance to infection. The entire Basin has not exceeded either the federal or state AAQS for NO_x in the past five years. It is designated as a maintenance area under the federal AAQS and an attainment area under the state AAQS.

Sulfur Dioxide

SO_2 is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight. The entire Basin is in attainment with both the federal and state SO_2 AAQS.

Lead

Lead is found in old paints and coatings, plumbing and a variety of other materials. Once in the blood stream, lead can cause damage to the brain, nervous system and other body systems. Children are highly susceptible to the effects of lead. The entire Basin is in attainment for the federal and state AAQS for lead.

Particulate Matter

Particulate matter is the term used for a mixture of solid particles and liquid droplets in the air. Coarse particles (all particles less than or equal to 10 micrometers in diameter, or PM_{10}) are derived from a variety of sources, including windblown dust and grinding operations. Fuel combustion and resultant exhaust from power plants and diesel buses and trucks are primarily responsible for fine particle (less than 2.5 microns in diameter, or $PM_{2.5}$) levels. Fine particles can also be formed in the atmosphere through chemical reactions. Coarse particles (PM_{10}) can accumulate in the respiratory system and aggravate health problems such as asthma. USEPA's scientific review concluded that finer particles ($PM_{2.5}$), that penetrate deeply into the lungs, are more likely than coarse particles (PM_{10}) to contribute to the health effects listed in a number of recently-published community epidemiological studies at concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung function (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms. The entire Basin is a nonattainment area for the federal and state PM_{10} AAQS. The attainment status of $PM_{2.5}$ in the Basin is expected to be designated by the USEPA as a nonattainment, based on the collected ambient air quality data.

5.6.1.3 Existing Air Quality

SCAQMD, together with ARB, maintain ambient air quality monitoring stations in the Basin. The air quality monitoring stations closest to the Olinda Alpha Landfill site are the La Habra (O_3, CO and NO_2), Anaheim (PM_{10} and $PM_{2.5}$) and Costa Mesa (SO_2) stations. The air quality trends at these monitoring stations are representative of the ambient air quality in the City of Brea and surrounding areas. The pollutants monitored at these stations are 1-hour and 8-hour CO, 1-hour and 8-hour O_3, NO_2 and fine and coarse suspended particulate matter (Air Quality Data, 2000, 2001 and 2002, ARB website). SO_2 concentrations in the entire state have been below the federal and state AAQS in the past 10 years.

The ambient air quality data in Table 5.6-4 show that SO_2, NO_2 and CO levels are below the applicable state and federal AAQS at these stations. O_3 levels exceeded the state (three to eight days a year) and federal (once in 2000 only) one-hour AAQS in the past three years at the La Habra station. O_3 levels exceeded the federal eight-hour AAQS twice each year in 2000 and 2001 and did not exceed the federal AAQS in 2002 at the La Habra station. The PM_{10} level exceeded the state AAQS in each of the past three years (5 to 8 days a year), but has not exceeded the federal AAQS at the Anaheim station. $PM_{2.5}$ levels monitored at the Anaheim station exceeded the federal AAQS one to six days a year for the last three years.

Table 5.6-5 shows that existing CO levels at or near intersections along the access roads to Olinda Alpha Landfill are below both the one-hour and eight-hour federal and state AAQS. No exceedance of the AAQS has been recorded in the past three years.

5.6.1.4 Existing On-Site Dust Control

The IWMD implemented a dust control program at the Olinda Alpha Landfill to minimize particulate matter from entering the air during existing landfilling operations. The following activities are included in this program: asphalt-paving of the main internal haul roads; watering and proper maintenance of haul roads; water spraying of soil stockpiles; applying water or planting temporary vegetation on intermediate soil cover; and planting and maintaining a vegetative cover on completed fill and excavation slopes. Fugitive dust control measures are implemented in compliance with site-specific SCAQMD Rule 403 compliance plan which is further described later in Section 5.6.5 (Mitigation Measures).

5.6.2 THRESHOLDS OF SIGNIFICANCE

5.6.2.1 Regulatory Setting

<u>Federal Regulations/Standards</u>

Pursuant to the federal Clean Air Act (CAA) of 1970, the USEPA established national AAQS (NAAQS). The NAAQS were established for six major pollutants, termed criteria pollutants. Criteria pollutants are defined as those pollutants for which the federal and state governments have established AAQS for outdoor concentrations in order to protect public health.

Data collected at permanent monitoring stations are used by the USEPA to classify regions as attainment or nonattainment, depending on whether the regions met the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the USEPA.

The USEPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the CAA for the SCAB.

TABLE 5.6-4
AMBIENT AIR QUALITY AT THE LA HABRA, ANAHEIM AND COSTA MESA AIR MONITORING STATIONS

	One Hour Carbon Monoxide[1]		One Hour Ozone[2]		Coarse Suspended Particulate (PM_{10})[3]		Nitrogen Dioxide[4]	
	Max. 1 Hour Conc. (ppm)	Number of Days Exceeded	Max. 1 Hour Conc. (ppm)	Number of Days Exceeded	Max. 24 Hour Conc. ($\mu g/m^3$)	Number of Days Exceeded	Max. 1 Hour Conc. (ppm)	Number of Days Exceeded
State Standards	> 20 ppm/1 hr		> 0.09 ppm/1 hr		> 50 $\mu g/m^3$, 24 hrs		> 0.25 ppm/1 hr	
2002	10.2	0	0.12	3	69	5	0.12	0
2001	10.7	0	0.11	4	93	6	0.13	0
2000	13.8	0	0.14	8	126	8	0.12	0
MAXIMUM	**13.8**		**0.14**		**126**		**0.13**	
Federal Standards	> 35 ppm/1 hr		> 0.12 ppm/1 hr		> 150 $\mu g/m^3$, 24 hrs		0.053 ppm, annual average	
2002	10.2	0	0.12	0	69	0	0.025	0
2001	10.7	0	0.11	0	93	0	0.027	0
2000	13.8	0	0.14	1	126	0	ND[1]	0
MAXIMUM	**13.8**		**0.14**		**126**		**0.027**	

1 Data from the La Habra monitoring station.
2 Data from the Anaheim monitoring station.
3 Data from the La Habra monitoring station.
4 Data from the Costa Mesa monitoring station.
Source: ARB, 2000 to 2002.

TABLE 5.6-4 (Continued)
AMBIENT AIR QUALITY AT LA HABRA, ANAHEIM AND COSTA MESA AIR MONITORING STATIONS

	Eight Hour Carbon Monoxide[1]		Eight Hour Ozone[2]		Fine Suspended Particulate ($PM_{2.5}$)[3]		Sulfur Dioxide[4]	
	Max. 8 Hour Conc. (ppm)	**Number of Days Exceeded**	**Max. 8 Hour Conc. (ppm)**	**Number of Days Exceeded**	**Max. 24 Hour Conc. ($\mu g/m^3$)**	**Number of Days Exceeded**	**Max. 24 Hour Conc. (ppm)**	**Number of Days Exceeded**
State Standards	≥ 9.0 ppm/8 hr		No State Standard		No State Standard		> 0.04 ppm/24 hr	
2002	4.5	0	0.08	NA[5]	68.6	NA	0.011	0
2001	4.7	0	0.09	NA	70.8	NA	0.005	0
2000	6.2	0	0.10	NA	113.9	NA	0.006	0
MAXIMUM	**6.2**		**0.10**		**113.9**		**0.011**	
Federal Standards	≥ 9.0 ppm/8 hr		> 0.08 ppm/8 hr		> 65 $\mu g/m^3$, 24 hrs		0.14 ppm/24 hr	
2002	4.5	0	0.08	0	68.6	1	0.002	0
2001	4.7	0	0.09	2	70.8	1	0.001	0
2000	6.2	0	0.10	2	113.9	6	0.002	0
MAXIMUM	**6.2**		**0.10**		**113.9**		**0.002**	

Source: ARB, 2000 to 2002.
1 Data at the La Habra monitoring station.
2 Data from the La Habra monitoring station.
3 Data from the Anaheim monitoring station.
4 Data from the Costa Mesa monitoring station.
5 No State standard.
Conc. = Concentration

TABLE 5.6-5
EXISTING VEHICULAR TRAFFIC INTERSECTION CO CONCENTRATIONS

Intersection	Distance to Receptor Location from Roadway Centerline (meters) [1]	2004 1 Hr CO Concentration [2] (ppm)	2004 8 Hr CO Concentration [3] (ppm)	Exceeds State Standards 1 hr	Exceeds State Standards 8 hr
Associated Road & Imperial Highway	14	12.4	6.1	No	No
	14	12.4	6.1	No	No
	15	12.4	6.1	No	No
	16	12.4	6.1	No	No
Placentia Avenue & Imperial Highway	12	12.4	6.1	No	No
	12	12.2	5.9	No	No
	14	12.2	5.9	No	No
	14	12.2	5.9	No	No
Kraemer Boulevard & Imperial Highway	17	12.4	6.1	No	No
	17	12.4	6.1	No	No
	19	12.4	6.1	No	No
	20	12.4	6.0	No	No
Rose Drive & Imperial Highway	14	12.8	6.4	No	No
	14	12.8	6.4	No	No
	15	12.8	6.4	No	No
	16	12.6	6.2	No	No
Valencia Avenue & Birch Street	14	11.6	5.5	No	No
	14	11.6	5.5	No	No
	14	11.5	5.5	No	No
	14	11.5	5.5	No	No
Valencia Avenue & Carbon Canyon Road	14	11.7	5.6	No	No
	14	11.5	5.5	No	No
	15	11.4	5.4	No	No
	17	11.4	5.4	No	No
Valencia Avenue & Imperial Highway	15	11.9	5.7	No	No
	15	11.9	5.7	No	No
	16	11.8	5.7	No	No
	17	11.8	5.7	No	No

1. Distance to receptor location is based on the width of the road and an additional three meters from the edge of the road to the receptor as per Caltrans Carbon Monoxide Protocol for Project Level Analyses.
2. Includes ambient one-hour CO concentration of 10.0 ppm. The state's one-hour CO AAQS is 20 ppm. CO concentrations at all receptor locations would be the same with or without project.
3. Includes ambient eight-hour CO concentration of 4.4 ppm. The state's eight-hour CO AAQS is 9.0 ppm. CO concentrations at all receptor locations would be the same with or without project.

Source: LSA Associates, Inc., February 2004.

The USEPA established new NAAQS for ground level O_3 and fine particulate matter in 1997. On May 14, 1999, the Court of Appeals for the District of Columbia Circuit issued a decision ruling that the CAA, as applied in setting the new public health standards for O_3 and particulate matter, was unconstitutional as an improper delegation of legislative authority to the USEPA. On February 27, 2001, the United States Supreme Court upheld the way the government sets AAQS under the CAA. The court unanimously rejected industry arguments that the USEPA must consider financial cost as well as health benefits in writing standards. The justices also rejected arguments that the USEPA took too much lawmaking power from Congress when it set tougher standards for O_3 and soot in 1997. Nevertheless, the court threw out the USEPA's policy for implementing new O_3 rules, saying the agency ignored a section of the law that restricts its decision making authority. It ordered the agency to come up with a more reasonable interpretation of the law.

State Regulations/Standards

The State of California began to set California AAQS (CAAQS) in 1969 under the mandate of the Mulford-Carrell Act. The CAAQS are generally more stringent than the NAAQS. In addition to the six criteria pollutants covered by the NAAQS, there are CAAQS for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles. The CAAQS are listed in Table 5.6-1.

Originally, there were no attainment deadlines for the CAAQS. However, the California Clean Air Act (CCAA) of 1988 provided a time frame and a planning structure to promote their attainment. The CCAA required nonattainment areas in the state to prepare attainment plans and proposed to classify each such area on the basis of the submitted plan, as follows: moderate, if CAAQS attainment could not occur before December 31, 1994; serious, if CAAQS attainment could not occur before December 31, 1997; and severe, if CAAQS attainment could not be conclusively demonstrated at all.

The attainment plans are required to achieve a minimum five percent annual reduction in the emissions of nonattainment pollutants unless all feasible measures have been implemented. The basin is currently classified as a nonattainment area for three criteria pollutants: O_3, CO and coarse particulates.

Regional Air Quality Planning Framework

The 1976 Lewis Air Quality Management Act established the SCAQMD and other air districts throughout the state. The Federal CAA Amendments of 1977 required that each state adopt a State Implementation Plan (SIP) outlining pollution control measures to attain the NAAQS in nonattainment areas of the state.

The ARB coordinates and oversees both state and federal air pollution control programs in California. ARB oversees activities of local air quality management agencies and is responsible for incorporating air quality management plans for local air basins into a SIP for USEPA approval. ARB maintains air quality monitoring stations throughout the State in conjunction with local air districts. Data collected at these stations are used by ARB to classify air basins as attainment or nonattainment with respect to each pollutant and to monitor progress in attaining the AAQS. ARB has divided the state into 15 air basins. Significant authority for air quality control within these air basins has been given to local air districts that regulate stationary source emissions and develop local nonattainment plans.

Regional Air Quality Management Plan

The SCAQMD and SCAG are responsible for formulating and implementing the Air Quality Management Plan (AQMP) for the Basin. AQMPs were adopted for the Basin for 1979, 1982, 1989, 1991, 1994, 1997 and 2003. Compliance with the provisions of the CAA and CCAA is the primary focus of the AQMP.

The 1997 AQMP was prepared pursuant to federal and state clean air legislation and addresses 1990 CAA requirements with respect to particulate matter AAQS. Under the CAA, the AQMP must demonstrate attainment of PM_{10} AAQS by 2006 for both 24-hour and annual average AAQS. The 1997 AQMP responds to this requirement, relying mostly on the control measures outlined in the 1994 AQMP. The 1997 AQMP also updates the demonstration of attainment of the federal O_3 and CO AAQS, and includes a maintenance plan for NO_2, as the Basin now qualifies for attainment of the federal NO_2 AAQS.

According to the 1997 AQMP, attainment of all federal AAQS was to occur no later than 2000 for CO, 2006 for PM_{10} and 2010 for O_3. State AAQS were proposed to be attained no later than 2000 for CO. State AAQS for O_3 and PM_{10} would not be required to be achieved until after 2010.

The 1997 AQMP carried forward the approach and key elements in the 1994 AQMP by focusing on market based strategies and incentives versus command and control regulations. New elements to the 1997 Plan included improved emission inventory and current air quality information; refined control strategy, which allows for alternative approaches; elimination of future indirect source measures; amendments to the federal post-1996 Rate of Progress Plan and Federal Attainment Plans for O_3 and CO; a maintenance plan for NO_X; and an attainment demonstration and SIP revision for PM_{10}.

Implementation of the AQMP is based on a series of control measures that vary by source type, such as stationary or mobile, as well as by the pollutant targeted. Similar to the 1994 AQMP, the Plan proposed two tiers of control measures, based on the availability and readiness of technology. Short and immediate term measures rely on known technologies and are expected to be implemented between 1997 and 2005. Long term measures rely on the advancement of technologies and control methods that can be reasonably expected to occur between 2000 and 2010.

Control measures focus on adoption of new regulations or enhancement of existing regulations for stationary sources, implementation/facilitation of advanced transportation technologies (i.e., telecommunication, zero emission and alternative fuel vehicles and infrastructure, and both capital and noncapital based transportation improvements). Capital based improvements consist of high occupancy vehicle (HOV) lanes, transit improvements, traffic flow improvements, park and ride and intermodal facilities, and urban freeway, bicycle and pedestrian facilities. Noncapital based improvements consist of rideshare matching and Congestion Management Plan (CMP) based transportation demand management activities.

The SCAQMD governing board approved the 1997 AQMP on November 15, 1996. After approval, the AQMP was submitted to the ARB for its review and approval. ARB approved the O_3 and PM_{10} parts of the 1997 AQMP on January 23, 1997, and submitted the AQMP to the USEPA as proposed revisions to the SIP. The USEPA rejected the SCAQMD's revision of its 1997 AQMP in January 1999. The rejection, however, covers only the provisions of the AQMP designed to attain the federal O_3 AAQS. Separate parts of the 1997 AQMP relating to CO and NO_2 have previously been approved, and the USEPA has yet to act on that part of the 1997 AQMP related to PM_{10}. As a result of the rejection, SCAQMD prepared a draft "Proposed 1999 Amendment to the 1997 Ozone SIP Revision for the South Coast Air Basin" on October 7, 1999, for public review and comment. The 1999 Amendment proposed to revise the O_3 part of the 1997 AQMP that was submitted to the USEPA as a revision to the Basin part of the 1994 California Ozone SIP. The SCAQMD governing board adopted the "1999 Amendment to the 1997 Ozone SIP Revision for the South Coast Air Basin" on December 10, 1999. The USEPA approved the 1999 Amendment for Ozone in 2001, and currently there is no approved SIP for CO and PM_{10}. In addition, the SCAQMD governing board settled with three environmental organizations on its litigation of the 1994 Ozone SIP.

The SCAQMD adopted a comprehensive plan update, the 2003 AQMP, for the Basin in August 2003. The 2003 AQMP seeks to demonstrate attainment with the state and federal air AAQS and incorporates a revised emissions inventory, the latest modeling techniques, updated control measures remaining from the 1997/1999 SIP and new control measures. The ARB approved the 2003 AQMP, with minor modifications. The ARB forwarded the modified 2003 AQMP to the USEPA for approval in October 2003.

5.6.2.2 CEQA Thresholds

A project would normally be considered to have a significant adverse effect on air quality if the project would violate any AAQS, contribute substantially to an existing or projected air quality violation, expose sensitive receptors to substantial pollutants concentrations, or conflict with adopted environmental plans and goals of the community in which it is located.

Impacts may be derived from short term activities associated with the construction of new facilities within the site boundary and long term impacts associated with ongoing operations on the site. An air quality impact analysis is generally structured to address activities that have quantifiable levels of air pollutant emissions that can be compared to the defined standards after those emissions are carried off-site by prevailing winds. Because many pollutants require considerable time to undergo chemical reactions and because the Basin routinely exceeds AAQS for a reactive pollutant such as O_3, there is no currently available reasonable mechanism to explicitly quantify "… contributes substantially to an existing violation…" as described in the CEQA Guidelines. To assist in the determination of the potential significance of air quality impacts, the SCAQMD has published de minimis emission levels that are considered to be the levels below which an air quality impact is not significant. The SCAQMD established emission thresholds are described in detail in its CEQA Air Quality Handbook (SCAQMD, November 1993) and are summarized below.

Thresholds for Construction Emissions

The following significance thresholds for construction emissions have been established for the Basin:

Emissions Thresholds for Construction

- 75 pounds per day or 2.5 tons per quarter of reactive organic compounds (ROC).
- 100 pounds per day or 2.5 tons per quarter of NO_X.
- 550 pounds per day or 24.75 tons per quarter of CO.
- 150 pounds per day or 6.75 tons per quarter of coarse particulate (PM_{10}).
- 150 pounds per day or 6.75 tons per quarter of sulfur oxides (SO_X).

Projects in the Basin with construction related emissions that exceed any of these short term emission thresholds should be considered to result in significant adverse impacts under CEQA.

Thresholds for Operational Emissions

The daily operational emissions significance thresholds for the Basin are as follows.

Emissions Thresholds for Pollutants with Regional Effects

- 150 pounds per day of PM_{10}.
- 150 pounds per day of SO_X.
- 55 pounds per day of ROC.
- 55 pounds per day of NO_X.
- 550 pounds per day of CO.

Projects with operation related emissions that exceed any of the above listed emission thresholds are considered to result in significant adverse impacts under CEQA.

Concentration Standards for Pollutants with Local Effects

- California one-hour CO standard of 20.0 parts per million (ppm).
- California eight-hour CO standard of 9.0 ppm.

The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below the state and federal CO AAQS. If ambient levels are below the AAQS, a project is considered to have a significant adverse impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a state or federal AAQS, project emissions are considered significant and adverse if they increase one-hour CO concentrations by 1.0 ppm or more, or they increase eight-hour CO concentrations by 0.45 ppm or more. There are no local emission concentration standards for the other criteria pollutants.

Health Risk Analysis Thresholds

For pollutants without defined significance standards or air contaminants not covered by the standard criteria cited above, the definition of substantial pollutant concentrations varies. For toxic air contaminants (TAC), substantial is taken to mean that the individual cancer risk exceeds a threshold considered to be a prudent risk management level. If best available control technology for toxics (T-BACT) has been applied, the individual cancer risk to the maximum exposed individual (MEI) must not exceed ten in one million in order for an impact to be determined not to be significant.

The following limits for maximum individual cancer risk (MICR), cancer burden, and noncancer acute and chronic hazard index (HI) from project emissions of TAC have been established for the Basin:

> The cumulative increase in MICR which is the sum of the calculated MICR values for all toxic air contaminants emitted from the project will not result in any of the following:
>
> (A) An increased MICR greater than one in one million (1.0×10^{-6}) at any receptor location, if the project is constructed without T-BACT.
> (B) An increased MICR greater than ten in one million (1.0×10^{-5}) at any receptor location, if the project is constructed with T-BACT.
> (C) A cancer burden greater than 0.5.

5.6.3 METHODOLOGY RELATED TO AIR QUALITY

A number of air quality modeling tools are used to assess potential air quality impacts of projects. In addition, certain air districts, such as the SCAQMD, have developed guidelines and requirements to conduct air quality analyses. SCAQMD's current guidelines, *CEQA Air Quality Handbook*, *1993*, were adhered to in the assessment of air quality impacts for the proposed Olinda Alpha Landfill expansion project.

The air quality assessment for the proposed project includes estimating emissions associated with short term construction and long term operation of the proposed project. Due to the characteristics of the proposed project, (i.e., regional landfill options consideration, regional air quality impacts include only mobile sources emissions), there would be stationary source emissions from the landfill gas, flares, and the gas-to-energy facility which generate 5.7 megawatts of power. Mobile emissions include vehicle trips to and from the landfill considered in this analysis. In addition, localized air quality impacts, i.e., CO concentrations (CO hot spots) at intersections in the project area, would potentially be affected due to the proposed changes. Caltrans' Transportation Project-Level Carbon Monoxide Protocol (December 1997) was used in this air quality analysis for the CO hot spot analysis.

Screening Level Health Risk Analysis

Air dispersion modeling using the ISCST3 model was conducted to develop spatial relationships between truck traffic traveling on Valencia Avenue north of Carbon Canyon Road and the existing/proposed residences in the Olinda Ranch development. The minimum distance from any residence to the mid-lane distance of the road is eight meters. An array of volume sources was arranged along the north and south bound lanes of Valencia Avenue, pacing them at five-meter intervals and defining them as the width of the lane and the height of the exhaust stacks (plus a few feet above the trucks to account for upward momentum). Using historical traffic volume data from IWMD and non-landfill traffic for current traffic levels and emission factors from the California ARB emission factor model EMFAC2002, an emission factor was developed for diesel particulates that represents all the categories of vehicles and trucks traveling on Valencia Avenue north of Carbon Canyon Road.

A screening level health risk assessment modeling was conducted for emissions associated with the on-site LFG flare system (approximately 1,590 feet from the nearest residences in Olinda Ranch) and heavy-duty, diesel-driven landfill equipment exhaust in the future expansion area (approximately 4,250 feet from the nearest residences in Olinda Ranch) in the northeast part of the landfill property.

The Office of Environmental Health Hazard Assessment (OEHHA) technique for estimating potential health risks was used to determine the potential carcinogenic and chronic health risks to individuals living in the existing and proposed residences along Valencia Avenue north of Carbon Canyon Road. The modeled results were added to the ambient diesel particulate concentration of 2.2 $\mu g/m^3$ for outdoors and 1.47 $\mu g/m^3$ for indoors (as published in Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, California Environmental Protection Agency, June, 1998) and proportioned for a daily exposure of 10 hours indoors and 14 hours outdoors every day for 70 years.

5.6.4 POTENTIAL IMPACTS

The proposed project would extend the operations of Olinda Alpha Landfill from 2013 to approximately 2021. The existing landfill operations generate air emissions from on-site operations and from off-site waste/refuse truck trips. The proposed landfill expansion would result in the continuation of the same existing condition related to air emissions from landfilling, vehicular trips, and stationary sources over a longer period of time.

5.6.4.1 Short Term Impacts

Air quality impacts would occur during the construction of required prescriptive or alternative liner systems, surface water drainage systems, subdrain system, LFG collection and control systems, and leachate collection and recovery systems to accommodate expansion of Olinda Alpha Landfill. Major sources of emissions during construction include exhaust emissions from construction vehicles and equipment and fugitive dust generated by construction vehicles and equipment traveling over exposed surfaces, as well as by soil disturbances from excavation and backfilling.

Construction Emissions

Construction activities would cause combustion emissions from heavy-duty construction vehicles, haul trucks and vehicles transporting the construction crews. Exhaust emissions during construction activities on-site would vary daily as construction activity levels change. It is anticipated that peak excavation days would generate a larger amount of air pollutants than during other construction days, due to larger amount of soil to be excavated and removed from the site.

Fugitive Dust

Fugitive dust emissions are generally associated with excavation, windblown unpaved areas, vehicle and equipment travel on unpaved roads, and dirt/debris pushing. Dust generated during construction activities would vary substantially depending on the level of activity, the specific operations and weather conditions.

The SCAQMD estimates that each acre of graded surface creates about 26.4 pounds of PM_{10} per workday during the construction phase of the project and 21.8 pounds of PM_{10} per hour from dirt/debris pushing per dozer. It is assumed that up to a maximum of one acre of land would be disturbed on any one day. It is also assumed that four vehicles would be used up to eight hours per day in active soil disturbance activities. It is assumed that there would be a maximum of 0.5 acre of open soil stock piles on the project site, which will create 42.8 pounds per day (ppd) of windblown PM_{10}. Approximately 941 pounds of PM_{10} per day would be generated from soil disturbance activities and vehicle exhaust before mitigation during the peak construction phase. This level of dust emission would exceed the SCAQMD threshold of 150 pounds per day. Mitigation measures would reduce emissions to 476 pounds of PM_{10} per day. Despite the application of mitigation measures, peak day construction emissions would remain above the SCAQMD daily thresholds for all criteria pollutants after implementation of standard dust suppression measures as shown in Table 5.6-6 (further discussed below).

The project will comply with SCAQMD Rules, which would assist in reducing the short term air pollutant emissions. Fugitive dust from a construction-site must be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. Dust suppression techniques like the existing dust control program (described in Section 5.6.1.4) would continue to be implemented at the landfill under the expansion plan to prevent fugitive dust from creating a nuisance off-site. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM_{10} component) by 50 percent or more. Assuming a mitigating efficiency of 50 percent by implementation of the standard measures, daily PM_{10} emissions from soil disturbance under the proposed project would be reduced to approximately 476 pounds. Compliance with these Rules would reduce impacts on sensitive receptors in the project vicinity.

TABLE 5.6-6
PEAK DAY CONSTRUCTION EMISSIONS
(lbs.day)

Number and Equipment Type[1]	Hours of Operation	Pollutants				
		CO	ROC	NO_X	SO_X	PM_{10}
1 Excavator	10	3.6	0.3	7.8	0.6	0.5
1 Motor Grader	10	1.5	0.4	7.1	0.9	0.6
1 Tracked Loader	10	2.0	1.0	8.3	0.8	0.6
1 Wheeled Tractor	10	35.8	1.8	12.7	0.9	1.4
1 Miscellaneous[2]	10	6.8	1.5	17.0	1.4	1.4
2 On-Site Haul Trucks	10	9.2	0.9	7.0	0.1	0.3
Delivery Truck Trips[3]		3.2	0.3	6.3	0.1	0.1
Worker Commute Exhaust[4]		6.4	0.2	0.9	0.0	0.1
Subtotal Exhaust Emission		**68.5**	**6.4**	**67.1**	**4.8**	**5**
Fugitive Dust Emissions						
Open Stock Pile[5]						42.8
Dirt/Debris Pushing[6]						872.0
Graded/Exposed Surface[7]						26.4
---TOTAL GRADING NO MITIGATION		**68.5**	**6.4**	**67.1**	**4.8**	**941.2**
TOTAL GRADING WITH MITIGATION[8]		**68.5**	**6.4**	**67.1**	**4.8**	**475.6**
SCAQMD Threshold		**550**	**75**	**100**	**150**	**150**
Significant?		**NO**	**NO**	**NO**	**NO**	**YES**

Notes:
1 Emission factors and calculations based on SCAQMD, *1993 CEQA Air Quality Handbook*, Tables A9-8-A and A9-9.
2 A water truck.
3 Based on a haul length of 25 miles each way and five loads per day using EMFAC2002 emission rates.[4]
Based on a commute length of 25 miles each way for 14 workers.
5 Emissions from one-half acre of open stock piles.
6 Emissions by 4 earth-moving vehicles operating eight hours per day.
7 Emissions from one acre of graded/exposed surface.
8 Assumes 50 percent effectiveness for dust suppression measures.
Source: LSA (2004).

It is further assumed that on a peak day, a total of 14 workers would be working in the construction area. Assuming an average commute length of 25 miles each way for every worker, emissions from the daily 700 miles of travel by workers would generate approximately 9.6 pounds per day (ppd) of CO, 0.5 ppd of ROC, 7.2 ppd of NO_X, 0.1 ppd of SO_X and 0.2 ppd of PM_{10} from vehicle exhaust and tire wear.

As shown in Table 5.6-6, peak-day construction emissions under the proposed expansion project would be below the SCAQMD daily thresholds for all criteria pollutants after implementation of standard dust suppression measures.

5.6.4.2 Long Term Impacts

Long term emissions associated with the proposed project would be generated from on-site landfill vehicle operations, waste/refuse transfer trucks, as well as the landfill gas, gas-to-electric engines and flare system.

Landfill Operations

Based on data collected by IWMD, on-site equipment currently used at the landfill to dispose of an annual average of 7,000 TPD of MSW and 3,000 to 4,000 TPD exempt commodity on a daily basis is listed in Table 5.6-7. Based on information provided by IWMD, there are currently 61 total landfill personnel at Olinda Alpha Landfill to conduct the daily operations.

TABLE 5.6-7
OLINDA ALPHA LANDFILL LIST OF OPERATING EQUIPMENT

Quantity	Description	Uses
5	Dozer	Push, compact, grade and cover refuse. Walk-in slopes, miscellaneous earthwork.
2	Compactor	Refuse and cover compaction.
2	Scraper	Haul earth for cut and cover operations.
2	Water Truck	Control cover soil moisture content and dust control, landscape irrigation, and fire fighting.
1	Motor Grader	Grade unloading deck, maintain internal roads and drainage control of decks.
1	Backhoe	Load, dig, and trench earthen material.
1	Dump Truck	Move and haul miscellaneous materials such as broken asphalt, silt, earth cover, etc.
2	Wheel Dozer	Clean the roads and maintain trash areas.

Source: County of Orange Integrated Waste Management Department, January 2004.

It was assumed that dozers and compactors are used 10 hours per day and all other equipment is used for 8 hours per day when the landfill is open for business. It should be noted that emissions from on-site equipment used in landfill operations would continue from 2013 through 2021, and would cease to occur after year 2021. Table 5.6-8 lists the estimated existing emissions from daily on-site equipment usage described above as well as waste/refuse trucks to and from Olinda Alpha Landfill. The waste/refuse trucks coming to Olinda Alpha Landfill are from both in-County and out-of-County sources.

Waste/Refuse Transfer Trucks

Based on the data collected by the IWMD, waste/refuse trucks coming to the Olinda Alpha Landfill are from both in-County and out-of-County sources. Table 5.6-8 lists emissions associated with haul trucks to and from the Olinda Alpha Landfill. It should be noted that emissions from waste/refuse transfer trucks coming to the Olinda Alpha Landfill would continue from 2013 through 2021, and would be diverted to other landfilling destinations after 2021. Diverted landfilling destinations would involve greater transportation related emissions as compared to the OAL site due to greater travel distances from the source area of MSW generation.

TABLE 5.6-8
LANDFILL OPERATIONS EMISSIONS
(pounds per day)

Source[1]	No. of Units	Hours of Operation	NO_X	ROC	PM_{10}	SO_X	CO
Waste Truck Trips[2]	1,784		516.1	24.2	10.9	5.8	259.1
Other deliveries[3]	384		10.0	1.2	0.3	0.1	31.7
Motor Grader	1	8	5.7	0.3	0.5	0.7	1.2
Loader	1	8	6.6	0.8	0.5	0.6	1.6
Compactor	2	10	34.0	3.0	2.8	2.9	13.5
Scrapers	2	8	61.4	4.3	6.6	7.4	20.0
Water Trucks	2	8	18.2	1.0	2.6	8.6	6.4
Dozer	5	10	63.0	6.0	5.6	7.0	17.5
Backhoe	1	8	13.6	1.2	1.1	1.1	5.4
Service Trucks	3	8	1.4	0.6	0.0	0.1	5.4
Wheel Dozer	2	10	69.5	6.6	1.7	6.6	33.1
Employee Commute/ Visitor Trips[4]	122		4.0	0.9	0.2	0.0	27.8
Subtotal Vehicular Emissions			**803.5**	**50.1**	**32.8**	**40.9**	**422.7**
Landfill Gas Fugitive[5]				533			
Gas-to-energy Facility[6]			216.0	65.0	3.0	22.0	438.0
Flare System[7]			196.1	9.4	77.5	48.2	48.6
Subtotal Stationary Source Emissions			**412.1**	**607.4**	**80.5**	**70.2**	**486.6**
Total Vehicular and Stationary Source Emissions			**1,215.6**	**657.5**	**113.3**	**111.1**	**909.3**
SCAQMD Threshold			**55**	**55**	**150**	**150**	**550**
Exceed Threshold?			**Yes**	**Yes**	**No**	**No**	**Yes**

Source: LSA Associates using source test data, EMFAC2002 and the SCAQMD CEQA Air Quality Handbook.

Notes:

1 Emission factors based on SCAQMD, *1993 CEQA Air Quality Handbook*, Tables A9-8-A and A9-9. Based on the USEPA's AP-42 emission factors.

2 Based on an average haul length of 25 11.4 miles each way using EMFAC2002 emission rates.

3 Based on an average haul length of nine miles each way using EMFAC2002 emission rates

4 Based on a commute length of 25 miles each way.

5 Assumes that 70 percent of the landfill gas will be captured by the landfill gas collection system. This is based on generally accepted methods of estimating landfill gas generation rates.

6 2004 Measured Emissions. Maximum permitted emissions are: 96 lb/day ROC, 822 lb/day NO_X, 550 lb/day CO, 36 lb/day SO_X and 3 lb/day PM_{10}.

7 Emissions from most current (2003) flare source test. Emissions vary year to year. Maximum permitted emissions are: 93.6 lb/day ROC, 339.4 lb/day NO_X, 106.1 lb/day SO_X, 407.4 lb/day CO, and 136.6 lb/day PM_{10}

On-Site Landfill Gas and Flare System

The Olinda Alpha Landfill is a Class III landfill permitted for the disposal of non-hazardous municipal solid waste (MSW). The SCAQMD regulates landfill operations related to landfill gas emissions, subsurface gas migration, and fugitive dust control for Orange County landfills. The CIWMB and LEA also regulate LFG subsurface migration. Environmental monitoring of air, landfill gas (LFG), and groundwater is conducted at all the sites to detect LFG migration or groundwater contamination. An existing LFG extraction system and flare station is located at the Olinda Alpha Landfill for LFG control. In addition, utilization of LFG for energy production currently is being conducted at Olinda Alpha Landfill. Table 5.6-8 lists the emissions associated with fugitive landfill gas (30 percent of total generated), emissions from the flare system (based on the most recent source testing results) and the gas-to-energy facility.

Emissions associated with on-site LFG and flare systems for waste deposited through 2013 would continue to occur at the Olinda Alpha Landfill even if the project is not implemented. Emissions associated with LFG and flare systems from waste deposited between 2013 and 2021 would incrementally increase the quantity of landfill gas generation. These additional LFG and flare system emissions would occur regardless of which project alternative is selected because landfill gas emissions associated with decomposition of MSW are not site-specific and would continue to be generated as long as there is MSW generation and deposition in landfills. As such, there would be no increase in regional LFG associated with the proposed project as compared to existing conditions or the No Project Alternative. However, the proposed project would change the methane generation peak from 8,000 SCFM in year 2017 to 9,000 SCFM in year 2023 based on projections using existing landfill gas extraction rates (See Technical Memorandum at the end of Appendix G). As a result, the LFG extraction rate would increase from 11,200 SCFM to 12,600 SCFM (approximately 12% increase) at an assumed extraction efficiency of 70% and a methane concentration of 50% which are industry standard assumptions (See Technical Memorandum at the end of Appendix G). No additional flares beyond the third flare (which provides a total capacity of 12,600 SCFM) will be required to accommodate the additional LFG produced. Therefore, the increase in emissions will not exceed the levels required for the permitted landfill operations.

Total Project Related Air Pollutant Emissions. Table 5.6.8 shows that emissions associated with current landfill operations exceed the SCAQMD daily emission thresholds for three of the five criteria pollutants. These landfill operations related emissions would continue from year 2013 to approximately 2021 as a result of the proposed project. Because these emissions cannot be feasibly reduced to below the SCAQMD emission thresholds, the proposed project would have a significant long-term air quality impact. It should be noted that this significant impact to air quality would occur regardless of whether the project is developed or not (if the MSW that is currently disposed of at OAL is disposed of within the south coast air basin), simply because there will continue to be MSW generation and air pollutant emissions associated with the need to dispose of it. These SCAQMD emission thresholds signal that this is a significant emission source. Because these emissions will occur regardless of whether the project is developed or not, consideration of the magnitude of air pollution generated by MSW disposal under the different project alternatives should be considered in the evaluation of regional air pollution and is further discussed in Section 6.0 (Alternatives to the Proposed Project).

In terms of local concentrations of emissions from Olinda Alpha Landfill, monthly monitoring of all occupied structures within the landfill boundary is performed using an Organic Vapor Analyzer (OVA). IWMD P&P requires remedial action measures when methane registers ≥500 ppm in an on-site structure. The off-site receptors are at least 1,950 feet away from these site structures, therefore no impact would occur for off-site receptors.

Odor Impact Analysis

Existing On-Site Odor Control

Potential odor impacts associated with landfilling include the odors of fresh refuse and/or LFG. Landfill odors consist of two main types of odors. Fresh trash has a "wet paper" characteristic odor that occurs during initial oxygen-sufficient decomposition. After several weeks, the character of the odor changes to a "sickly sweet" odor typical of LFG. The conversion from one type of odor to the other depends on the nature of the refuse and the amount of moisture available in the landfill. A wet landfill creates a LFG odor impact much sooner than a very dry landfill.

Throughout the operating day or at the end of each operating day, sufficient cover material is transported by scrapers to the working face and is placed by either a crawler tractor or scrapers to cover all exposed refuse with a minimum six-inch thick cover of soil or alternative daily cover. The purpose of daily cover soil, or an equivalent alternative daily cover material approved by the LEA, is to provide a suitable barrier to the emergence of flies, prevent windblown refuse and debris, minimize the escape of odor, prevent excess infiltration of surface water run-off, and hinder the progress of fires within the landfill.

Odors from refuse are controlled by the operation of a comprehensive LFG collection and control system. Odors are further controlled by the application of daily soil or alternative cover placed over the refuse. Intermediate cover is applied as soon as possible on areas required by Title 27. In addition, the area of refuse placement is contained to as small an area as practicable to help control odors.

Odors Associated with Fresh Refuse

Fresh refuse has the odor most associated with household waste from a trash can when placed at the curb for collection. Unless the refuse contains materials that are very rapidly putrescible (i.e., prone to rotting) such as uncooked meat products or yard waste that has begun composting in the collection container, there is normally sufficient oxygen present to keep odor production at a slow rate during storage prior to pickup for disposal. In addition to the nature of the refuse, moisture and heat will also accelerate oxygen-sufficient (aerobic) decay and turn the process oxygen-deficient (anaerobic).

As the refuse packer truck blends an occasional barrel of foul smelling trash with less offensive trash, most truck loads of refuse take on a fairly similar odor character. The odor is generally unpleasant near the source, but daytime mixing dilutes the odor with clean air to a level where off-site complaints are infrequent, and ultimately to where people with even a high sensitivity to such odor can no longer detect the odor.

Odor Associated with LFG

Odor impacts at southern California landfills became most noticeable in the 1970s and early 1980s. Previous to that time, burning was used to destroy a substantial part of biodegradable waste in the refuse stream. Conversion to sanitary landfills in response to prohibitions on burning both in backyard incinerators and at landfills led to accumulations of organic material in the waste disposed of in landfills. In the dry tombs of southern California landfills, the decay lifetime of such material is 30 to 40 years. Material placed in the 1960s is only now reaching the end of this decay cycle.

Passive systems of LFG dispersal (cover soil and vent pipes) were ineffective in preventing off-site odor detectability, especially as refuse was consolidated into fewer, larger landfills instead of many smaller ones. Active LFG collection and disposal systems became mandatory for larger landfills in southern California. Retrofit systems were installed in older sections of landfills. For current landfill operations, the collection system is installed concurrently with refuse filling operations at specified intervals. The collection efficiency of such newer systems tends to be higher than for retrofit systems because there are fewer “dead spots.”

Landfill odor has historically been detectable as far as three to five miles from a site when winds are light and a low level inversion traps odors in a very shallow layer of air next to the surface of the landfill. These conditions typically occur at night and are called “night time drainage.” With the installation of a comprehensive LFG collection and disposal system, odor complaints are minimized. Modern odor control technology thus appears capable of maintaining a very limited LFG odor footprint around a well-operated landfill.

As stated previously, the project proposes to continue landfill activities at the same rate as under existing conditions. Under the proposed project, the landfill will result in a maximum vertical increase of 115 feet and a maximum horizontal expansion of approximately 33 acres within the existing property boundary of Olinda Alpha Landfill. The proposed vertical expansion is to the north and the horizontal expansion area is to the northeast, away from nearby residences and well beyond the zone of probable odor impact. Therefore, the proposed expansion project is not anticipated to increase the potential for odor impacts.

With prevailing daytime southwest to northeast winds at Olinda Alpha Landfill, occasional fresh trash detection would be confined to on-site locations away from any off-site existing or planned residences. Consequently, daytime odors from landfilling are not expected to have any substantial impacts on any off-site sensitive receptor population. Control of the size of the working face as a means of fresh trash odor control would minimize odor detectability for any off-site sensitive receptor locations.

The combination of favorable daytime meteorology, a substantial nocturnal buffer zone for future operations in the expansion area and the effectiveness of mandatory LFG collection/disposal systems will combine to create a less than significant odor impact for future Olinda Alpha landfilling activities.

Operations at the landfill would continue to generate odor even though no waste would be left uncovered at the end of daily operations. However, because the minimum distance from the expansion area to the nearest off-site residences is more than 4,250 feet, no impacts from on-site odor due to the proposed expansion project would occur.

Screening Health Risk Analysis

The primary health risk from heavy duty trucks is diesel particulate exhaust. A screening level health risk analysis was conducted for existing and proposed residences along Valencia Avenue north of Carbon Canyon Road leading to the landfill property. The results of the screening level analysis show that existing and proposed residences along Valencia Avenue would be exposed to an unmitigated inhalation cancer risk of one to two in a million assuming a five year exposure period, which is lower than the ten in a million threshold. As further detailed in the Air Quality Technical Report, the risk of exposures was assessed in five year increments from five to 20 year exposures. With up to 20 years of exposure, the risk would go up to eight in a million, still below the ten in a million threshold. Exposures of less than 20 years would result in a risk of less than 8 in a million. Because the proposed project would extend the landfill operation by eight years (2013 to approximately 2021), no significant health risk would occur for existing and proposed residences along Valencia Avenue leading to the Olinda Alpha Landfill from landfill-related truck traffic.

In addition, a screening level health risk assessment was conducted for the on-site LFG flare system and equipment exhaust. Based on the current landfill operations, the inhalation carcinogenic health risk was found to be less than one in a million at a distance of 500 feet. The closest existing or planned residences are more than 1,500 feet from the LFG flare system, and more than 4,200 feet from the future expansion area. This range of health risk is lower than the ten-in-a-million threshold recommended for residential uses. However, as previously discussed, the operation of the LFG collection system and flare station will continue regardless of the proposed project as long as LFG is generated by the emplaced MSW in the landfill.

Similarly, the screening level health risk assessment conducted for the on-site flare system and heavy-duty, diesel-driven equipment exhaust showed that the level of health risk is less than one in a million for all receptors with a distance of 500 feet or more from these activities. Because the closest existing and proposed residences are more than 1,590 feet from the flare system and more than 4,200 feet from the future expansion area, potential health risks for these residents would be small and less than significant. No mitigation is necessary.

CO Hot Spots

The proposed project would result in the continuation of existing landfill related traffic to and from Olinda Alpha Landfill to approximately 2021. Vehicle turn volumes at intersections used for landfill related traffic would be lower without the proposed project. The following CO hot spot analysis applies to the proposed project. The increase in CO emissions or concentrations is 0.1 ppm or less as a result of the project. CO hot spot analyses were conducted for 2013 conditions. 2013 is the year with the project (landfill expansion) beginning, which would have the highest emission factors between 2013 and 2021. The highest CO concentrations would occur during peak traffic hours; hence, CO impacts calculated under peak traffic conditions represent a worst case analysis. Modeling of the CO hot spot analysis was based on traffic volumes generated for the project traffic study (Bryan A. Stirrat & Associates, February 2004), which identified the peak traffic levels generated in the project area for 2013.

Table 5.6-9 shows the projected CO levels in 2013. For the future conditions, there is no exceedance of either the state or federal CO AAQS for the one-hour or eight-hour durations. The one-hour CO concentration ranges from 10.8 to 11.4 ppm in 2013. The eight-hour CO concentration ranges from 5.0 to 5.4 ppm in 2013. These are below the federal and state AAQS. Because no future CO levels would exceed the federal and state one-hour and eight-hour AAQS, no CO hot spots would occur. These future opening year conditions show that the project area would not have CO hot spots, with or without the project. Therefore, the proposed project would not have a significant adverse impact on local air quality for CO, and no mitigation is required.

TABLE 5.6-9
FUTURE WITHOUT AND WITH PROJECT VEHICULAR TRAFFIC INTERSECTION CO CONCENTRATIONS

Intersection	Distance to Receptor Location from Roadway Centerline (meters)	2004 1 Hr CO Concentration [1] (ppm)	2004 8 Hr CO Concentration [2] (ppm)	Exceeds State Standards 1 hr	8 hr
Associated Road & Imperial Highway	19	11.2/11.2	5.2/5.2	No	No
	19	11.1/11.2	5.2/5.2	No	No
	20	11.1/11.1	5.2/5.2	No	No
	20	11.1/11.1	5.2/5.2	No	No
Placentia Avenue & Imperial Highway	12	11.4/11.4	5.4/5.4	No	No
	12	11.4/11.4	5.4/5.4	No	No
	14	11.4/11.4	5.4/5.4	No	No
	14	11.3/11.3	5.3/5.3	No	No
Kraemer Boulevard & Imperial Highway	20	11.4/11.4	5.4/5.4	No	No
	20	11.3/11.3	5.3/5.3	No	No
	20	11.2/11.3	5.2/5.3	No	No
	21	11.2/11.2	5.2/5.2	No	No
Valencia Avenue & Imperial Highway	15	11.1/11.2	5.2/5.2	No	No
	15	11.0/11.0	5.1/5.1	No	No
	16	11.0/11.0	5.1/5.1	No	No
	17	11.0/11.0	5.1/5.1	No	No
Valencia Avenue & Birch Street	12	11.0/11.0	5.1/5.1	No	No
	12	10.9/10.9	5.0/5.0	No	No
	14	10.9/10.9	5.0/5.0	No	No
	15	10.8/10.9	5.0/5.0	No	No
Valencia Avenue & Carbon Canyon Road	14	11.2/11.2	5.2/5.2	No	No
	14	11.1/11.2	5.2/5.2	No	No
	15	11.1/11.1	5.2/5.2	No	No
	16	11.1/11.1	5.2/5.2	No	No

Source: LSA Associates, Inc., February 2004.

1 Includes ambient one-hour CO concentration of 7.4 ppm. The state one-hour CO AAQS is 20 ppm. CO concentrations at all receptor locations would be the same with or without project.

2 Includes ambient eight-hour CO concentration of 4.8 ppm. The state eight-hour CO AAQS is 9.0 ppm. CO concentrations at all receptor locations would be the same with or without project.

CO poses a threat to human health in high concentrations. CO tends to be concentrated at the point of emission and disperses with distance from the source. CO generated from flares and IC engines are located more than 1,590 feet from the closest existing and proposed residences. Caltrans CO assessment protocol for traffic sources require modeling of traffic 10 feet from the edge of congested intersections. Due to the large distance of more than 1,590 feet from the closest existing and proposed residences to flares and IC engines, CO from these sources are not anticipated to result in significant concentrations of CO that would exceed ambient air quality standards.

5.6.5 MITIGATION MEASURES

5.6.5.1 Short Term Impacts

The project would result in significant short term adverse construction-related impacts. The project would be required to comply with existing regional rules that assist in reducing short term air pollutant emissions with standard conditions and mitigation measures. SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 402 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off-site.

AQ-1 Applicable dust suppression techniques from Rule 403 are summarized below. Additional dust suppression measures in the SCAQMD CEQA Air Quality Handbook are also included as part of the project's mitigation. Implementation of these dust suppression techniques will reduce the fugitive dust generation (and thus the PM_{10} component). Compliance with these rules will reduce impacts on nearby sensitive receptors.

Applicable Rule 403 measures:

a. Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).
b. Water active sites at least twice daily. (Locations where grading is to occur will be thoroughly watered prior to earth moving).
c. All trucks hauling dirt, sand, soil, or other loose materials are to be covered, or should maintain at least two feet of freeboard in accordance with the requirements of California Vehicle Code (CVC) section 23114 (freeboard means vertical space between the top of the load and top of the trailer).
d. Pave construction access roads at least 100 feet onto the site from main road.
e. Traffic speeds on all unpaved roads shall be reduced to 15 mph or less.

Additional SCAQMD *CEQA Air Quality Handbook* dust measures:

a. Revegetate disturbed areas as quickly as possible.
b. All excavating and grading operations shall be suspended when wind speeds (as instantaneous gusts) exceed 25 miles per hour (mph) and dust plumes are visible.
c. All on-site streets shall be swept once a day if visible soil materials are carried to adjacent streets (recommend water sweepers with reclaimed water).
d. Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash trucks and any equipment leaving the site each trip.

AQ-2 Dust generated by the construction activities shall be retained on-site and kept to a minimum by following the dust control measures listed below.

a. During clearing, grading, earth moving, excavation, or transportation of cut or fill materials, water trucks or sprinkler systems shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease.

b. During construction, water trucks or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this would include wetting down such areas in the late morning and after work is completed for the day and whenever wind exceeds 15 miles per hour.

c. Immediately after clearing, grading, earthmoving, or excavation is completed, the entire area of disturbed soil shall be treated until the area is paved or otherwise developed so that dust generation will not occur.

d. Soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation.

e. Trucks transporting soil, sand, cut or fill materials, and/or construction debris to or from the site shall be tarped or maintain 6 inches of freeboard from the point of origin.

5.6.5.2 Long Term Impacts

The proposed project would, however, result in significant adverse air quality impacts even after implementation of mitigation measures AQ-1 and AQ-2.

5.6.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Construction operations would generate emissions exceeding the SCAQMD daily construction emissions thresholds. Implementation of measures AQ-1 and AQ-2 would reduce construction related emissions, as required by SQAQMD. However, subsequent to the application of mitigation measures, construction of the project would entail PM10 generation that would continue to exceed SCAQMD construction emission thresholds and would constitute a significant short term adverse impact on regional air quality.

In the operational phase, the project would result in a continuation of emissions over a longer period of time which would exceed emissions thresholds for the operation of the proposed project. Mitigation measures would not result in reductions in emissions which would be below the SCAQMD operation phase thresholds. Consequently, the operational phase of the project would result in significant adverse air quality impacts.

5.7 NOISE

This Section of the EIR is based on the Noise Impact Analysis for the Regional Landfill Options for Orange County, California (LSA Associates, 2004). The Noise Impact Analysis, which is provided in Appendix H of this EIR, was prepared to evaluate the potential noise impacts and mitigation measures associated with the Olinda Alpha Landfill expansion project.

5.7.1 EXISTING CONDITIONS

5.7.1.1 Noise Descriptors

Characteristics of Sound

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation and sleep. To the human ear, sound has two important characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a wave resulting in the tone's range from high to low. Loudness is the strength of a sound that describes a noisy or quiet environment and is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent noise sensitive land uses.

Measurement of Sound

Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Unlike linear units, such as inches or pounds, decibels (dB) are measured on a logarithmic scale representing points on a sharply rising curve. For example, 10 dB are 10 times more intense than 1 dB, 20 dB are 100 times more intense, and 30 dB are 1,000 times more intense. Thirty dB represent 1,000 times as much acoustic energy as one dB. The dB scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives an approximate connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the loudness of the sound. Ambient sounds generally range from 30 dB (very quiet) to 100 dB (very loud).

Sound levels are generated from a source and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single-point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source, such as highway traffic or railroad operations, the sound decreases 3 dB for each doubling of distance in a hard site environment. Line source noise in a relatively flat environment with absorptive vegetation decreases 4.5 dB for each doubling of distance.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time varying noise over a sample period. The predominant rating scales for human communities in California are the L_{eq} and community noise equivalent level (CNEL) or the day-night average level (L_{dn}) based on A-weighted decibels (dBA). CNEL is the time varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 PM to 10:00 PM (defined as relaxation hours) and 10 dBA weighting factor applied to noise occurring from 10:00 PM to 7:00 AM (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are within 1 dBA of each other and are normally exchangeable.

Other noise rating scales of importance when assessing the annoyance factor include the maximum noise level (L_{max}), which is the highest exponential time averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis for short term noise impacts are specified in terms of maximum levels denoted by L_{max}. L_{max} reflects peak operating conditions and addresses the annoying aspects of intermittent noise. It is often used together with another noise scale, or noise standards in terms of percentile noise levels, in noise ordinances for enforcement purposes. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half the time the noise level exceeds this level, and half the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, the L_{eq} and L_{50} are approximately the same.

Noise impacts can be described in three categories. The first is audible impacts that refer to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3.0 dB or greater because this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1.0 and 3.0 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category is changes in noise levels of less than 1.0 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tension, thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When noise levels reach 120 dBA, a tickling sensation occurs in the human ear even with short term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 190 dBA will rupture the eardrum and permanently damage the inner ear. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in less developed areas.

Table 5.7-1 provides definitions of acoustical terms. Table 5.7-2 shows common sound levels and their sources. Table 5.7-3 shows land use compatibility for exterior community noise recommended by the California Department of Health, Office of Noise Control.

Ground-Borne Vibration

Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors. Motion may be discernable outdoors but, without the effects associated with the shaking of a building, there is less adverse reaction. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by the occupants as motion of building surfaces, rattling of items on shelves or hanging on walls, or as a low-frequency rumbling noise. The rumbling noise is caused by the vibrating walls, floors and ceilings radiating sound waves. Vibration induced structural damage is not a factor for normal transportation projects, including highways, but may be an issue if blasting and pile driving occur during construction. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by 10 decibels or less. This is an order of magnitude below the damage threshold for normal buildings.

Typical sources of ground-borne vibration are construction activities (e.g., blasting, pile driving and operating heavy duty earth-moving equipment), steel-wheeled trains and occasionally traffic on rough roads. When roads are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. It is assumed for most projects that the road surface will be smooth enough that ground-borne vibration from street traffic will not exceed the impact criteria; however, heavy truck traffic associated with a project could result in ground-borne vibration that could be perceptible and annoying. Ground-borne noise is not likely to be a problem because noise arriving via the normal airborne path usually will be greater than ground-borne noise.

Groundborne vibration has the potential to disturb people as well as to damage buildings. Although it is very rare for train or road traffic-induced groundborne vibration to cause even cosmetic building damage, it is not uncommon for construction processes such as blasting and pile driving to cause vibration of sufficient amplitudes to damage nearby buildings (Federal Transit Administration (FTA), 1995). Groundborne vibration is usually measured in terms of vibration velocity, either the root-mean-square (rms) velocity or peak particle velocity (PPV). Rms is best for characterizing human response to building vibration and PPV is used to characterize the potential for damage to buildings. Decibel notation acts to compress the range of numbers required to describe vibration. Vibration velocity level in decibels is defined as:

TABLE 5.7-1
DEFINITIONS OF ACOUSTICAL TERMS

Term	Definitions
Decibel (dB)	A unit of level that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency (Hz)	Of a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., number of cycles per second).
A-Weighted Sound Level (dBA)	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted, unless reported otherwise.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 1 percent, 10 percent, 50 percent and 90 percent of a stated time period.
Equivalent Continuous Noise Level (L_{eq})	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time varying sound.
Community Noise Equivalent Level (CNEL)	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dBA to sound levels occurring in the evening from 7:00 PM to 10:00 PM and after the addition of 10 dBA to sound levels occurring in the night between 10:00 PM and 7:00 AM.
Day/Night Noise Level (L_{dn})	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dBA to sound levels occurring in the night between 10:00 PM and 7:00 AM.
L_{max}, L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all encompassing noise associated with a given environment at a specified time, usually a composite of sound from many sources at many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control 1991.

TABLE 5.7-2
COMMON SOUND LEVELS AND THEIR NOISE SOURCES

Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Evaluations [1]
Near jet engine	140	Deafening	128 times as loud
Civil defense siren	130	Threshold of Pain	64 times as loud
Hard rock band	120	Threshold of Feeling	32 times as loud
Accelerating motorcycle at a few feet away	110	Very Loud	16 times as loud
Pile driver; noisy urban street/heavy city traffic	100	Very Loud	8 times as loud
Ambulance siren; food blender	95	Very Loud	
Garbage disposal	90	Very Loud	4 times as loud
Freight cars; living room music	85	Loud	
Pneumatic drill; vacuum cleaner	80	Loud	2 times as loud
Busy restaurant	75	Moderately Loud	
Near freeway auto traffic	70	Moderately Loud	Reference Noise Level
Average office	60	Quiet	One-half as loud
Suburban street	55	Quiet	
Light traffic; soft radio music in apartment	50	Quiet	One-quarter as loud
Large transformer	45	Quiet	
Average residence without stereo playing	40	Faint	One-eighth as loud
Soft whisper	30	Faint	
Rustling leaves	20	Very Faint	
Human breathing	10	Very Faint	Threshold of hearing
	0	Very Faint	

Source: Compiled by LSA Associates, Inc. 2002.
1. Subjective evaluations are based on reference noise level of 70 dB.

TABLE 5.7-3
LAND USE COMPATIBILITY FOR EXTERIOR COMMUNITY NOISE

Land Use Category	Noise Range (L_{dn} or CNEL), dB			
	I	II	III	IV
Passively used open spaces	50	50-55	55-70	70+
Auditoriums, concert halls, amphitheaters	45-50	50-65	65-70	70+
Residential: low-density single-family, duplex, mobile homes	50-55	55-70	70-75	75+
Residential: multifamily	50-60	60-70	70-75	75+
Transient lodging: motels, hotels	50-60	60-70	70-80	80+
Schools, libraries, churches, hospitals, nursing homes	50-60	60-70	70-80	80+
Actively used open spaces: playgrounds, neighborhood parks	50-67	C	67-73	73+
Golf courses, riding stables, water recreation, cemeteries	50-70	C	70-80	80+
Office buildings, business commercial and professional	50-67	67-75	75+	C
Industrial, manufacturing, utilities, agriculture	50-70	70-75	75+	C

Noise Range I—Normally Acceptable: Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

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

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

Noise Range IV—Clearly Unacceptable: New construction or development should generally not be undertaken.

Source: Office of Noise Control, California Department of Health 1976.

$L_V = 20 \log_{10} [V/V_{ref}]$

Where L_V is the velocity in decibels (VdB), V is the rms velocity amplitude, and V_{ref} is the reference velocity amplitude, or 1×10^{-6} inches/second used in the United States. Table 5.7-4 illustrates human response to various vibration levels as described in the FTA Transit Noise and Vibration Impact Assessment (FTA, April 1995).

Factors that influence groundborne vibration and noise include:

- Vibration source: vehicle suspension, wheel types and condition, track/roadway surface, track support system, speed, transit structure and depth of vibration source.
- Vibration path: soil type, rock layers, soil layering, depth to water table and frost depth.
- Vibration receiver: foundation type, building construction and acoustical absorption.

TABLE 5.7-4
HUMAN RESPONSE TO DIFFERENT LEVELS OF GROUNDBORNE NOISE AND VIBRATION

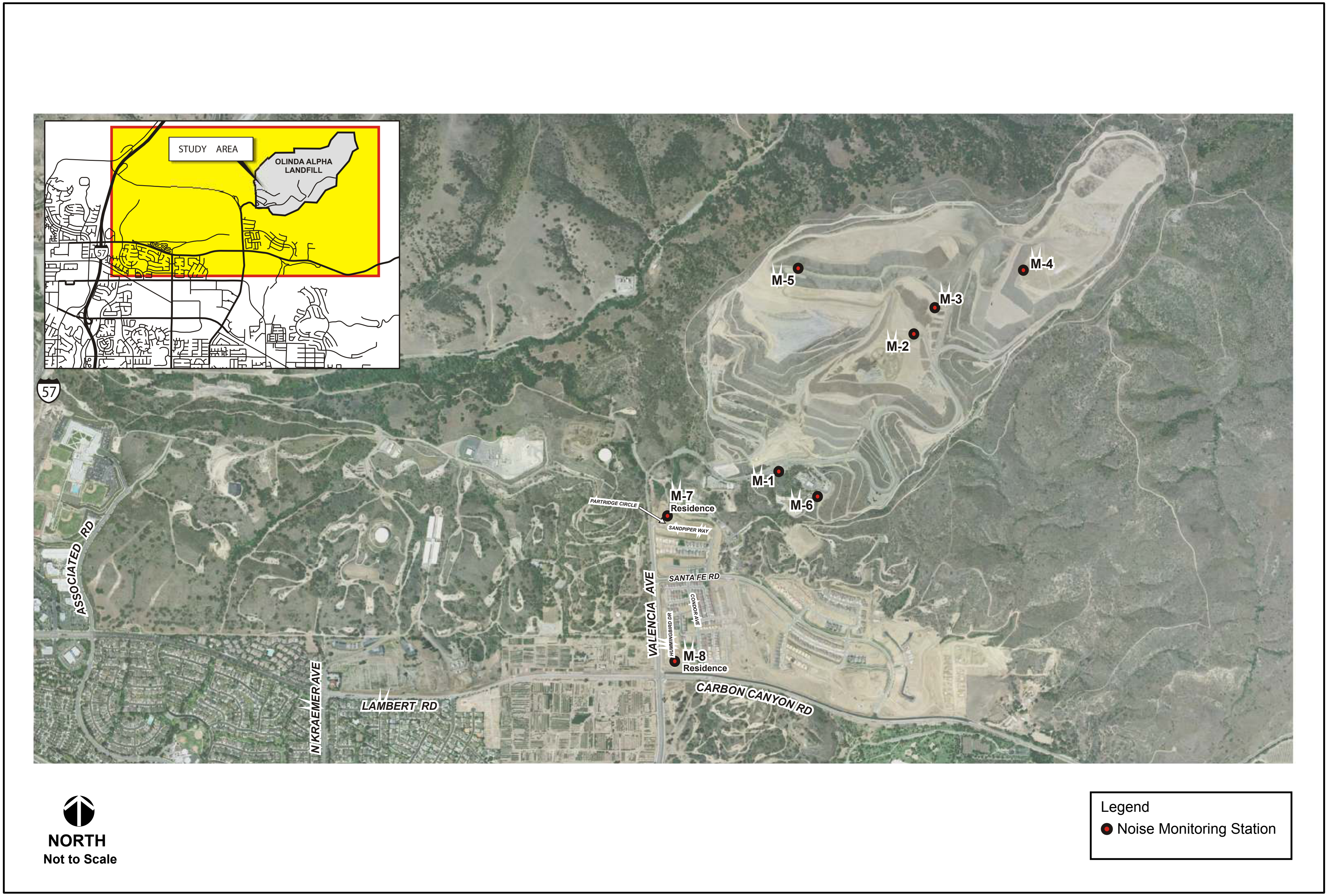
Vibration Velocity Level	Noise Level		Human Response
	Low Freq [1]	Mid Freq [2]	
65 VdB	25 dBA	40 dBA	Approximate threshold of perception for many humans. Low-frequency sound usually inaudible, mid-frequency sound excessive for quiet sleeping areas.
75 VdB	35 dBA	50 dBA	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find transit vibration at this level unacceptable. Low-frequency noise acceptable for sleeping areas, mid-frequency noise annoying in most quiet occupied areas.
85 VdB	45 dBA	60 dBA	Vibration acceptable only if there is an infrequent number of events per day. Low-frequency noise unacceptable for sleeping areas, mid-frequency noise unacceptable even for infrequent events with institutional land uses such as schools and churches.

Source: Federal Transit Administration, 1995, and Federal Railroad Administration, 1998.
1. Approximate noise level when vibration spectrum peak is near 30 hertz (Hz).
2. Approximate noise level when vibration spectrum peak is near 60 Hz.

Among the factors listed above, there are substantial differences in the vibration characteristics when the source is underground compared to when it is at ground surface. In addition, soil conditions are known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Experience with groundborne vibration is that vibration propagation is more efficient in stiff clay soils than in loose sandy soils, and shallow rock seems to concentrate the vibration energy close to the surface and can result in groundborne vibration problems at far distances from a rail track. Factors such as layering of the soil and depth to water table can have substantial effects on the propagation of groundborne vibration. Soft, loose, sandy soils tend to attenuate more vibration energy than hard, rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils.

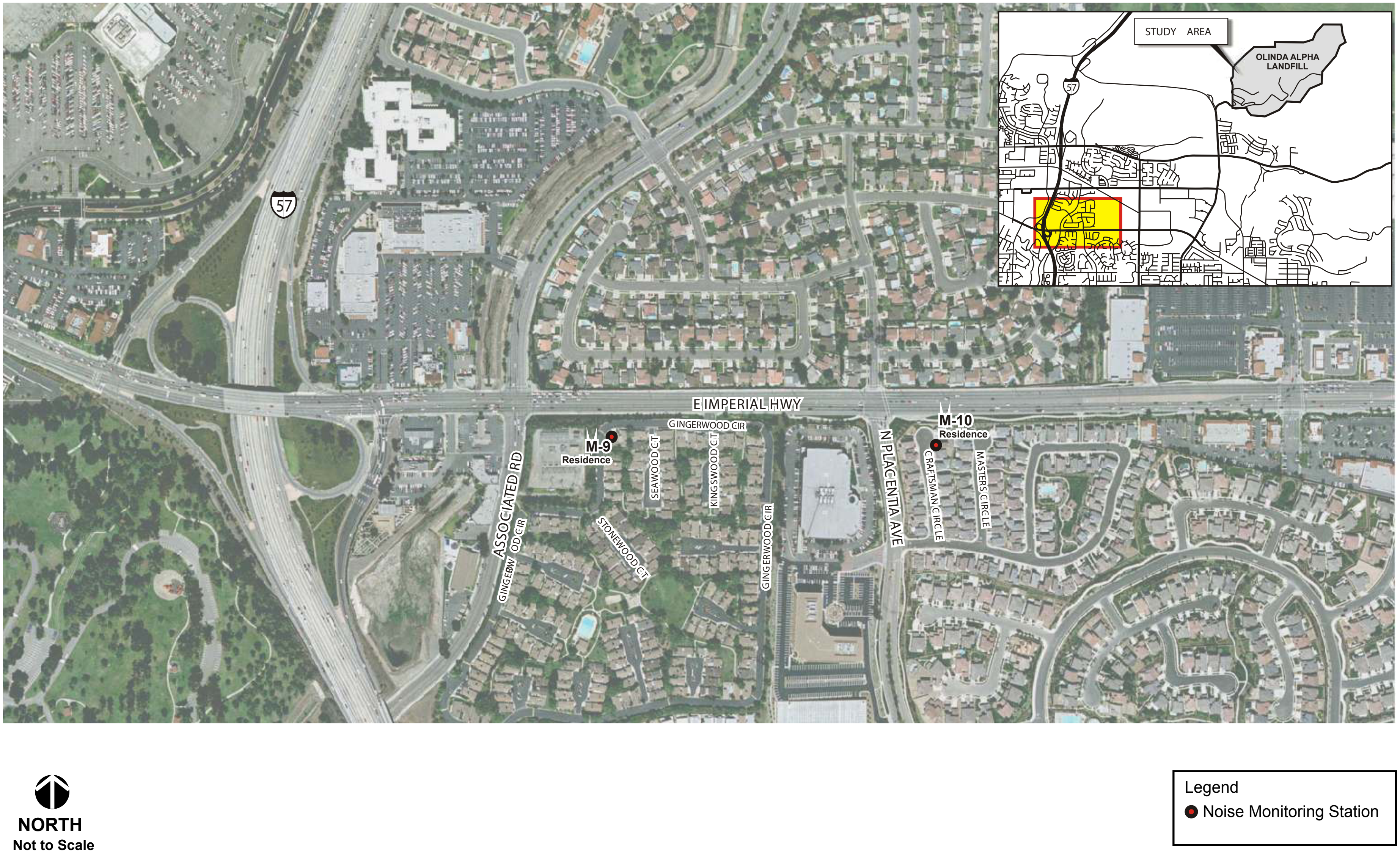
5.7.1.2 Existing Noise Levels

Eleven locations were surveyed on and adjacent to the existing Olinda Alpha Landfill and included noise measurements at the project site and adjacent to nearby existing and planned future noise sensitive receptors as seen in Figures 5.7-1A, 5.7-1B and 5.7-1C. On-site noise measurements were conducted to quantify noise levels from existing landfill operations, while the off-site measurements focused on ambient noise conditions at nearby existing and planned residential uses. Table 5.7-5 lists the measured ambient noise levels on the landfill property which were dominated by the landfill-related operations, and off-site areas which were dominated by existing vehicular traffic. Light aircraft noise was found to be an occasional contributor to the noise environment, both on and off-site. Noise from on-site landfill activities was not audible at nearby existing and planned future residences during the noise survey.



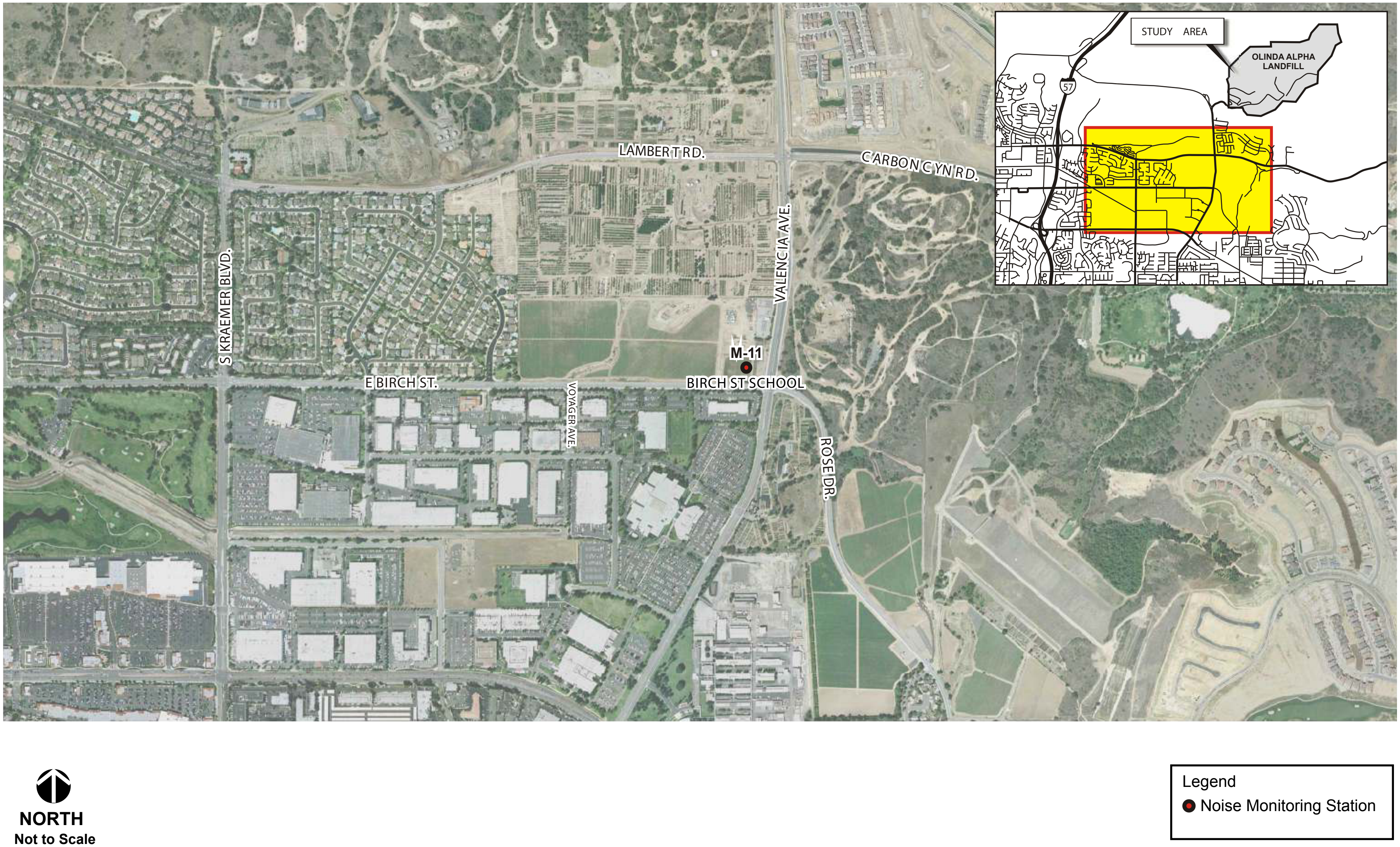
Source: LSA and Eagle Aerial (2004).

Figure 5.7-1A
Noise Monitoring Locations



Source: LSA and Eagle Aerial (2004).

Figure 5.7-1B
Noise Monitoring Locations



Source: LSA and Eagle Aerial (2004).

Figure 5.7-1C
Noise Monitoring Locations

TABLE 5.7-5
AMBIENT NOISE LEVELS ON AND ADJACENT TO OLINDA ALPHA LANDFILL IN DBA

Receptor Location/Date	L_{eq}	L_{max}	L_2	L_8	L_{25}	L_{50}
M-1/2-5-04	69.8	87.3	77.3	73.5	70.2	66.0
M-2/2-5-04	71.9	84.0	78.4	76.5	72.5	69.6
M-3/2-5-04	76.6	88.6	82.6	79.6	76.9	75.3
M-4/2-5-04	59.8	71.4	65.8	64.0	61.8	57.1
M-5/2-5-04	52.3	66.2	61.0	57.8	50.6	47.3
M-6/2-5-04	67.8	69.7	69.1	68.7	68.2	67.7
M-7/2-10-04	50.6	62.2	58.9	54.5	50.5	47.0
M-8/2-10-04	55.0	68.2	59.8	57.5	55.5	53.7
M-9/2-10-04	59.1	69.0	64.8	62.8	59.8	57.5
M-10/2-10-04	58.4	71.0	63.8	62.2	59.9	55.9
M-11/2-27-04	65.0	76.3	724	69.9	64.9	62.3

Source: LSA Associates, Inc., February 5 and 10, 2004.

The existing on-site noise levels are relatively high in areas close to where active landfill activities occur (M-1, M-2, M-3 and M-6) and moderate in areas at a greater distance from these activities (M-4 and M-5). Off-site noise levels are low in areas away from major arterials (M-7) and moderate in areas adjacent to major roads (M-8, M-9, M-10 and M-11). The residences are shielded acoustically from the landfill by several ridgelines. Noise that may be discernable from the landfill by residents may include distant "cracker shell" (i.e., gun shot) noise which is used by the landfill operators as a bird deterrent in the tipping and filling area as well as from flares and the gas-to-energy plant.

Existing Noise Control

Site operations are conducted in compliance with Cal-OSHA regulations. Noise levels of on-site equipment are controlled by installation and proper maintenance of mufflers on all motorized vehicles. Noise from on-site operations is not likely to create a health hazard for persons using the site due to their limited exposure. Site personnel are provided with earplugs to reduce potential impacts from continued exposure to on-site noise levels.

The site's physical setting minimizes the majority of the noise resulting from landfill operations. Natural canyon topography acts to shield noise generated by routine operations at the landfill.

5.7.1.3 Existing Vehicular Traffic Noise

Table 5.7-6 lists the calculated traffic noise levels along road segments in the vicinity of existing Olinda Alpha Landfill. Highway traffic related noise conditions along Valencia Avenue, Carbon Canyon Road, Imperial Highway, Lambert Road, Birch Street and Rose Drive were evaluated. Table 5.7-6 shows that noise levels along most road segments in the project vicinity are high. The noise contour for the specified CNEL is expressed as distance from the centerline in each direction of the road segment.

TABLE 5.7-6
EXISTING TRAFFIC NOISE LEVELS

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Outermost Lane
Valencia Avenue					
North of Santa Fe Avenue	3,940	51	110	236	69.4
Carbon Canyon Road to Santa Fe Avenue	5,340	53	113	244	69.6
Between Birch Street and Carbon Canyon Road	18,370	75	158	338	70.7
Between Imperial Highway and Birch Street	11,800	57	118	252	68.8
Imperial Highway					
Between SR 57 and Associated Road	58,800	186	397	854	75.9
Between Associated Road and Kraemer Boulevard	45,030	157	333	715	74.8
Between Kraemer Boulevard and Valencia Avenue	44,550	154	330	710	75.5
East of Valencia Avenue	38,580	140	300	645	74.9
Carbon Canyon Road					
East of Valencia Avenue	18,180	54	112	239	68.4
Lambert Road					
West of Valencia Avenue	17,900	74	155	332	70.6
Between SR 57 and Associated Road	45,100	133	285	614	74.6
Birch Street					
West of Valencia Avenue	12,450	41	88	186	66.8
Rose Drive					
East of Valencia Avenue	17,010	50	107	229	68.1

Source: LSA Associates, Inc., February 2004.

<u>Traffic Noise Monitoring Conducted for the Proposed Birch Intermediate School</u>

This proposed intermediate school is located directly adjacent to Birch Street, but is approximately 1,645 feet from the edge of Valencia Avenue, separated by a sports park. The proposed intermediate school will have classroom buildings and an outdoor sports activity area adjacent to Birch Street.

Ambient noise monitoring was conducted near the proposed Birch Intermediate School (LSA, February 27, 2004). The noise monitoring was conducted from 8:26 AM to 8:41 AM at a location on the northwest corner of the intersection of Birch Street and Valencia Avenue, approximately 45 feet from the centerline of both streets. The monitored results are as follows: 65 dBA L_{eq}, 76.3 dBA L_{max}, 49.3 dBA L_{min}, 72.4 dBA L_2, 69.9 dBA L_8, 64.9 dBA L_{25} and 62.3 dBA L_{50}. Vehicular traffic, including heavy trucks, on Valencia Avenue contributed to most of the ambient noise, with a minor contribution from traffic on Birch Street.

5.7.2 THRESHOLDS OF SIGNIFICANCE

A project will normally have a significant effect on the environment related to noise if it will substantially increase the ambient noise levels for adjoining areas or conflict with adopted environmental plans and goals of the community in which it is located. The applicable noise standards governing the project site are the criteria in the County's GP Noise Element and its Noise Ordinance. Because the project site is adjacent to residences in the City of Brea, the City's noise standards are also discussed in this analysis.

5.7.2.1 County of Orange

General Plan Noise Element

The Noise Element of the County of Orange GP includes noise standards for mobile noise sources. These standards address the impacts of noise from adjacent roads and airports. The County specifies outdoor and indoor noise limits for residential uses, places of worship, educational facilities, hospitals, hotels/motels, commercial and other land uses. The noise standard for exterior living areas is 65 dBA CNEL. The County prohibits new residential uses within the 65 dBA CNEL contour from any airport or air station. Non-residential noise sensitive uses, such as hospitals, rest homes, convalescent hospitals, places of worship and schools, will not be permitted within the 65 dBA CNEL area from any source unless appropriate mitigation measures are included such that the standards in the Noise Element and in appropriate state and federal codes are met. The indoor noise standard is 45 dBA CNEL, which is consistent with the California Noise Insulation Standard. The County also enforces building sound transmission and indoor air ventilation requirements specified in Chapter 35 of the Uniform Building Code. However, for commercial uses, the County only specifies interior noise standards in terms of the hourly L_{eq}.

Noise Ordinance

The County's Noise Control Ordinance states that exterior noise levels for residential properties shall not exceed the basic noise standard of 55 dBA between the hours of 7:00 AM and 10:00 PM and shall not exceed 50 dBA between the hours of 10:00 PM and 7:00AM, plus the following limits:

- Basic noise level for a cumulative period of not more than 30 minutes in any 1 hour; or
- Basic noise level plus 5 dBA for a cumulative period of not more than 15 minutes in any 1 hour; or
- Basic noise level plus 10 dBA for a cumulative period of not more than 5 minutes in any 1 hour; or
- Basic noise level plus 15 dBA for a cumulative period of not more than 1 minutes in any 1 hour; or
- Basic noise level plus 20 dBA for any period of time.

The basic interior noise standard for residential uses is set as 45 dBA between 10:00 PM and 7:00 AM, and 55 dBA between 7:00 AM and 10:00 PM, plus the following limits:

- Basic noise level for a cumulative period of not more than five minutes in any one hour; or
- Basic noise level plus five dBA for a cumulative period of not more than one minute in any one hour; or

- Basic noise level plus 10 dBA for any period of time.

5.7.2.2 City of Brea

Noise Element of the General Plan

The City's GP Noise Element states that "The City will use land use compatibility standards when planning and making development decisions in order to ensure that noise producers do not adversely affect sensitive receptors." The Noise Element also indicates that "Contours of 60 dBA (CNEL) or greater define noise impact areas." Based on the Noise/Land Use Compatibility chart in the Noise Element, residential uses are normally acceptable in areas up to 60 dBA CNEL, conditionally acceptable in areas between 60 and 65 dBA CNEL, normally unacceptable in areas from 65 to 75 dBA CNEL, and clearly unacceptable in areas above 75 dBA CNEL.

5.7.2.3 California Department of Transportation

The California Department of Transportation has established a significance threshold in their Noise Abatement Criteria (NAC) within their Traffic Noise Analysis Protocol. The NAC for interior school noise is 52 dBA Leq. This is an hourly noise standard for which noise abatement must be evaluated if noise levels exceed this NAC.

5.7.2.4 Vibration Impact Criteria

The criteria for environmental impact from ground-borne vibration and noise are based on the maximum levels for a single event. Because there are no adopted vibration thresholds for areas adjacent to highways, vibration criteria recommended for areas adjacent to railroad tracks by the FTA and Federal Railroad Administration (FRA) are listed below as guidelines.

Federal Transit Administration and Federal Railroad Administration

Both the FTA in its Transit Noise and Vibration Impact Assessment (FTA, April, 1995) and the FRA in its High-Speed Ground Transportation Noise and Vibration Impact Assessment (FRA, December, 1998) included ground-borne vibration and noise impact criteria guidance, as shown in Table 5.7-7. The criteria in Table 5.7-7 account for variation in project types as well as the frequency of events, which differ widely among projects, by distinguishing between projects with frequent and infrequent events, where frequent events is defined as more than 70 events per day.

5.7.3 METHODOLOGY RELATED TO NOISE AND VIBRATION

The evaluation of noise impacts associated with the proposed project included:

- Determine the short term construction and long term on-site operational noise and vibration impacts on off-site noise sensitive uses. This was based on published noise emission data of construction equipment and use of calculations to account for distance attenuation between the source of the noise and the receiver. Vibration impacts were assessed based on methodologies developed by the Federal Transit Administration.

TABLE 5.7-7
GROUND-BORNE VIBRATION AND NOISE IMPACT CRITERIA

Land Use Category	Ground-Borne Vibration Impact Levels (VdB re 1 micro inch/sec)		Ground-Borne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent[1] Events	Infrequent[2] Events	Frequent[1] Events	Infrequent[2] Events
Category 1: Buildings where low ambient vibration is essential for interior operations.	65 VdB[3]	65 VdB[3]	B[4]	B[4]
Category 2: Residences and buildings where people normally sleep.	72 VdB	80 VdB	35 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	83 VdB	40 dBA	48 dBA

Source: Federal Transit Administration (1995).
1. Frequent Events is defined as more than 70 events per day.
2. Infrequent Events is defined as fewer than 70 events per day.
3. This criterion is based on levels that are acceptable for most moderately-sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the heating, ventilation and cooling (HVAC) systems and stiffened floors.
4. Vibration-sensitive equipment is not sensitive to ground-borne noise.

- Determine the long term noise and vibration impacts, including refuse truck traffic, on off-site uses. The FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate highway traffic-related noise conditions in proximity to the project site. Vibration impacts were assessed based on methodologies developed by the Federal Transit Administration. The noise modeling for the project is based on the Community Noise Equivalent Level (CNEL) noise metric which takes into account increased noise sensitivity to the different portions of the day by penalizing noise by 10 dB which occurs from 10 p.m. to 7 a.m. and by 5 dB from 7 p.m. to 10 p.m. These noise levels based on CNEL were then evaluated against the City's noise compatibility for land uses.

- Determine the required mitigation measures to reduce long term noise and vibration impacts from all sources if necessary.

5.7.4 POTENTIAL IMPACTS

5.7.4.1 Short Term Construction Related Impacts

The proposed project may require that additional buildings and structures be constructed at the Olinda Alpha Landfill and may include additional LFG control facilities. The existing surface water drainage systems, LFG collection and control systems, and LCRS will be expanded, as necessary, and a prescriptive or alternative liner and subdrain system for the lateral expansion will accommodate the proposed expansion of the landfill operations. Because the proposed horizontal expansion area is in the northeast part of the existing landfill property, it is farther from existing and planned residences in the project vicinity than the existing landfilling areas. Noise levels from construction activities on the project site would be below 50 dBA L_{max} at the nearest residences for very limited times. Construction-related noise impacts from the proposed project would comply with the County's Noise Control Ordinance and would be less than significant.

Short term noise impacts would be associated with excavation, grading and backfilling to construct the prescriptive or alternative liner and subdrain systems, surface water drainage systems, LFG collection and control systems, and LCRS during construction of the proposed project. Construction related short term noise levels would be higher than existing ambient noise levels in the project area but would no longer occur once construction was completed.

Because the project does not propose an increase in daily tonnage rates, the equipment used for daily landfill operations will also be used during the expansion operations. Therefore, there will be no need to transport additional construction equipment to the landfill for daily operations. Landfill operations occur in discrete areas which move from day to day and consequently, create their own noise characteristics. These phases would change the character of the noise generated on-site and, therefore, the noise levels surrounding the site as operations progress. Despite the changing location of landfill equipment, similarities in the dominant noise sources and patterns of operation allow operation-related noise ranges to be categorized by work phase. Table 5.7-8 lists typical construction equipment noise levels recommended for noise impact assessments based on a distance of 50 feet between the equipment and a noise receptor. Typical noise levels range up to 91 dBA L_{max} at 50 feet during the noisiest construction phases. The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backhoes, bulldozers and front loaders. Earthmoving and compacting equipment includes compactors, scrapers and graders. Typical operating cycles for these types of construction equipment may involve one or two minutes of full-power operation followed by three or four minutes at lower power settings.

Construction of the proposed project improvements is expected to require the use of earthmovers, bulldozers, and water and pickup trucks. Based on the information in Table 5.7-8, the maximum noise level generated by each earthmover or bulldozer is assumed to be 88 dBA L_{max} at 50 feet from the earthmover. The maximum noise level generated by water and pickup trucks is approximately 86 dBA L_{max} at 50 feet from these vehicles. Each doubling of the sound source with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates at some distance from the other equipment, the worst case combined noise level during this phase of construction would be 91 dBA L_{max} at a distance of 50 feet from the active construction area.

TABLE 5.7-8
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

Type of Equipment	Range of Maximum Sound Levels Measured (dBA at 50 feet)	Suggested Maximum Sound Levels for Analysis (dBA at 50 feet)
Pile Drivers, 12,000 to 18,000 ft-lb/blow [1]	81 to 96	93
Rock Drills	83 to 99	96
Jack hammers	75 to 85	82
Pneumatic Tools	78 to 88	85
Pumps	74 to 84	80
Dozers	77 to 90	85
Scrapers	83 to 91	87
Haul Trucks	83 to 94	88
Cranes	79 to 86	82
Portable Generators	71 to 87	80
Rollers	75 to 82	80
Tractors	77 to 82	80
Front-End Loaders	77 to 90	86
Hydraulic Backhoe	81 to 90	86
Hydraulic Excavators	81 to 90	86
Graders	79 to 89	86
Air Compressors	76 to 89	86
Trucks	81 to 87	86

Source: Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman 1987.
1. foot-pound per blast of air.

The nearest noise sensitive uses to the landfill property are those to the southwest approximately 4,500 feet from the proposed expansion area, which would provide a 39 dBA noise reduction by distance divergence alone. In addition, the intervening ridgeline between the expansion area and the off-site residences acts as a barrier and provides a minimum 5 dBA reduction. Therefore, these nearest off-site residences may be subject to short term intermittent maximum noise reaching 47 dBA L_{max}, generated by construction activities on the landfill property. This range of construction noise levels would be below the County's 75 dBA L_{max} for daytime hours and 70 dBA L_{max} for nighttime hours. They would also be lower than the 55 dBA L_{50} for daytime hours and 50 dBA L_{50} for nighttime hours in the nearest residential areas. In addition, on-site construction activity would comply with the County's Noise Control Ordinance requirements. Therefore, project related construction noise impacts would be less than significant.

5.7.4.2 Long Term on-site Stationary Noise Impacts

The proposed landfill expansion area is in the northeast part of the landfill property. Tipping/filling activities generate approximately 88.6 dBA L_{max} at a distance of 50 feet. Scraping and bulldozing activities generate approximately 84 dBA L_{max} at a distance of 100 feet or approximately 90 dBA L_{max} at a distance of 50 feet. Power plant-related operations generate approximately 69.7 dBA L_{max} at a distance of 50 feet. The nearest residences are more than 1,590 feet from the power plant and 4,500 feet from the tipping/filling area in the proposed expansion area. Distance divergence alone would provide these residences a minimum of 30 and 39 dBA, respectively, in noise attenuation. The intervening ridgelines would provide an additional noise reduction of 5 dBA or more. Therefore, noise associated with power plant operations on the landfill property would be reduced to 35 dBA L_{max} or lower. Noise associated with landfill activities (including the cracker shell noise) in the proposed expansion area would be reduced to 46 dBA L_{max} or lower. This range of noise levels would be lower than the County's and the City of Brea's Noise Ordinances maximum noise levels for daytime and nighttime periods. This range of noise levels is also lower than the County's and the City of Brea's Noise Ordinances medium (L_{50}) noise levels for daytime and nighttime periods. In addition, in the neighborhood of these residences, this range of noise would be below the existing traffic and other community noises combined. No significant stationary noise impact from the proposed project would occur. No mitigation measures are required.

5.7.4.3 Long Term Traffic Noise Impacts

The proposed project would result in the continuation of landfill-related vehicular trips to and from Olinda Alpha Landfill. Along road segments with existing and/or projected heavy volumes of traffic, project-related traffic would not contribute to significant changes in the traffic noise levels. Along road segments with relatively low traffic volumes, there would be a higher percentage of traffic from project-related vehicle trips. Although traffic noise along these less traveled road segments would be much lower than those road segments which are more heavily traveled, project-related traffic noise impacts would be potentially significant due to the high percentage of truck traffic.

Based on the traffic study prepared for this project, the proposed project would generate 2,168 daily vehicle trips. These trips would be distributed to Valencia Avenue, Imperial Highway, Lambert Road and SR 57. The Federal Highway Administration (FHWA) highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate highway traffic related noise conditions along Valencia Avenue, Imperial Highway, Lambert Road, Birch Street, Rose Drive and Carbon Canyon Road in the vicinity of Olinda Alpha Landfill. The standard vehicle mix for Orange County roads was used for traffic on Carbon Canyon Road, Birch Street and Rose Drive. The traffic mix along Imperial Highway in the project area included in Caltrans Annual Average Daily Truck Traffic on the California State Highway System was used for Imperial Highway and Lambert Road. Truck percentages on Valencia Avenue were increased based on the daily vehicular trips related to landfill operations. The modeled 24-hour CNEL levels are shown in Tables 5.7-9 and 5.7-10. These noise levels represent the worst case scenario, which assumes no shielding is provided between the traffic and the location where the noise contours are drawn.

Table 5.7-9 shows that traffic noise along road segments in the project vicinity under the future baseline (no project) scenario would continue to be relatively high, except along Valencia Avenue and Birch Street. Table 5.7-10 shows that project-related traffic noise level increases would be small (3 dBA or less) and would not be perceptible to the human ear along most of the road segments in the project vicinity, except along Valencia Avenue north of Carbon Canyon Road leading to the landfill. Along this segment of Valencia Avenue, landfill-related traffic accounts for approximately half of the daily traffic volume. Without the truck-dominated landfill traffic, noise along this segment of Valencia Avenue would be approximately 11 to 12 dBA lower compared to the levels with landfill traffic included.

TABLE 5.7-9
FUTURE BASELINE (NO PROJECT) TRAFFIC NOISE LEVELS

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Outermost Lane
Valencia Avenue					
North of Santa Fe Avenue	2,675	< 50 [1]	< 50	< 50	58.5
Carbon Canyon Road to Santa Fe Avenue	2,675	< 50	< 50	< 50	58.5
Between Birch Street and Carbon Canyon Road	20,026	58	119	255	68.8
Between Imperial Highway and Birch Street	10,078	< 50	77	162	65.8
Imperial Highway					
Between SR 57 and Associated Road	59,496	188	400	861	76.0
Between Associated Road and Kraemer Boulevard	48,496	165	350	751	75.1
Between Kraemer Boulevard and Valencia Avenue	48,389	163	349	751	75.9
East of Valencia Avenue	44,764	155	331	713	75.5
Carbon Canyon Road					
East of Valencia Avenue	38,965	87	185	396	71.7
Lambert Road					
West of Valencia Avenue	35,684	82	174	374	71.3
Between SR 57 and Associated Road	47,684	99	211	453	72.6
Birch Street					
West of Valencia Avenue	17,000	< 50	107	229	68.1
Between SR 57 and Associated Road	28,000	71	149	318	70.3
Rose Drive					
East of Valencia Avenue	21,949	61	127	271	69.2
SR 57					
North of Lambert Road	330,557	1,059	2,280	4,911	86.7
Imperial Highway to Lambert Road	317,473	1,031	2,220	4,780	86.5
South of Imperial Highway	316,827	1,030	2,217	4,774	86.5

Source: LSA Associates, Inc., February 2004.
1. Traffic noise within 50 feet of road centerline requires site-specific analysis.

TABLE 5.7-10
FUTURE WITH PROJECT TRAFFIC NOISE LEVELS

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Outermost Lane	Increase from Baseline Level, dBA
Valencia Avenue						
North of Santa Fe Avenue	5,000	60	129	277	70.5	12.0
Carbon Canyon Road to Santa Fe Avenue	5,000	51	108	233	69.3	10.8
Between Birch Street and Carbon Canyon Road	22,000	84	177	381	71.5	2.7
Between Imperial Highway and Birch Street	12,000	58	119	254	68.8	3.0
Imperial Highway						
Between SR 57 and Associated Road	61,000	191	407	875	76.1	0.1
Between Associated Road and Kraemer Boulevard	50,000	168	357	767	75.2	0.1
Between Kraemer Boulevard and Valencia Avenue	50,000	166	357	767	76.0	0.1
East of Valencia Avenue	45,000	155	332	715	75.6	0.1
Carbon Canyon Road						
East of Valencia Avenue	39,000	87	185	397	71.7	0.0
Lambert Road						
West of Valencia Avenue	36,000	83	175	376	71.4	0.1
Between SR 57 and Associated Road	48,000	100	212	455	72.6	0.0
Birch Street						
West of Valencia Avenue	17,000	< 50	107	229	68.1	0.0
Between SR 57 and Associated Road	28,000	71	149	318	70.3	0.0
Rose Drive						
East of Valencia Avenue	22,000	61	127	271	69.2	0.0
SR 57						
North of Lambert Road	331,000	1,060	2,282	4,915	86.7	0.0
Imperial Highway to Lambert Road	318,000	1,032	2,222	4,786	86.5	0.0
South of Imperial Highway	318,000	1,032	2,222	4,786	86.5	0.0

Source: LSA Associates, Inc., February 2004.

However, residences along this segment of Valencia are protected by an existing six-foot sound wall and, are not exposed to outdoor noise levels exceeding the 65 dBA CNEL standard. Without landfill traffic, residences along Valencia Avenue north of Carbon Canyon Road would be exposed to noise levels lower than the 53 dBA CNEL. With landfill traffic, these frontline residences would be exposed to traffic noise lower than 65 dBA CNEL (with a 6-foot sound wall). Though the project will not increase noise above existing conditions or the 65 dBA CNEL standard because it would not change the volume of traffic as it is occurring in 2004, the continuation of landfill activities due to the project at 2013 would result in a 12 dBA increase above the no project scenario. As such, the 12 dBA increase in noise is considered substantial and is a potentially significant adverse impact related to long term transportation noise. This applies particularly for residential development along Valencia Avenue north of Carbon Canyon Road approved before the proposed expansion approval but not built until after 2013.

The proposed project will not increase the rate of daily traffic compared to existing conditions and thus will not increase noise levels on the roads leading to the project site beyond those currently experienced. The nearest existing and planned residential uses are located adjacent to Valencia Avenue and Carbon Canyon Road. Valencia Avenue is the existing access road to and from Olinda Alpha Landfill. The City of Brea, as the lead agency for this nearby residential development project, has placed noise standards on the developer of the residential project as a condition of approval. Noise abatement measures such as landscaped berms or sound walls have been or will be constructed as necessary to ensure that noise levels for all low- and medium-density residential property will not exceed 65 dBA CNEL. There is an existing six-foot tall sound wall along Valencia Avenue for existing residences in this area. In addition, future residential development anticipated to be built before 2013 near the landfill property will be mitigated for noise from traffic on local roads. For future residences along Valencia Avenue that will be built between 2013 and 2021 and have outdoor active use areas within the 65 dBA CNEL impact area as shown in Table 5.7-10, a sound wall is required along the property line.

However, trucks passing by would result in relatively high single event noise exposure levels at residences along the access roads leading to the landfill property, including Imperial Highway, Lambert Road and Valencia Avenue. Although the single event noise exposures would cause annoyance to residences along these access roads, the noise impacts would not be considered significant based on the County's and City of Brea's long term noise standards for transportation related noise.

Potential Noise from Vehicular Traffic on the Proposed Birch Intermediate School

As shown in Table 5.7-10, the 70, 65 and 60 dBA CNEL noise contours would extend to 84, 177 and 381 feet, respectively, from the centerline of Valencia Avenue. Taking into account the greater distance of the school location, the proposed school site would be exposed to traffic noise up to 50 dBA CNEL from Valencia Avenue, when no manmade or natural intervening barrier exists. This range of traffic noise levels is much lower than the 65 dBA CNEL normally acceptable exterior noise standard for school uses. Standard building attenuation in southern California would reduce the exterior noise by 12 dBA with windows open and by 24 dBA with windows closed. Therefore, with windows closed, traffic noise on Valencia Avenue would be reduced to 26 dBA CNEL. With windows open, this noise is reduced to 38 dBA CNEL. This range of noise levels is lower than the 24-hour daily 45 dBA CNEL noise level normally acceptable inside classrooms.

Heavy duty refuse/waste trucks would result in approximately 89 dBA L_{max} when passing by at a distance of 50 feet. At 1,645 feet, this maximum noise level associated with refuse/waste trucks would be reduced to 59 dBA L_{max} from distance attenuation alone (point sources receive 6 dBA noise reduction per doubling of the distance from the source). This maximum noise level is lower than traffic noise on Birch Street and would be reduced further inside the classrooms or other noise-sensitive buildings on the school site. Therefore, with windows closed, refuse/waste truck noise on Valencia Avenue would be reduced to 35 dBA L_{max}. With windows open, this noise is reduced to 47 dBA L_{max}. This range of maximum noise levels is lower than the 70 dBA Lmax maximum noise level or the Caltrans 52 dBA Leq noise level normally acceptable inside classrooms. As such, noise from vehicle traffic along Valencia Avenue would be below both the 24-hour average daily interior noise standard of 45 dBA CNEL and Caltrans hourly average of 52 dBA and would not represent a significant noise impact to classroom interior noise levels.

As shown in Table 5.7-10, the 65 and 60 dBA CNEL noise contours would extend to 107 and 229 feet, respectively, from the centerline of Birch Street. Therefore, the proposed school site would be exposed to traffic noise up to 65 dBA CNEL from Birch Street, when no manmade or natural intervening barrier exists. The proposed intermediate school would place staff and visitor parking along the southern perimeter of the site along Birch Street. This layout would minimize traffic noise impact from Birch Street on classrooms. Noise impacts from Birch Street traffic would need to be evaluated for the proposed intermediate school outdoor activity areas when the school site plan is available. However, because no landfill related truck traffic is permitted to use Birch Street, no landfill related off-site traffic noise impacts would occur on the proposed intermediate school site.

Potential Noise from On-Site Landfill Operations on the Proposed Birch Intermediate School

The proposed intermediate school is approximately 4,300 feet from the residences near Sandpiper Way, the residences nearest the landfill site. These residences are more than 4,250 feet from the landfill expansion area in the northeastern part of the landfill. Therefore, noise associated with daily landfill operations would be attenuated by more than 40 dBA at these residences. The Birch Intermediate School is located much further away than these residences. Intervening terrain (local ridgelines) and manmade structures between the school site and the landfill expansion area would provide additional noise attenuation. Due to the large distance between the proposed school and landfill activities, no landfill noise would be perceived at the school site. No significant noise impacts would occur due to the landfill expansion project.

5.7.4.4 Vibration Impacts

On-Site Construction and Landfill Related Activities

The proposed project would result in the continued landfilling operations in the expansion area in the northeast part of the landfill property. The proposed project does not propose blasting or pile driving during construction. Groundborne vibration from on-site construction and landfill related activities would be mostly low to moderate, and would not be perceptible at any off-site sensitive receptor locations.

Construction Vibration

Bulldozers and other heavy-tracked construction/landfill equipment generates approximately 92 VdB of groundborne vibration when measured at 50 feet, based on the Transit Noise and Vibration Impact Assessment (FTA, April 1995). This level of groundborne vibration exceeds the threshold of human perception, which is around 65 VdB. Based on the Caltrans Transportation Related Earthborne Vibration, Technical Advisory (Rudy Hendricks, July 24, 1992), vibration level at 100 feet is approximately 6 VdB lower than the vibration level at 50 feet. Vibration at 200 feet from the source is more than 6 VdB lower than the vibration level at 100 feet, or more than 12 VdB lower than the vibration level at 50 feet. Therefore, the nearest residences to the landfill, which are located 1,590 feet from the construction activity, may be exposed to groundborne vibration up to 62 VdB. This level of vibration is lower than the human perception threshold of 65 VdB for buildings where low ambient vibration is essential for interior operations. No annoyance at the nearest residences or any damage to the buildings would occur from on-site construction and landfill related activities.

<u>On Road Truck Vibration</u>

The proposed project would result in the continuation of truck traffic to and from Olinda Alpha Landfill on access roads leading to the landfill property from 2013 to 2021. Because the rubber tires and suspension systems of refuse trucks and other on road vehicles provide vibration isolation, it is unusual for on road vehicles to cause groundborne noise or vibration problems. When on road vehicles cause effects such as rattling of windows, the source is almost always airborne noise. Most problems with on road, vehicle related vibration can be directly related to a pothole, bump, expansion joint or other discontinuity in the road surface. Smoothing the bump or filling the pothole will usually solve the problem. In addition, maximum highway truck traffic vibration levels would be approximately 0.06 inches per second at 25 feet, or 60 VdB (Caltrans Technical Advisory, 1992). In the project area, there are no residences within 25 feet of a roadway centerline along the travel routes for trucks to the landfill site. Therefore, levels of vibration are below the threshold of human perception and no vibration impacts would occur

5.7.5 MITIGATION MEASURES

5.7.5.1 Construction Impacts

Although construction of the proposed expansion project would not result in significant adverse short term noise impacts, the following measures will further reduce short term construction related noise levels.

N-1 During all project site excavation and grading, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.

N-2 The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the active construction areas.

N-3 The construction contractor shall locate equipment staging in areas to result in the greatest distance between construction related noise sources and noise sensitive receptors nearest the active construction areas during all project construction.

N-4 The construction contractor shall restrict all construction-related activities that would result in high noise levels between the hours of 8:00 PM and 7:00 AM on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

5.7.5.2 Traffic Noise Impacts

N-5 For residential units on Valencia Avenue north of Carbon Canyon Road which are approved prior to any approval of an expansion at Olinda Alpha Landfill, which are constructed and occupied before 2013 and which would be impacted by 65 dBA CNEL or higher traffic noise, the County of Orange IWMD will contribute a fair share to a road noise reduction program for these residences, if such a program is implemented by the City of Brea. This program could potentially implement a variety of road noise reduction measures which may include reduction in road speeds on the segment of Valencia Avenue north of Carbon Canyon Road, construction of sound walls adjacent to the affected residences and/or installation of rubberized asphalt concrete on Valencia Avenue north of Carbon Canyon Road.

5.7.5.3 Vibration Impacts

No mitigation measures are required for vibration impacts.

5.7.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Identified construction related mitigation measures will further reduce noise even though impacts are not considered significant. Therefore, construction noise impacts are less than significant. With implementation of the identified mitigation measure, potential long term noise impacts associated with traffic would be reduced to below the level of significance.

5.8 AESTHETICS

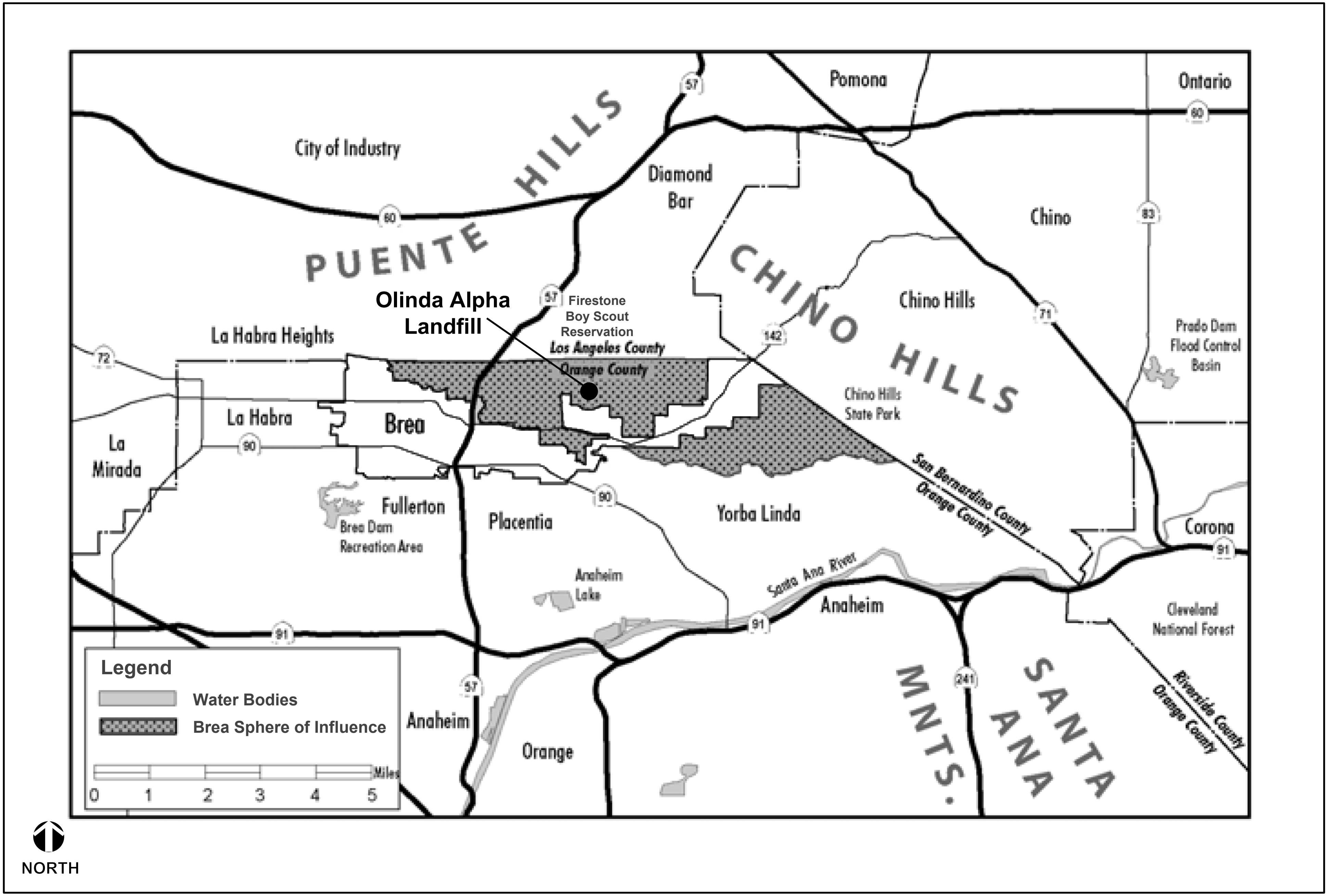
5.8.1 EXISTING CONDITIONS

5.8.1.1 Existing Views

Olinda Alpha Landfill is in unincorporated Orange County, north of the City of Brea jurisdictional boundary but within the City's SOI, as shown on Figure 5.8-1. The landfill is east of SR 57, north of State Route (SR 91), south of the Los Angeles/Orange County line and west of the San Bernardino/Orange County line. Cities and jurisdictions within three miles of the landfill include unincorporated Los Angeles County to the north and northwest; Diamond Bar to the north beyond unincorporated Los Angeles County; Chino Hills to the northeast and east in San Bernardino County; Brea to the south, southeast and southwest; Yorba Linda to the south and southeast beyond Brea; and Placentia and Fullerton to the southwest beyond Brea. The landfill property covers approximately 565 acres with approximately 420 acres currently permitted for refuse disposal under the existing permit. The 420 acres have been graded and/or excavated for landfill purposes and most of the area has been filled with MSW, covered and in some areas vegetated. The currently permitted height of the landfill is 1,300 feet. At this time, the highest elevation within the active landfill area is approximately 1,240 feet in the northeast part of the site.

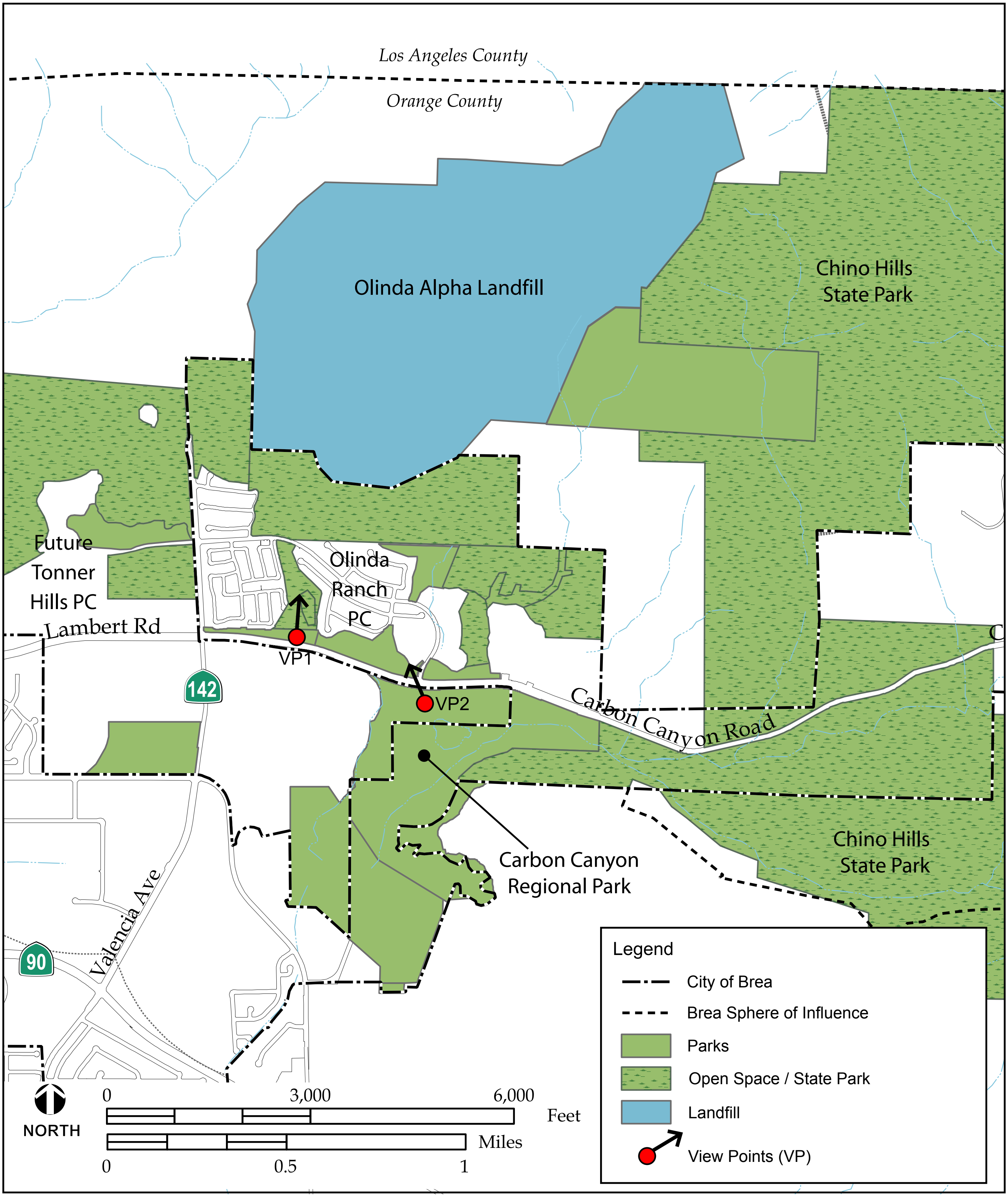
Existing land uses in the vicinity of the landfill include petroleum extraction activities (and associated infrastructure including active and abandoned well rigs, pipelines and storage facilities), industrial, park and residential uses. The Firestone Boy Scout Reservation in the County of Los Angeles is north of the landfill property, as shown on Figure 5.8-1. Chino Hills State Park is east and southeast of landfill property. Olinda Ranch PC abuts the south edge of the landfill property and Carbon Canyon Regional Park is southeast of the landfill, south of Carbon Canyon Road, as shown on Figure 5.8-2. The future Tonner Hills PC, west of the landfill, north of Lambert Road, will include 789.8 acres of residential, open space, recreational, public/institutional and mixed uses. Approximately 684.2 acres of this PC are east of SR 57 and approximately 105.6 acres are west of SR 57. A 55-lot, single family residential development is proposed west of the landfill property, north of Lambert Road between Kraemer Boulevard and Valencia Avenue and just south of the future Tonner Hills PC. Existing single family residences are located further to the south of Olinda Alpha Landfill in the Cities of Fullerton, Brea and Yorba Linda.

The landfill property, including an on-site soil stockpile and some existing graded and filled areas, is visible from the following locations where topography, vegetation or structures do not obstruct views: points along SRs 55, 57 and 91; points along Lambert Road and Carbon Canyon Road; Carbon Canyon Regional Park; areas in the west part of Chino Hills State Park north and south of Carbon Canyon Road; and areas in the Firestone Boy Scout Reservation. Residential areas in the south part of Diamond Bar have views of the soil stockpile and some operational traffic on the landfill property. The landfill is also visible from some points within residential areas south of the landfill property including areas in Fullerton, Brea, Placentia and the west part of Yorba Linda.



Source: City of Brea General Plan (2003) and P&D Consultants, Inc. (2004).

Figure 5.8-1
Landfill and Surrounding Area



Source: City of Brea General Plan (2003) and P&D Consultants, Inc. (2004).

Figure 5.8-2
View Points

In addition to views of the soil stockpile, and graded and filled areas of the landfill, a few land uses have views of the existing landfilling operations including refuse deposition, application of daily cover, trash trucks and operations equipment including compactors, bulldozers and earthmovers. Some locations in Chino Hills State Park east of the landfill property and north of Carbon Canyon Road and points in the Firestone Boy Scout Reservation at higher elevations than the ridgelines on the landfill property have existing views of the landfilling operations. These operations are not visible from developed campsites in the Firestone Boy Scout Reservation or from Chino Hills State Park south of Carbon Canyon Road. Residents in Olinda Ranch and along Imperial Highway have views of waste hauling vehicles and seagulls traveling to and from the landfill.

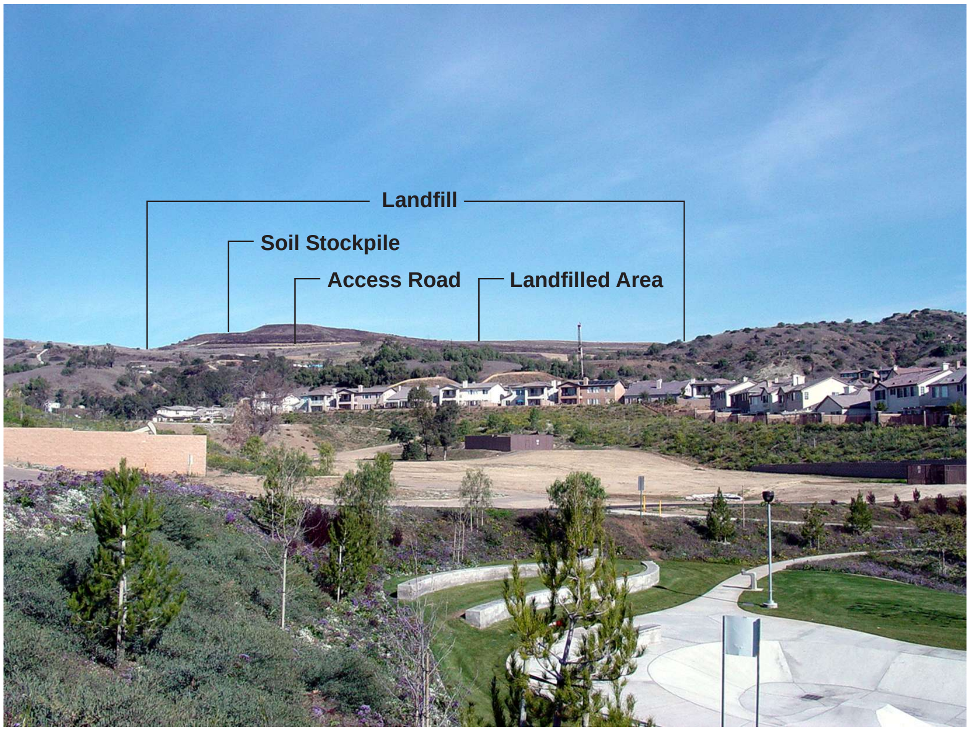
The landfill is not visible from any points in the City of Chino Hills in San Bernardino County or from Olinda Village in the City of Brea, east of the landfill, as intervening topography obstructs views of the landfill from these locations.

Two photographs of existing views of the landfill from nearby locations are provided. Figure 5.8-2, shown previously, identifies the locations from which these photographs of the landfill were taken and Figure 5.8-3 shows the existing views.

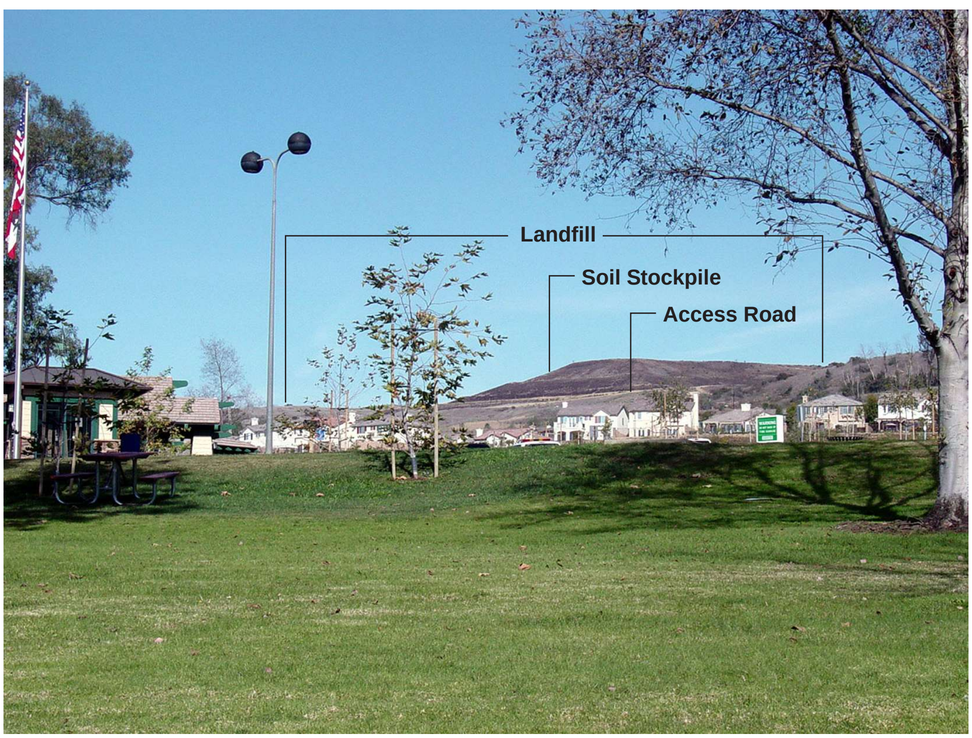
5.8.1.2 View 1

View 1 of Figure 5.8-3 is from the south edge of Olinda Ranch Neighborhood Park looking north toward the landfill. This Park is immediately adjacent to the north side of Carbon Canyon Road and is within the south part of the Olinda Ranch PC. The foreground of the view is the west end of the Park with landscaped slopes, low seating walls, turf and hardscape. Just beyond the Park is a graded area that transitions to the landscaped slopes and single family residences in the Olinda Ranch PC. Undeveloped hills are visible immediately behind these residences. These hills are dedicated open space in the City of Brea General Plan. The landfill is visible as the most distant element of the view in the center and left of center of the photograph. The vegetated soil stockpile is in the left of the photo above the access road that is visible as a light-colored line in this view.

The current landfilling operations are hidden from view behind this stockpile. An area that has previously been landfilled is to the right of the stockpile. Under the currently permitted landfill plan, landfilling operations will be visible in the area to the right of the soil stockpile as new layers or lifts are constructed. The south edge of the new lift will be constructed from east to west across the landfill in a series of cells approximately 18 to 20 feet high. Each cell is composed of trash that is compacted and covered daily with soil or other approved cover material. This operation activity will be visible from viewpoints south of the landfill for approximately two weeks until the cells comprising the south edge of the lift are complete across the landfill. Once the south edge of the lift is complete, continuing operations to the north will be hidden behind the front cells (front edge of the lift) for about 10 months until the entire lift is complete. Then work on the next lift would begin and operations would be visible for approximately two weeks until they are hidden behind the south edge of the new lift. This same process would continue until landfilling is complete.



View 1. From north of Carbon Canyon Road looking north toward the Landfill.



View 2. From Carbon Canyon Regional Park looking northwest toward the Landfill.

Source: P&D Consultants, Inc. (2004).

Figure 5.8-3
Existing Views

5.8.1.3 View 2

View 2 of Figure 5.8-3 is from a picnic area in Carbon Canyon Regional Park looking northwest toward the landfill. A picnic table and Park Office are in the left of the view. The residences beyond the Park are in Olinda Ranch PC north of Carbon Canyon Road, which is not visible from this view point. The vegetated soil stockpile of the landfill is in the background in the center part of the view. The landfill access road is visible below the soil stockpile. As described for View 1, the soil stockpile hides the current landfilling activities from this view point.

5.8.1.4 Scenic Highways, View Points and Resources

Carbon Canyon Road, south of Olinda Alpha Landfill, is a State highway that is not eligible for designation as a State Scenic Highway. However, the City of Brea General Plan identifies this road as having scenic value because it provides motorists with views of natural landscapes with vegetated valleys, riparian corridors and steep topographical features.

There are no designated scenic view points within the proposed expansion area of the landfill property or within other parts of the landfill property boundary. The closest designated scenic view point is Gilman Peak in Chino Hills State Park. This scenic view point, designated as such in the City of Brea GP, is over three miles from the landfill property.

Within the area proposed for the horizontal expansion, there is approximately 0.5 acre of land that contains mature oak trees, which are identified in the City of Brea and County of Orange GPs as a scenic resource. Two ridgelines, in the SOI of the City of Brea, form the northwest and east boundaries of the landfill property. These ridgelines are identified in the City of Brea GP as Prominent Ridgelines, which the City considers a scenic resource.

5.8.1.5 Existing Light and Glare

The landfill is open Monday through Saturday from 6:00 AM to 4:00 PM. Therefore, existing sources of night light at the landfill are minimal because the landfill is not operational after daylight hours. The scale booth and offices in the southwest part of the property have outdoor lights, and there is a LFG flare station in this area. These light sources are sited and designed so that light from the landfill site does spill over onto adjacent land uses. There are small amounts of glare associated with light reflecting off of vehicles traveling to and from the landfill and using the on-site access road to deposit refuse. IMWD planted trees along part of the on-site access road. Plans are to continue planting trees along the entire length of the access road that is visible to off-site uses to the south. As these trees mature, they will screen views of the access road, haul trucks and potential glare associated with these vehicles.

5.8.2 THRESHOLDS OF SIGNIFICANCE

Appendix G of the CEQA Guidelines indicates that a project will normally have a significant effect on the environment related to aesthetics, light and glare if it will:

- Have a substantial adverse effect on a scenic vista.

- Substantially damage scenic resources, including but not limited to, trees, rock outcroppings and historic buildings within a state scenic highway.

- Substantially degrade the existing visual character or quality of the site and its surroundings.

- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

5.8.3 METHODOLOGY RELATED TO AESTHETICS

To determine the visual impacts related to the proposed landfill expansion, sensitive viewers who would have views of the expansion areas of the landfill property were identified. These sensitive viewers include viewers from residential and park uses. Two sensitive viewer locations close to the landfill were selected as locations for visual simulations. Visual simulations were developed from each of these locations that represent what the views of the landfill will be when the currently permitted height of 1,300 feet is reached and the views with the proposed expanded height of 1,415 feet. The change in the view between the currently permitted height and the proposed height was evaluated for each location against the thresholds of significance for aesthetics.

The visual simulations were prepared through computer modeling and digital compositing with base photographs taken from each viewpoint. The first step of the simulation process was to photograph existing conditions. Next, three-dimensional computer models of the landfill were built using CADD data provided by the project engineers. The computer models were scaled and matched to the site photographs using common reference points. After electronically compositing the computer model with the site photograph, vegetation cover was manually added using digital editing software.

To determine the impacts of the proposed landfill expansion related to light and glare, uses sensitive to light and glare in the vicinity of the proposed project were identified. These sensitive uses include residential uses and undeveloped or Park areas that provide habitat for wildlife. The sources and amounts of light and glare that would occur on the landfill site until 2013 were compared with the amount of light and glare that would occur at the landfill between 2013 and the closure of the proposed landfill in 2021.

5.8.4 POTENTIAL IMPACTS

5.8.4.1 View Impacts

Figure 5.8-4 shows visual simulations of the landfill with the currently permitted 1,300 foot elevation and the proposed 1,415 foot expansion from the two locations shown previously on Figure 5.8-2. The existing views of the landfill from these two locations were shown previously in Figure 5.8-3. The landfill in these simulations is shown as it would appear approximately four years following vegetation of the slopes with native plant species occurring on nearby hillsides.

Visual Simulation 1A - **Permitted (1300 foot) Landfill from north of Carbon Canyon Road looking north.**

Visual Simulation 1B - **Proposed (1415 foot) Landfill from north of Carbon Canyon Road looking north.**

Source: Bryan A. Stirrat & Associates / P&D Consultants, Inc. (2004).

 Figure 5.8-4
Visual Simulations

Visual Simulation 2A - Permitted (1300 foot) Landfill from Carbon Canyon Regional Park looking northwest.

Visual Simulation 2B - Proposed (1415 foot) Landfill from Carbon Canyon Regional Park looking northwest.

Source: Bryan A. Stirrat & Associates / P&D Consultants, Inc. (2004).

Figure 5.8-4
Visual Simulations

The color is representative of the winter-time hues of these plants which would be greener later in the spring. Over time, larger evergreen shrubs would increase in size and number, and the color of the vegetated landfill would become darker and greener-hued.

The visual impacts of the proposed landfill would have the potential to be adverse if the surface of the landfill were vegetated with plant species that would highly contrast with the surrounding undeveloped hills. Mitigation measure AS-1 later in this Section addresses vegetation of the slopes during landfill construction and following closure to assist in blending the landfill property with the surrounding undeveloped hillsides. This Landscape Plan includes a phased interim plan that requires that the landfill slopes are seeded on an annual basis during construction of the landfill. This seeding assists in blending the slopes with adjacent open space areas while the landfill is still under construction. The final Landscape Plan ensures that the landfill blends with the surrounding open space following closure.

The existing soil stockpile, shown previously in Figure 5.8-3, would continue to hide the operations behind it until the landfill reaches the currently permitted 1,300 foot height. Under the proposed landfill expansion, the soil stockpile will be removed so that the area where it is located can be landfilled. Therefore, under the proposed landfill expansion, landfilling operations will be visible in the area of the soil stockpile until the south edge of each lift is complete and hides operations behind it to the north. Landfilling operations would be visible in this area for approximately two weeks every 10 months, as described previously for existing conditions. This adverse view impact would be considered less than significant because it is temporary, and views of operations will be hidden once the “up front” or “southerly” parts of the lifts are higher than the operations activities.

5.8.4.2 Visual Simulations 1A and 1B from the Park North of Carbon Canyon Road

Visual Simulations 1A and 1B of Figure 5.8-4 are from the south edge of a City of Brea park looking north toward the landfill. The vegetated landfill is visible as the most distant element of the view in the center of the photograph. Visual simulation 1A shows the currently permitted 1,300 foot elevation of the landfill and 1B shows the proposed 1,415 foot height. The difference in appearance between the two heights is minimal. The landfill in Simulation 1A has a flatter profile, while Simulation 1B has a more rounded appearance. The 1,415 foot proposed expansion would obscure slightly more of the sky in the view but otherwise the two views are similar. Because the views are so similar between the 1,300 and 1,415 foot elevations, the visual impact of the vegetated proposed expansion would not be considered to be adverse from this view point.

5.8.4.3 Visual Simulations 2A and 2B from Carbon Canyon Regional Park

Visual Simulations 2A and 2B of Figure 5.8-4 are from a picnic area in Carbon Canyon Regional Park looking northwest toward the landfill. The vegetated landfill is the farthest element in the simulation behind the undeveloped hillside in the extreme right side of the simulations. Simulation 2A depicts the currently permitted 1,300 foot elevation and 2B shows the proposed 1,415 foot elevation. By looking at the heights of the landfill in relation to the tree in the foreground on the extreme right of the simulation, the viewer can discern that the landfill in

Simulation 2B (1,415 foot height) is slightly taller than the landfill in Simulation 2B. Because the views are so similar between the 1,300 and 1,415 foot elevations, the visual impact of the vegetated proposed expansion would not be considered to be adverse from this viewpoint.

5.8.4.4 Views from Other Locations

The differences between the 1,300 foot and 1,415 foot elevations would be even more difficult to discern from more distant view points than those used for the visual simulations. This is because the landfill would appear as a much smaller element in views from more distant locations. Therefore, visual impacts of the expansion from other existing residential areas in Brea, Fullerton, Placentia, Yorba Linda and Diamond Bar and from Chino Hills State Park south of Carbon Canyon Road would not be considered to be adverse.

There may be views of the landfill from some locations within the areas proposed for development west of the landfill property. The potential visual impacts of the expansion related to these views would be anticipated to be similar to the impacts described previously for visual simulations 1B and 2B. Therefore, the potential impacts would not be considered to be adverse.

There may be locations south of the landfill that currently do not have views of the landfill that may see part of the landfill expansion. If so, these locations would see the expansion as a very small, narrow area on the horizon line of their existing views. As described previously for distant locations that have current views of the landfill, the view of the expansion would be a very small element of the total view scene from these locations. Therefore, visual impacts of the expansion on these distant views would not be considered to be adverse.

Views of the proposed expansion from locations in the Firestone Boy Scout Reservation and Chino Hills State Park which currently have views of the existing landfill operations would be similar to views with the permitted landfill, as these locations would have views of operations under both the permitted landfill and the proposed expansion. Views of the landfill with the proposed expansion after closure would be of a higher profile than with the currently permitted landfill. However, as described previously, the landfill expansion area will be vegetated to blend with the existing undeveloped hills. Therefore, the visual impacts from these locations would not be considered to be adverse.

Locations above the 1,300 foot elevation in Chino Hills State Park north of Carbon Canyon Road that do not currently have views of the landfill operations to the west will have views of the proposed 1,415 foot landfill expansion where intervening topography does not obscure views. From these locations, the proposed expansion will appear as a narrow band on the horizon line of the existing view. As the vegetation on the slopes becomes established, the expansion will appear as a ridge in the background of the view beyond the hills and ridges closer to the viewer. As stated previously, mitigation measure AS-1 requires that the slopes are vegetated prior to closure as part of the interim Landscape Plan. Views from these elevated locations in the Park include existing urbanized uses to the south, southwest and west. The impact of the proposed expansion on these views would not be considered to be adverse because the proposed expansion will be a small, narrow element of the view scene which includes urban elements; and will appear to be an open space ridge when the vegetation becomes established.

5.8.4.5 Interim View Impacts Prior to Landfill Closure

The technique for landfilling operations was described previously in Existing Conditions. As the south edge of each new lift is constructed, this activity and the lift will be visible from points south of the landfill. Also, these lifts will appear like soil piles until vegetation becomes established. It will be eight years between the time that the expansion begins until the proposed final height of landfilling under the proposed landfill expansion project is achieved. Therefore, the appearance of the expansion during this period will be similar to the appearance of the existing conditions. Mitigation measures provided later in this Section require interim vegetation of the slopes of the lifts.

5.8.4.6 Impacts to Scenic Highways, View Points and Resources

The City of Brea considers Carbon Canyon Road to have scenic value. Motorists on Carbon Canyon Road between Valencia Avenue and approximately the east edge of the Olinda Ranch PC have views of the existing landfill and would have views under the currently permitted and proposed expanded landfill plans. There would be no views of the landfill at the permitted or proposed heights along Carbon Canyon Road from points east of Carbon Canyon Regional Park. The view impacts of the proposed expansion from Carbon Canyon Road would be similar to the impacts for Visual Simulations 1A and 1B, because the view location of these simulations is from the edge of Carbon Canyon Road. As described for Simulations 1A and 1B, the 1,415 foot proposed expansion would obscure slightly more of the sky in the view but otherwise the two simulations are similar. Because the views are so similar between the permitted 1,300 foot and proposed 1,415 foot elevations, the visual impact of the proposed expansion on views from Carbon Canyon Road would not be considered to be adverse.

There are no designated scenic vistas or view points on or adjacent to the landfill property. The closest designated scenic view point is Gilman Peak in Chino Hills State Park, three miles from the landfill. From this distance, any view of the landfill would be a very small element in the view scene which includes many urbanized land uses to the west. The difference between the 1,300 foot and 1,415 elevations would not be discernible from this distance. Therefore, there would be no adverse impacts on designated scenic view points related to the proposed landfill expansion.

The proposed expansion will result in the removal of approximately 0.5 acre of land containing mature oak trees. According to the City of Brea and County of Orange General Plans, these mature oak trees are considered a scenic resource. However, these oak trees are not visible from any off-site location and are immediately adjacent to the filled area of the landfill and to areas that have been previously graded and vegetated. Therefore, the removal of these trees would be considered an adverse but less than significant impact on scenic resources.

The City of Brea-designated prominent ridgeline that forms the northwest boundary of the landfill will not be altered for the proposed landfill expansion. The north part of the City-designated prominent ridgeline that forms the east boundary of the landfill will be altered for the horizontal expansion. The west slope of this part of the ridge that faces the active landfill will be excavated for the horizontal expansion. However, the crest of the ridge will not be graded or altered and the appearance of the ridge from off-site views will not change. Therefore, the visual impact of the expansion on this ridgeline would not be adverse.

5.8.4.7 Light and Glare Impacts

The same types of night lighting will be used for the proposed expansion as currently exist on the landfill site. However, the potential exists for additional lighting to be installed with the proposed expansion. Impacts associated with this additional lighting would be considered substantially adverse if the light spilled over onto adjacent sensitive residential and wildlife habitat areas. Mitigation measure AS-2 is provided to reduce this impact.

5.8.5 MITIGATION MEASURES

AS-1 The existing Olinda Alpha Landfill Landscape Master Plan (LMP) that was developed in concert with IWMD and the City of Brea Citizens Advisory Committee in 1994 to address minimization of interim and permanent visual impacts will be revised to include the proposed vertical and horizontal expansion. The current seed mixes in the LMP will be identified for use on the appropriate areas of the expansion. The revised LMP will execute the original goal of blending the landfill property with the adjacent native open space area. The revised plan will be approved by IWMD and the City of Brea and will be included in the Closure Plan for the site as part of the SWFP and WDR revision application.

The phased interim landscape plan included as part of the LMP will be revised to continue visual screening of the landfill operations and facilities for the expansion and to assist in blending the manufactured slopes with surrounding open space prior to landfill closure.

AS-2 All outdoor lighting, including any construction-related lighting, shall be designed, installed and operated in a manner that ensures that all direct rays from project lighting are contained within the landfill property, and that residences and undeveloped areas that may provide wildlife value are protected from spillover light and glare.

5.8.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Mitigation measure AS-1 requires that the landfill expansion areas be vegetated with native species occurring in adjacent areas to assist in blending the expanded landfill with surrounding undeveloped hills. With implementation of this measure, the appearance of the expanded landfill will be as shown in the visual simulations on Figure 5.8-4. As shown in these simulations, the proposed expansion would obscure slightly more of the sky in the views, but otherwise the views of the currently permitted and proposed expanded landfill would be similar. Therefore, with implementation of mitigation measure AS-1, the adverse visual impacts of the proposed expansion would be less than significant. In addition, mitigation measure AS-1 would ensure that the visual impacts prior to closure and prior to implementation of the final landscape plan would be less than significant.

Removal of mature oak trees occurring on 0.5 acre would be an adverse impact on scenic resources. However, this adverse impact would be less than significant because the trees are not visible from any off-site location and are immediately adjacent to the filled area of the landfill and to areas that have been previously graded and vegetated. No mitigation is necessary.

There will be no adverse impacts of the proposed landfill expansion related to scenic highways or scenic view points. No mitigation is necessary.

Mitigation measure AS-2 will reduce potential adverse impacts related to light to below a level of significance.

5.9 CULTURAL AND SCIENTIFIC RESOURCES

This Section describes the existing cultural and scientific resources in the project area, potential environmental impacts, recommended mitigation measures to help reduce or avoid impacts to identified cultural and scientific resources, and the level of significance after mitigation. The analysis in this Section was summarized from the Cultural Resource Assessment for the Olinda Alpha Landfill Expansion (LSA, 2004) and the Paleontological Resource Assessment for the Olinda Alpha Landfill Expansion (LSA, 2004). These studies are included as Appendices I and J, respectively, of this EIR.

5.9.1 EXISTING CONDITIONS

5.9.1.1 Cultural Resources

<u>Prehistoric</u>

The development of a regional chronology marking the major stages of cultural evolution in the southern California area has been an important topic of archaeological research. In general, cultural developments in southern California have occurred gradually and have shown long term stability. Therefore, developing chronologies and applying them to specific locales has often been problematic. Southern California researchers have used changing artifact assemblages and evolving ecological adaptations to divide regional prehistory into four stages. Wallace (1955, 1978) and Warren (1968) have developed the two chronologies most commonly cited. Wallace (1955) uses major cultural developments to divide area prehistory into four time periods or cultural horizons: the Early Period, the Milling Stone Period, the Intermediate Period and the Late Period. The following overview is based primarily on Wallace's chronology, which has been revised slightly by Koerper (1981) and Koerper and Drover (1983).

The Early Period (Prior to 6000 BC)

The Early Period covers the interval from the first presence of humans in southern California until post-glacial times (5500 to 6000 BC). Artifacts and cultural activities from this period represent a predominantly hunting culture. Diagnostic artifacts include extremely large, often fluted bifaces associated with use of the spear and the atlatl. In southern California, important Early Period sites have been found near prehistoric Lake Mohave and along the San Dieguito River (Wallace 1955, 1978:27; Moratto 1984:81, 93-99).

The Milling Stone Period (6000 BC to 3000 BC)

The transition from the Early Period to the Milling Stone Period is marked by an increased emphasis on the processing of seeds and edible plants and is estimated to have occurred between 6000 BC and 3000 BC. According to Wallace (1978:28), wild seeds and edible plants formed the primary food source during this period, with only limited use of shellfish and faunal resources. Plant resources were processed using deep-basined mills and handstones, hence the term Milling Stone Period. Milling Stone Period settlements were larger and were occupied for longer periods of time than those of the Early Period, and mortuary practices included both flexed and extended burials, as well as reburials. Grave offerings were few, although rock cairns were sometimes placed over the bodies (Wallace 1955:192, Table 1; 1978:28).

Diagnostic artifacts recovered from Milling Stone Period archaeological sites include metates and manos, and large projectile points indicating the continued use of darts and atlatls. Among the more enigmatic artifacts from this period are discoidals and cogged stones. Discoidals are round to ovoid ground stones with flat or slightly convex faces and edges, while cogged stones are discoidals with serrated edges resembling the teeth on gears. Both types of artifacts appear sometime around 4000 BC, and are dated to the Milling Stone Period. Their use remains unclear, and they may have had a ceremonial function (Moratto 1984:149-150).

Wallace (1978:28) offers two possible scenarios to explain the cultural changes that occurred during the Milling Stone Period: quite possibly, both processes occurred simultaneously in different geographical areas. In some regions (such as western San Diego County), Milling Stone cultures may have evolved gradually as the earlier hunting peoples learned to exploit a wider variety of food resources. In other areas, people migrating from interior regions may have introduced to coastal areas the technology for processing seeds and plant foods. Evidence for such migrations may be found in climatic data. The onset of the Milling Stone Period corresponds to an interval of warm, dry weather known as the Altithermal. During the Altithermal, many of the inland lakes disappeared, and the region became less habitable, perhaps triggering the coastal migrations believed to have occurred at this time (Wallace 1978:28).

The Intermediate Period (3000 BC to AD 500)

By approximately 3000 BC, the inhabitants of southern California were exploiting a diverse array of food resources including seeds and edible plants, shellfish, fish and mammals. Along the coast, greater reliance was placed on marine food resources as evidenced by the recovery of near shore and deepwater fish remains from archaeological sites. In interior regions such as the Mojave Desert, the return of cooler, moister conditions led to increased populations along streams and lakes. Hunting appears to have been the primary food gathering activity in these interior areas. The best known sites in this region are located at Pinto Basin in northeastern Riverside County (Moratto 1984:153; Wallace 1978:30-31).

Intermediate Period sites are characterized by the appearance of the mortar and pestle (although the mano and metate continued in use) and small projectile points. The use of the mortar and pestle may indicate an increased reliance on acorns as a food source, while the small projectile points suggest that the bow and arrow was in limited use (Elsasser 1978:55; Wallace 1978:30-31). The circular shell fishhook also makes its appearance in coastal sites during this period. The circular fishhook is found most abundantly in areas adjacent to a rocky coastline and may have been less subject to fouling than gorges and other types of hooks (Strudwick 1986:283-284). Intermediate Period burials were generally by interment in a flexed position, face down, although a site at Big Tujunga Wash in the San Fernando Valley contained both reburials under stone cairns and cremations (Elsasser 1978:55; Wallace 1955:193-195).

Researchers have had difficulty distinguishing Intermediate Period sites, because many of the tool types appear in earlier and later periods. The few known sites have often been identified using radiocarbon or obsidian hydration methods.

The Late Period (AD 500 to 1769)

The Late Period witnessed a number of important cultural developments in southern California, including the concentration of larger populations in settlements and communities, greater utilization of the available food resources and the development of regional subcultures. Cremation was the preferred method of burial during the Late Period and elaborate mortuary customs with abundant grave goods were common. Other cultural traits diagnostic of the Late Period include increased use of the bow and arrow, steatite containers, circular shell fishhooks, asphaltum (as an adhesive), bone tools and personal ornaments of bone, shell and stone (Bean and Smith 1978; Elsasser 1978:56; Moratto 1984:159; Wallace 1955:195). Because many of these artifacts are also recovered from earlier periods, other indicators must sometimes be used to distinguish Late Period sites. Among the most useful of these indicators are lithic artifacts manufactured from obsidian and fused shale. Obsidian from Obsidian Buttes near the Salton Sea was used sporadically in the manufacture of lithic artifacts until sometime after AD 1000. In Orange County, Grimes Canyon fused shale obtained from Ventura County was also used in tool manufacture (Demcak 1981; Hall 1988).

A number of the cultural elements found in southern California during the Late Period have been linked to the migration of Uto-Aztecan speaking peoples from the Great Basin. These traits include the manufacture of ceramics, the use of small triangular arrow points and interment by cremation. The date of the Uto-Aztecan migration, which probably occurred in several successive waves over an extended period of time, remains uncertain. It has been dated as early as 2000 BC and as late as AD 700. Linguistic evidence suggests a date of AD 1 to 500 (Koerper 1979; Kroeber 1925:574-580; Moratto 1984:161). The Los Angeles-Orange County region was home to one Uto-Aztecan speaking group known as the Gabrielino, the name derived from the incorporation of these Indian peoples into Mission San Gabriel. The Olinda Alpha Landfill property is located within the traditional territory of the Gabrielino.

<u>Ethnography: The Gabrielino</u>

The Gabrielino practiced a hunter-gatherer lifestyle and lived in permanent communities located near the intersection of two or more environmental zones (habitats). Commonly chosen sites included rivers, streams and inland watercourses; sheltered coastal bays and estuaries; and the transition zone marking the interface between prairies and foothills. The most important factors in choosing a community site were the presence of a stable food supply and some measure of protection from flooding. Community populations generally ranged from 50 to 100 inhabitants, although larger settlements may have existed. Gabrielino communities in the interior regions maintained permanent geographical territories or usage areas that may have averaged 30 square miles. However, it is unclear whether this pattern also held for the coastal settlements, where food resources may have been more plentiful (White 1963:117; Oxendine 1983:44). In addition to these permanent settlements, the Gabrielino occupied temporary campsites that were used on a seasonal basis for hunting, fishing and gathering wild plant foods and shellfish (McCawley 1996:25).

Three distinctive settlement-subsistence patterns have been identified for the Gabrielino communities. The first was found in the interior mountains, where primary settlements were located in the lower reaches of canyons that offered protection against cold winter weather. During spring and summer, individual families traveled to seasonal camps to gather bulbs, seeds and plant foods. In the fall they moved to oak groves to gather acorns. A second prevailed on the inland prairies where each winter, the populations of these communities divided into family units and migrated to coastal shellfish-gathering camps. The third was found among the coastal settlements in the region north of San Pedro. During the winter season when the seas were too rough for fishing, the inhabitants of these communities dispersed to inland camps to hunt and gather acorns and plant foods (Hudson 1971).

Politically, each Gabrielino community comprised one or more kinship groups (known as lineages), which were united under the leadership of a *tomyaar,* or chief. Each lineage comprised several related nuclear families. Membership in a lineage was traced through the father and allowed an individual to claim use rights over the territory owned by that group. The *tomyaar* was the focus of the religious and secular life of the community and served as chief administrator, fiscal officer, war leader, legal arbitrator and religious leader (Bean and Smith 1978; Harrington 1942:32, item 1263; 1986:R102 F642). The *tomyaar* was aided in his duties by a Council of Elders, which consisted of the leaders of the lineages residing in the community as well as other wealthy and influential individuals. Council positions were hereditary and descended from father to son. Shamans also played an important role in Gabrielino society, serving as the principal doctors, psychotherapists, philosophers and intellectuals. Often, the *tomyaar* himself was an important and influential shaman (Bean 1974:25-26).

The Gabrielino culture was characterized by an active and elaborate system of rituals and ceremonies. Rituals included individual rites of passage, village rites, seasonal ceremonies and participation in the widespread *Chengiichngech* cult. The cult of the culture hero, *Chengiichngech*, was observed and recorded by Franciscan Friar Gerónimo Boscana during his residences at Missions San Juan Capistrano and San Luis Rey (Harrington 1933; Boscana 1933).

The Franciscans' goal was to convert the Indians to Christianity and incorporate them into Spanish society. The Gabrielino and other Indian groups learned metallurgy, plant and animal domestication, and Spanish construction methods. In turn, the Spanish learned how and where indigenous peoples lived, and gathered information about native life ways and ceremonial and ritual practices. Father Boscana prepared an account of Gabrielino and neighboring Juaneño life ways and beliefs (Harrington 1933; Hanna 1978). Boscana's account, *Chinigchinich*, written during his residency at the San Juan Capistrano (1814-1826) and San Luis Rey (1811-1814) missions, describes the native cosmology and ritual practiced at the time of Spanish contact (Bean and Smith 1978:548). By the early 1800s, Spanish army officers and veterans living in California began receiving grants of land and establishing large, private grazing areas.

Ultimately, Spanish colonization resulted in the disappearance of Gabrielino society and culture. Two important factors that contributed to this decline were the removal of the youngest, healthiest and most productive Gabrielino from their traditional communities and their incorporation into the Mission System; and the infection of the native population with highly infectious diseases to which they were not adapted. This led to epidemics and reduced birth rates. As a result, the traditional Gabrielino communities were depopulated and the survivors integrated into local *Californio* and, later, Mexican-American communities. When anthropologist A. L. Kroeber sought Gabrielino descendants during the 1920s, he was unable to locate a group claiming Gabrielino heritage. Today, the federal government does not recognize a local tribe or band, although there are individual spokespeople who have Gabrielino ancestors (Rosenthal et al. 1991).

<u>History</u>

Spanish Mission Period (1769 to 1821)

The first recorded contact between the Gabrielino and Europeans occurred in 1542 when the Juan Rodriguez Cabrillo expedition arrived at Santa Catalina Island (Wagner 1941). In the Orange County area, the first recorded contact occurred when Gaspar de Portolá's expedition crossed the region in July 1769. According to Spanish records, Portolá camped near the mouth of Brea Canyon. A large village of Indians was encountered. Between 1769 and 1821, when Mexico gained independence from Spain (McGroarty 1911:117, 148; Avina 1932:29; Robinson 1979:13), is often referred to as the Spanish Mission Period (Robinson 1979:51-52). In 1771, Father Junipero Serra established a Franciscan mission at San Gabriel.

In 1819, an *asistencia* was established in San Bernardino, and those inhabitants not directly affected by Mission San Gabriel became a part of the Mission system through the San Bernardino *Asistencia*. Spanish records indicate that the primary Native American villages included in this *Asistencia* were *Guachama*, located near present Loma Linda, and *Hurungna*, known as *Jurupa* to the Spanish, located near the present City of Riverside (URS 1988:VIII:79). Farming and cattle ranching were introduced to the inhabitants of *Guachama* by the padres of the San Bernardino *Asistencia* as early as 1819 (Hoover et al. 1962:39).

Mexican Period (1821 to 1848)

In 1821, Mexico was formed after gaining its independence from Spain and in 1848 the United States formally obtained California in the Treaty of Guadalupe Hidalgo (Cleland 1962:xiii). The period from 1821 to 1848 is referred here to as the Mexican Period. In 1833, 11 years after gaining independence from Spain, the Mexican government's Secularization Act changed missions into civil parishes, and those natives who had inhabited regions adjacent to a Spanish Period mission were to obtain half of all mission possessions, including land. However, this did not occur in most instances, and the Secularization Act resulted in the transfer of large mission tracts to politically prominent individuals rather than to local natives.

American Period (Post-1848)

Following the end of hostilities between Don Pio Pico, the last Mexican Governor of California, and the United States in January of 1847, the United States officially obtained California from

Mexico through the Treaty of Guadalupe Hidalgo on February 2, 1848 (Cleland 1962:xiii). In 1850, California was accepted into the Union of the United States primarily due to the population increase created by the Gold Rush of 1849.

The cattle industry in California reached its greatest prosperity during the first years of the American Period. Mexican Period land grants had created large, pastoral estates in California and a high demand for beef during the Gold Rush led to a cattle boom that lasted from 1849 to 1855. In 1855, however, the demand for California beef began to decline as a result of sheep imports from New Mexico, cattle imports from the Mississippi and Missouri valleys, and the development of stock breeding farms. When the beef market collapsed, California ranchers were unprepared. Many had borrowed heavily during the boom, mortgaging their land at interest rates as high as ten percent per month. The collapse of the cattle market meant that many of these ranchos were lost through foreclosure, while others were sold to pay debts and taxes (Cleland 1941:108-114).

Nature, too, conspired to force economic change during this period. During the winter of 1861-1862, a disastrous series of floods struck California. According to rainfall statistics, more than 45 inches of rain fell in parts of California between November 1861 and February 1862 (Brewer 1930:253). It has been estimated that the 1862 flood was the largest flood in the recorded history of the Santa Ana River. At Agua Mansa, the high water line marked on the front steps of the church was used to estimate a flow rate of 320,000 cubic feet per second, more than three times the estimated high water maximum recorded in 1938 (Sidler 1973:19 in URS 1988:VIII-81). Lesser flooding episodes along the Santa Ana River also occurred in 1867 and 1891. This unprecedented deluge was then followed by two years of drought (Cleland 1941:130-131). The drought of the 1860s was a turning point in the economic history of southern California. The era of the great cattle ranchos ended and many landowners who survived the collapse of the cattle industry were forced to sell their property due to the drought. This was not the fate of all rancheros. Some, such as the Cota and Yorba families, survived (Foster 1996).

Local History

Brea was established in 1894 when landowner Abel Stearns sold 1,200 acres to the Union Oil Company, west of the village of Olinda (founded circa 1896). In 1908, a new town called Randolph was constructed for the oil workers. In 1911, the name was changed to Brea (Spanish for tar). The town of Olinda has since disappeared and is now the location of a park.

5.9.1.2 Paleontological Resources

The landfill property is located at the northern end of the Peninsular Range geomorphic province, a 900-mile long, northwest-southeast trending structural block that extends from the tip of Baja California to the Transverse Ranges and includes the Los Angeles Basin (Norris and Webb 1976). The total width of the province is approximately 225 miles, with a maximum land bound width of 65 miles (Sharp 1976). It contains extensive pre-Cretaceous (> 65 million years ago) igneous and metamorphic rock covered by limited exposures of post-Cretaceous sedimentary deposits. In Orange County, these post-Cretaceous sedimentary deposits are believed to be one of the most important Tertiary marine fossil producing areas in the world due to the completeness of the geologic record and general abundance of the fossils (Raschke 1984). Belyea and Minch (1989) report that the Santa Ana Mountains contain exposures of the most complete section of Late Mesozoic and Cenozoic (approximately 150 million years ago to the present) stratigraphy in the entire Peninsular Ranges.

The landfill property is located in the Puente Hills. These Hills are in the eastern Los Angeles Basin and in parts of San Bernardino, Riverside, Los Angeles and Orange Counties. The Hills are bounded on the northwest by the San Gabriel Valley, on the northeast by the San Bernardino Valley and on the south by the Santa Ana River and the central part of the Los Angeles plain. They are structurally and stratigraphically related to the Santa Ana Mountains to the south and the San Jose Hills to the northwest (Schoellhamer et al. 1981). The southeastern part of the Puente Hills, south of Brea Canyon, is also known as the Chino Hills. The Chino Hills are a structural unit that had been uplifted and folded by movement along the Whittier and Chino Faults. The landfill property is located on the southern flank of the Chino Hills (Durham and Yerkes 1964; Rogers 1966) directly north of the Whittier Fault.

In the project area, Morton and Miller (1981) and Morton et al. (1999) recorded one geologic unit, the late Miocene Soquel Member of the Puente Formation. The late Miocene marine Puente Formation is divided into four members: the La Vida Member (Tplv), which consists of predominantly siltstones; the Soquel Member (Tps), which consists of predominantly sandstones; the Yorba Member (Tpy), which consists of predominantly siltstones; and the Sycamore Canyon Member (Tpsc), which consists of predominantly sandstones.

The Puente Formation is exposed in the Santa Ana Mountains and the Puente Hills and was deposited in a deep-water basin (Lyons et al. 1990). It ranges in thickness from 629 yards in the central Santa Ana Mountains near El Toro to over 4,484 yards in the Puente Hills (Yerkes et al. 1965, Schoellhamer et al. 1981). The Puente Formation was named by Eldridge and Arnold (1907) from exposures in the Puente Hills. Davies and Woodford (1949) divided the Puente Formation into three members, only one of which was named. Schoellhamer and others assigned the current four members and their names in 1954. The siltstone units of the Puente Formation generally produce more fossils than the sandstone units, with the Yorba Member producing the most fossils of the four. However, the only member exposed in the project vicinity is the Soquel Member.

The Soquel Member of the Puente Formation consists of Late Miocene marine sediments. They are composed of pale yellow to yellow brown silty sandstone and pebbly sandstone with interbeds of light to dark gray and pale yellow brown siltstone and occasional conglomerate and breccia. Sand grains are subangular to subrounded quartzo-feldspathic and biotite rich. The conglomerate clasts are angular to subangular and are mainly derived from a plutonic source. Sandstones are massive to thickly bedded, while siltstones are thinly bedded to platy. Dolomatic concretions occur near the base.

Within the Puente Hills, the thickness of the Soquel Member ranges from 2,000 to 2,800 feet. It has a gradational, and locally unconformable, contact with the underlying La Vida Member and a gradational contact with the overlying Yorba Member. It correlates with part of the Monterey Formation in southern Orange County and part of the Modelo Formation in Los Angeles County.

Lyons et al (1990) have interpreted the Soquel Member in the Puente Hills to represent a series of coalescing depositional lobes deposited at the base of the continental slope. Sediments were derived from prograding fan deltas on the narrow continental shelf and transported to the base of the continental slope by gullies cut into the continental slope. Fossils are rare, but late Miocene forams and fossil fish have been found. During paleontological monitoring of the existing Olinda Alpha Landfill property in 1998, RMW Paleo Associates collected what they identified as the first Argonauts from Orange County.

5.9.2 THRESHOLDS OF SIGNIFICANCE

The criteria to determine the sensitivity of an area for cultural resources are based on the following three-tiered classification system:

- Low Sensitivity: This rating is given if there is no water available or steep, rugged slopes are present.

- Moderate Sensitivity: This rating is given if water and other resources are available within 0.5 to two miles.

- High Sensitivity: This rating is given if the level/semi-level landforms are near potable water.

The criteria to determine the sensitivity of an area for paleontological resources are based on the following sensitivity ratings:

- Undetermined Sensitivity: Areas underlain by sedimentary rocks for which literature and unpublished studies are not available have undetermined potential for containing significant paleontological resources. These areas must be inspected by a field survey conducted by a qualified vertebrate paleontologist. A specific determination of high or low potential for containing significant non-renewable paleontological resources can then be made.

- Low Sensitivity: Following a literature search, records check and a field survey, areas may be determined by a qualified vertebrate paleontologist as having low potential for containing significant paleontological resources subject to adverse impacts. Low potential can not be determined simply by looking for rock unit qualifications on a geologic map. For instance, an area mapped as alluvium may actually be a thin surficial layer of non-fossiliferous sediments which cover fossil-rich Pleistocene sediments. An area mapped as granite may be covered by a Pleistocene soil horizon that contains fossils. The actual sensitivity must be determined by both a records search and a field inspection.

- High Sensitivity: Sedimentary rock units with high potential for containing significant non-renewable paleontological resources are rock units within which vertebrate or significant invertebrate fossils have been determined to be present or likely to be present. These units include, but are not limited to, sedimentary formations which contain significant non-renewable paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils.

High sensitivity includes not only the potential for yielding abundant vertebrate fossils, but also for production of a few significant fossils that may provide new and significant taxonomic, phylogenetic, ecologic and/or stratigraphic data.

High sensitivity (High A) is based on geologic formations or mappable rock units that are rocks that contain fossilized body elements, and trace fossils such as tracks, nests and eggs.

High sensitivity (High B) is a sensitivity equivalent to High A, but is based on the occurrence of fossils at a specified depth below the surface. High B indicates that fossils are likely to be encountered at depth, and may be impacted during excavation by construction activities. For high sensitivity B areas, a standard condition is provided to the environmental document for the project, specifying that, during grading stage review, a Paleontological Resource Impact Mitigation Program (PRIMP) is a condition for any excavation that reaches or exceeds a specified depth.

5.9.3 METHODOLOGY RELATED TO CULTURAL AND SCIENTIFIC RESOURCES

On February 11, 2004, LSA conducted a records search at the South Central Coastal Information Center of the Historical Resource Information System at California State University, Fullerton. Documents and literature regarding known cultural resources and previous archaeological studies within one mile of the landfill property were reviewed. This included examination of the National Register of Historic Places, the California Register of Historic Resources, Office of Historic Preservation, Archaeological Determinations of Eligibility and Directory of Properties in the Historic Property Data File, and historic maps.

A paleontological locality search was conducted through the Orange County paleontological records. It included a review of the area geology and any known paleontological resources recovered from the surrounding area and the geologic formations that will likely be encountered during excavation activities.

On February 13, 2004, the landfill expansion area was surveyed by LSA archaeologist Roderic McLean. The purpose of the survey was to identify any cultural resources present on the project site. Steep slopes and recent terracing characterize the project site. At a minimum, 30 percent of the lateral expansion area is disturbed. Ground visibility on the project site was dependent on vegetation density. Areas where native soils were exposed were scrutinized carefully, as were rodent burrows and their associated back dirt piles. Soil profiles were examined for evidence of cultural stratigraphy.

The project site was surveyed by LSA paleontologists Brooks R. Smith and Steven W. Conkling, an Orange County certified paleontologist. The survey consisted of a visual inspection of exposed soil, ground surface and bedrock outcrops. Where possible, the surveyors walked the project area in transects spaced approximately five yards apart. Surface scrapes were conducted to better expose obscured areas. If any resources were located in situ, the surveyor was prepared to assess the find for significance and, if necessary, document it. If the find was deemed to be significant, the surveyor noted its location with a Garmin Global Positioning System (GPS) unit. The use of GPS units allows localities to be quickly and accurately plotted on a standard 7.5N

United States Geological Survey (USGS) topographical map. The surveyor also filled out a Fossil Locality Sheet containing the field number of the locality, tentative identification of the find, description of the sediments, formation name, location of the find on the project site, GPS information and elevation.

5.9.4 POTENTIAL IMPACTS

The results of the records search indicate that no archaeological surveys have been conducted on the proposed expansion site. The original landfill property was surveyed by the Archaeological Planning Collaborative (1979). A second survey was performed east of the project site (Brown et al. 1990). An historic site, CA-ORA-1291H, is recorded approximately one-quarter mile east of the landfill property. That site is described on the site record as a historic rock retaining wall along with a trash pit. Pieces of a wood stove and amethyst glass were observed. Additionally, 11 sites are recorded within one mile of the landfill property. All are located at the base of the mountain to the south and southwest of the landfill property.

No cultural resources were identified on the proposed expansion site. Additionally, the project site involves very steep landform. Other than rock shelters, rock art and rock mines, steep landforms are considered very low sensitivity regarding cultural resources. The project site is devoid of rock outcrops that would be used for prehistoric activities and no mining has taken place. The likelihood that cultural resources may be uncovered during ground disturbing activities is low. However, in the unlikely event that cultural resources are discovered, mitigation measures described in the following Section would ensure that any discovered cultural resources are properly documented and recovered. Therefore, the potential scientific value of cultural resources on the project site, if any, will be assured. Therefore, the proposed project will not result in adverse impacts on cultural resources.

No paleontological resources were identified on the project site during the field survey. The project site involves a very steep landform that limits access to many places in the expansion area. Potential exists for paleontological resources to occur on the project site in areas that could not be accessed or beneath the ground surface. Therefore, there is the potential to encounter paleontological resources during ground disturbing activities. The mitigation measures described in the following Section would ensure that the impacts to non-renewable paleontological resources will be reduced to below a level of significance.

5.9.5 MITIGATION MEASURES

The following mitigation measures were developed to avoid or minimize as much as possible the potential impacts of the proposed project related to cultural and scientific resources.

C-1 The construction bid package, related construction and design plans, and specifications shall require that if buried cultural material is encountered during project construction, the County's construction contractor shall immediately stop work in the area. Work shall be halted until the County can retain a qualified archaeologist, and the nature and significance of the find are determined. If significant archaeological material is found, it shall be salvaged and collected in compliance with all applicable regulations and sent to a designated museum.

C-2 If human remains are encountered during project construction, the County's construction contractor shall immediately stop work in the area. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 24 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

C-3 A Paleontological Resources Impact Mitigation Program (PRIMP) will be implemented. The PRIMP shall include, but not be limited to, the following: paleontological monitoring, preparation of any collected specimens to the point of identification, curation of specimens to a museum or similar institution and preparation of a mitigation report documenting any findings.

5.9.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The proposed expansion site is on a mountain landform that is not considered high potential for cultural and scientific resources. Implementation of mitigation measures C-1, C-2 and C-3, described above, will ensure that potential cultural and scientific resources related impacts are reduced to below a level significance.

5.10 HAZARDS

This Section describes and evaluates the potential risks to human health, the built environment and the natural environment associated with the transportation, use, generation, storage and disposal of hazardous materials required for the proposed Olinda Alpha Landfill expansion project.

5.10.1 EXISTING CONDITIONS

The existing conditions information for Olinda Alpha Landfill is based on information provided in the Olinda Alpha Report of Facility Information (RFI) (2000). Olinda Alpha Landfill is a Class III Landfill and does not accept hazardous materials for disposal. Landfill staff monitor wastes entering the site for hazardous wastes utilizing a random load check procedure during which refuse from the load is spread out in a designated area and checked for hazardous materials. Vehicles containing hazardous materials are rejected and all returning offenders are subject to mandatory load checks each time they bring refuse to the landfill. Low level radioactive waste monitors are installed at the fee collection booths. Any vehicle carrying waste identified as radioactive by the monitors is rejected. All hazardous waste found during burial operations is collected, categorized and either returned to the generator/hauler, or, if the hauler cannot be identified, properly stored on-site until removed for disposal by a licensed hazardous waste disposal firm. Hazardous materials found during burial operations are stored in a covered concrete containment area, in secondary cells, segregated by material type. No hazardous wastes are stored on-site for more than ninety days.

Olinda Alpha Landfill has an on-site diesel and gasoline fueling station. The 10,000-gallon diesel tank and the 1,000-gallon gasoline tank have approved secondary containment systems and are properly permitted. Waste oils, lubricants, filters, etc. generated by on-site equipment maintenance activities are stored in a covered concrete containment area, in secondary cells, segregated by material type prior to being picked up by licensed recyclers. The reporting and cleanup of any spill must comply with federal, state and local landfill regulations. Under these regulations, landfill staff must be trained in hazardous materials reporting and cleanup procedures. Any hazardous materials storage area must be permitted and must have secondary containment systems consistent with federal, state and local agency permitting procedures.

The existing LFG control/recovery system collects LFG via horizontal collection lines and vertical extraction wells laid within the disposal area. LFG collected by these lines and wells is piped to the gas-to-energy plant or to flaring systems to be burned. Pursuant to 27 CCR Section 20919 and 20919.5, monitoring of LFG occurs at wells around the perimeter of Olinda Alpha Landfill. LFG perimeter probes determine if LFG is migrating from the landfill. According to SCAQMD Rule 1150.1 Monitoring Reports for Olinda Alpha Landfill, the landfill is not in exceedance of the five percent total organic compounds (TOC, measured as methane) per volume limit and there is no migration of LFG away from the landfill perimeter.

Groundwater is extracted from wells for on-site treatment by an Advanced Oxidation Process. Treated groundwater is used for on-site dust suppression.

Landfill leachate is collected through the LCRS and pumped to a double contained storage location, then hauled off-site for disposal by an approved treatment facility. IWMD will evaluate whether leachate may be disposed into the on-site existing treatment system after upgrades have been made to the system.

5.10.2 THRESHOLDS OF SIGNIFICANCE

The proposed project would result in a significant adverse impact related to hazards and hazardous materials if it:

- Creates a significant hazard to the public or the environment through the routine use, transport or disposal of hazardous materials.

- Creates a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

- Is on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and which would create a significant hazard to the public or the environment.

- Is in an airport land use plan or within two miles of a public airport and would result in a safety hazard for people residing or working in the project area.

- Is in the vicinity of a private airstrip and would result in a safety hazard for people residing or working in the project area.

- Impairs implementation of or physically interferes with an adopted emergency response plan or emergency evacuation plan.

- Exposes people or structures to a significant risk or loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

- Includes a new or retrofitted storm water treatment control Best Management Practices (BMPs) (e.g., water quality treatment basin, constructed treatment wetlands), the operation of which results in significant environmental effects such as increased vectors and odors.

5.10.3 METHODOLOGY RELATED TO HAZARDS

To evaluate hazardous materials and wastes handling procedures, the RFI (2000) was reviewed. Permits for any on-site areas for fuel storage were also reviewed to ensure that permits for on-site hazardous materials storage areas were current.

The City of Brea and the County of Orange GPs Safety Elements were reviewed to ensure that the proposed project would not conflict with existing emergency and evacuation routes.

To determine the potential of LFG release and migration during the decomposition of wastes in the landfill, the most recent SCAQMD Rule 1150.1 Monitoring Reports available from IWMD when this EIR was prepared were reviewed (fourth quarter of 2002 and the first, second and third quarters of 2003).

Maps were consulted to determine if any public or private airports are within two miles of the proposed project.

The design drawings were used to determine if any new BMPs were proposed and if the proposed project included adequate storage areas for hazardous materials used on-site or those found during burial operations.

5.10.4 POTENTIAL IMPACTS

5.10.4.1 Use, Disposal or Transport of Hazardous Materials

The existing landfill load check program, low level radioactive waste monitors and compliance with federal, state and local landfill regulations pertaining to hazardous waste exclusion control the potential for hazardous waste disposal at the landfill. Therefore, impacts due to disposal of hazardous materials will be less than significant.

5.10.4.2 Potential Accidental Release of Hazardous Materials

Accidental Release of Hazardous Materials Stored On-Site

No new fuel storage facilities or fuel pumping stations at the landfill are proposed as part of the project. Potential spills or releases of gasoline, diesel and stored hazardous materials from landfill equipment during expansion of the landfill may occur outside the isolation of secondary containment systems. Impacts due to potential accidental release of diesel, gasoline, stored hazardous waste, waste oils and lubricants are less than significant (they are addressed by the BMPs implemented as part of NPDES).

Accidental Release of Landfill Gas and Leachate

Pursuant to 27 CCR Sections 20919 and 20919.5, existing LFG recovery systems will be extended into the landfill expansion areas as refuse is added to the landfill's expansion area and monitoring of LFG perimeter probes will continue as waste is added to the landfill. It is anticipated that perimeter probes will be moved or added to the eastern edge of the 33-acre expansion area. Because the current landfill operations produce TOC below limits defined by the SCAQMD in Rule 1150.1(e), because the expansion area is on the eastern edge and in the middle of the landfill property away from the Olinda Ranch PC, because additional LFG recovery systems will be added to the expansion area and additional monitoring probes will be placed at the perimeter to comply with 27 CCR Sections 20919 and 20919.5 and SCAQMD requirements, and because it is not anticipated that the proposed project will cause TOC to exceed SCAQMD limits due to controls that will be in place during operation of the expansion area, potential impacts due to accidental release of LFG or lateral migration of LFG will be less than significant. For additional information regarding LFG and the potential for it to be released into the atmosphere, refer to Section 5.6 (Air Quality) of this EIR.

Groundwater and leachate collection systems will be augmented as required by regulatory agencies for the landfill expansion areas. All collected groundwater and leachate will be subject to existing processes for treatment and containment. Impacts due to accidental release of untreated groundwater and leachate will be less than significant.

5.10.4.3 Impacts to the Public or the Environment

Government Code Section 65962.5

The project site is not on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, therefore, would not create a significant hazard to the public or the environment.

Vectors

There would be no impact resulting in increased vectors or other environmental effects due to new or retrofitted BMPs (e.g., water quality treatment basin, constructed treatment wetlands) because the proposed project does not include any new or retrofitted BMPs.

5.10.4.4 Impacts Related to Safety Hazards

Airports

The proposed project is not within a public airport land use plan or within two miles of a public or public use airport or in the vicinity of a private landing strip. Therefore, there will be no impact due to safety hazards with respect to airports to people residing or working in the project area.

Emergency Response and Emergency Evacuation Plans

Although the Olinda Alpha Landfill evacuation routes include streets in the City of Brea, the proposed project will not change either the City of Brea or the County of Orange Emergency Response and Emergency Evacuation Plans. There will be no impact to the City of Brea or County of Orange Emergency Response and Emergency Evacuation Plans under the proposed expansion project.

Wildland Fires

Olinda Alpha Landfill is located in a Very High Fire Hazard Area as designated on the City of Brea General Plan EIR Wildland Fire Hazard Areas Map. There is a remote possibility that litter and vegetation would be ignited by vehicle sparks, lighted cigarettes or matches thrown from vehicles; however, design and operations procedures in place at Olinda Alpha Landfill prevent or reduce the potential for fire and enable rapid fire control. Subsurface fires from the combustion of buried loads would cause localized settling and would impact landfill operations but would not result in significant adverse impacts to users of the landfill or the general public because few people have access to the covered parts of the landfill. As discussed earlier in Section 5.9.4.2, LFG is controlled by collection and combustion in the LFG to energy facility and in the backup flare facility. This prevents spontaneous fires and explosions by limiting lateral LFG migration to nearby buildings. Controls in place at the landfill reduce potential wildland fire impacts to below a level of significance.

5.10.5 MITIGATION MEASURES

No mitigation is required for hazards because federal, state and local landfill regulations that currently govern landfill procedures would be extended to cover operations on the Olinda Alpha Landfill expansion.

5.10.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts to public health and safety with respect to hazardous materials would be less than significant because the landfill expansion would comply with federal, state and local landfill regulations that currently govern landfill procedures.

5.11 PUBLIC SERVICES

This Section describes existing fire protection and emergency services in the project area and addresses potential impacts of the proposed project on the availability and capacity of the Orange County Fire Department (OCFA) to serve the project site. In addition, this Section describes recreational facilities and opportunities in the project area and addresses the potential impacts that the proposed project will have on the availability of those facilities.

Through the IS, issues related to police protection, schools and other government facilities were determined to be less than significant; therefore, these issues are not addressed in this Section. Refer to Section 3.0 for discussion of those environmental parameters.

5.11.1 EXISTING CONDITIONS

5.11.1.1 Fire Protection and Emergency Services

<u>Orange County Fire Authority</u>

Fire protection and emergency medical services at Olinda Alpha Landfill are provided by the OCFA. The OCFA receives and dispatches emergency calls at a regional level from 61 fire stations. Resources are deployed on a regional delivery system, assigning personnel and equipment to emergency incidents without regard to jurisdictional boundaries. OCFA Station 34, at 1530 Valencia Avenue in Placentia, is the first responder to calls at Olinda Alpha Landfill. Station 34 is approximately 3.5 miles from the landfill entrance and approximately 4.5 miles from the active landfilling area site. This distance accounts for an approximate 6 to 7.5 minute response time. Station 34 consists of a paramedic engine (four personnel), a truck (four personnel) and a Battalion Chief (one personnel).

The OCFA participates in a Mutual Aid Agreement with other agencies. This Agreement between agencies is intended to assist in times of need. OCFA must first commit its own resources prior to asking for assistance. OCFA also provides emergency medical and rescue services, hazardous materials or substances inspections, and response and public education activities. In addition, OCFA participates in disaster planning as it relates to emergency operations.

<u>Fire Control at Olinda Alpha Landfill</u>

Fires could be caused at the landfill when combustible refuse, vegetation or litter in the landfill is ignited by sparks from vehicles, lighted cigarettes or matches thrown from vehicles. To minimize the occurrence of fires, flammable debris is removed from heavy equipment on a daily basis. Compacted cover applied daily limits the oxygen available for combustion in the refuse area. Daily cover also creates individual cells that would confine a fire to a relatively small area.

The design and operation of the landfill incorporates required fire safety features in compliance with the OCFA, including full sprinkler systems where required, all necessary fire lines and hydrants with appropriate fire flows, and unobstructed fire emergency access to the landfill property and buildings at the landfill.

There are numerous fire control, prevention practices and fire fighting provisions currently in place at Olinda Alpha Landfill. The landfill has a 100,000-gallon storage tank for potable water dedicated to fire protection and a fire hydrant is located near the LFG flaring system. Two water trucks are available on the landfill property for fire fighting purposes. Fire extinguishers are required and are provided on all heavy equipment at the landfill. Internal combustion engines have required OCFA approved spark arrestors. In addition, fire extinguishers are located within 50 feet of the aboveground liquid tanks.

Permits to dispense and store flammable and combustible liquids and the handling, storage and transport of hazardous materials are obtained from the OCFA and are on file at the landfill and OCFA.

The project site and vicinity are located in a Very High Fire Severity Hazard Zone. Therefore, all buildings on the landfill property are equipped with fire sprinklers. Through the Mutual Aid Agreement, all fires are immediately reported to the OCFA.

5.11.1.2 Recreational Opportunities

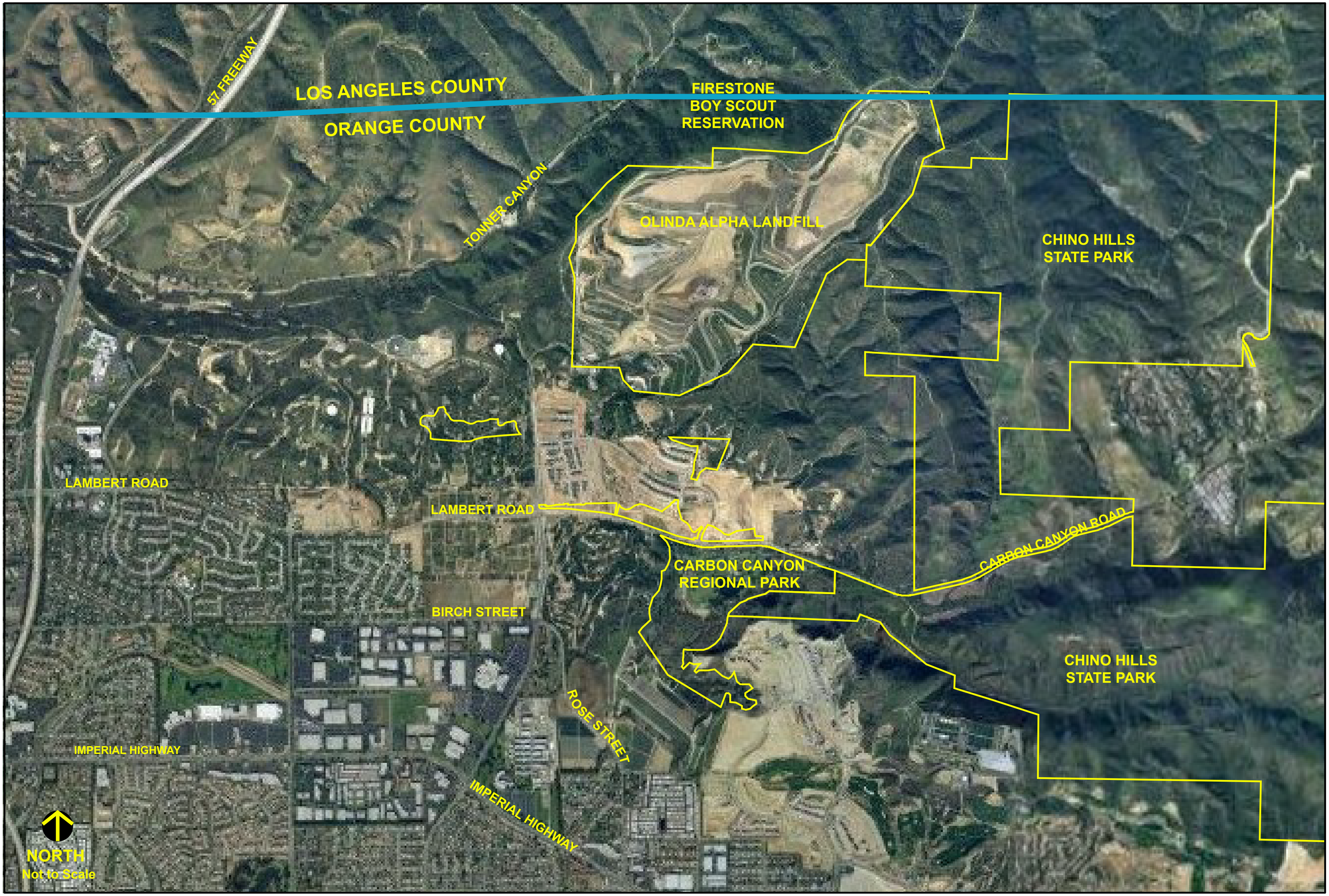
A variety of recreational opportunities are available throughout Orange County and in the project vicinity. These recreational opportunities range from passive and active neighborhood parks designed to serve local community needs to large wilderness parks that provide hiking and picnicking opportunities. Many of the County's regional parks provide unique wildlife viewing opportunities and attract both local and regional residents. Recreational opportunities in the project area are discussed below by jurisdiction. The locations of these facilities in relation to the landfill property are provided in Figure 5.11-1.

State of California Chino Hills State Park (Existing)

Chino Hills State Park, a 12,452-acre wilderness park owned by the State of California, is 1.7 miles southeast of Olinda Alpha Landfill. This Park is equipped with a picnic area, equestrian staging area and primitive camping facilities. The Park includes 65 miles of trails for hiking, mountain bike riding and equestrian use.

County of Orange Carbon Canyon Regional Park (Existing)

Carbon Canyon Regional Park, a 125-acre park owned by the County of Orange, is 0.9 mile southeast of Olinda Alpha Landfill. The Park, in a floodplain at the base of Carbon Canyon Dam, is accessible from Carbon Canyon Road. The Park is both an active and passive use park that includes a lighted tennis court, multi-purpose fields, volleyball courts, restrooms, picnic shelters, barbeques, picnic tables, a four-acre fishing lake, equestrian trails, hiking trails and a bike trail.



Source: Keyhole, Inc. and P&D Consultants, Inc. (2004).

Figure 5.11-1

Recreational Facilities in the Vicinity of Olinda Alpha Landfill

County of Orange Olinda Regional Park (Proposed)

Olinda Regional Park is a passive use proposed regional park that includes the Olinda Alpha Landfill property. A part of the park site adjacent to the landfill is designated on the County of Orange General Plan as an existing Regional Park. This parcel of land is owned by the County due to a recent acquisition, but is not currently open to the public. Future access to this site is dependent on the closure and reclamation of Olinda Alpha Landfill.

City of Brea

Olinda Ranch Neighborhood Park is located immediately adjacent to the north side of Carbon Canyon Road and abuts the south part of the Olinda Ranch Planning Community. Park amenities include picnic tables, a tot lot, a basketball court and a baseball field.

Private Recreational Facilities

Firestone Boy Scout Reservation is a private recreational facility immediately north of Olinda Alpha Landfill in Los Angeles and Orange County. The facility is one of four camping facilities owned by the Los Angeles Area Council of the Boy Scouts of America. The Reservation includes an archery and rifle range, swimming pool, nature center, hiking trails and outdoor camping facilities. The Reservation originally included approximately 3,300 acres adjacent to the northern Olinda Alpha Landfill property boundary. Approximately 2,400 acres of the Reservation were sold in 2000 to the City of Industry's Industry-Urban Development Agency (IUDA). A new weekend camping facility is proposed for construction within the remaining 870 acres retained by the Boy Scouts, on the southeast part of the original Reservation. The Scouts have entered into an agreement with the IUDA to allow continued use of the property for camping until the new facilities are constructed. Under the current agreement, the Boy Scouts are permitted use of the site to accommodate large camping groups and use of existing training facilities on a part-time basis.

5.11.1.3 Regional Biking, Riding and Hiking Trails

State of California

Chino Hills State Park includes over 65 miles of trails for hiking, mountain bike riding and equestrian use. The trails allow for passive and active recreation uses. A one mile long nature trail in Carbon Canyon Regional Park provides access to Chino Hills State Park for hikers. The existing Chino Hills Trail on the City of Brea GP Riding and Hiking Trails Master Plan is along the east boundary of the landfill property and in the proposed Olinda Regional Park. Figure 5.11-2 shows riding and hiking trails in the vicinity of the Olinda Alpha Landfill.

County of Orange

The County of Orange maintains a Regional Trail System consisting of paved bike paths and unpaved trails for hiking, mountain biking and equestrian use. The Regional Trail System provides linkages with community trails throughout Orange County and trails from surrounding counties. As shown on the County's Master Plan of Regional Riding and Hiking Trails map, the conceptual alignment for the Diamond Bar Trail is in the vicinity of the landfill expansion in the proposed Olinda Regional Park as depicted on Figure 5.11-2.

City of Brea

The City of Brea GP Riding and Hiking Trails Master Plan identifies the proposed Tres Hermanos Trail extending through the Olinda Alpha Landfill property. The Trail provides a link between the proposed Tonner Ridge and Diamond Bar Trails as shown on Figure 5.11-2. The Parks and Recreation Element of the City of Brea GP includes the three trails listed above with facilities proposed to meet recreational needs projected for 2020.

The City of Brea Bikeway Master Plan depicts the proposed Valencia Avenue bike path in the vicinity of the landfill. The facility is proposed as a Class I facility, which is defined as a path that is physically separated from motor vehicles and designed primarily for the use of bicycles. The path is intended to facilitate future use of the proposed Olinda Regional Park by providing access for bicyclists from the intersection of Imperial Highway and Valencia Avenue to this future regional park.

5.11.2 THRESHOLDS OF SIGNIFICANCE

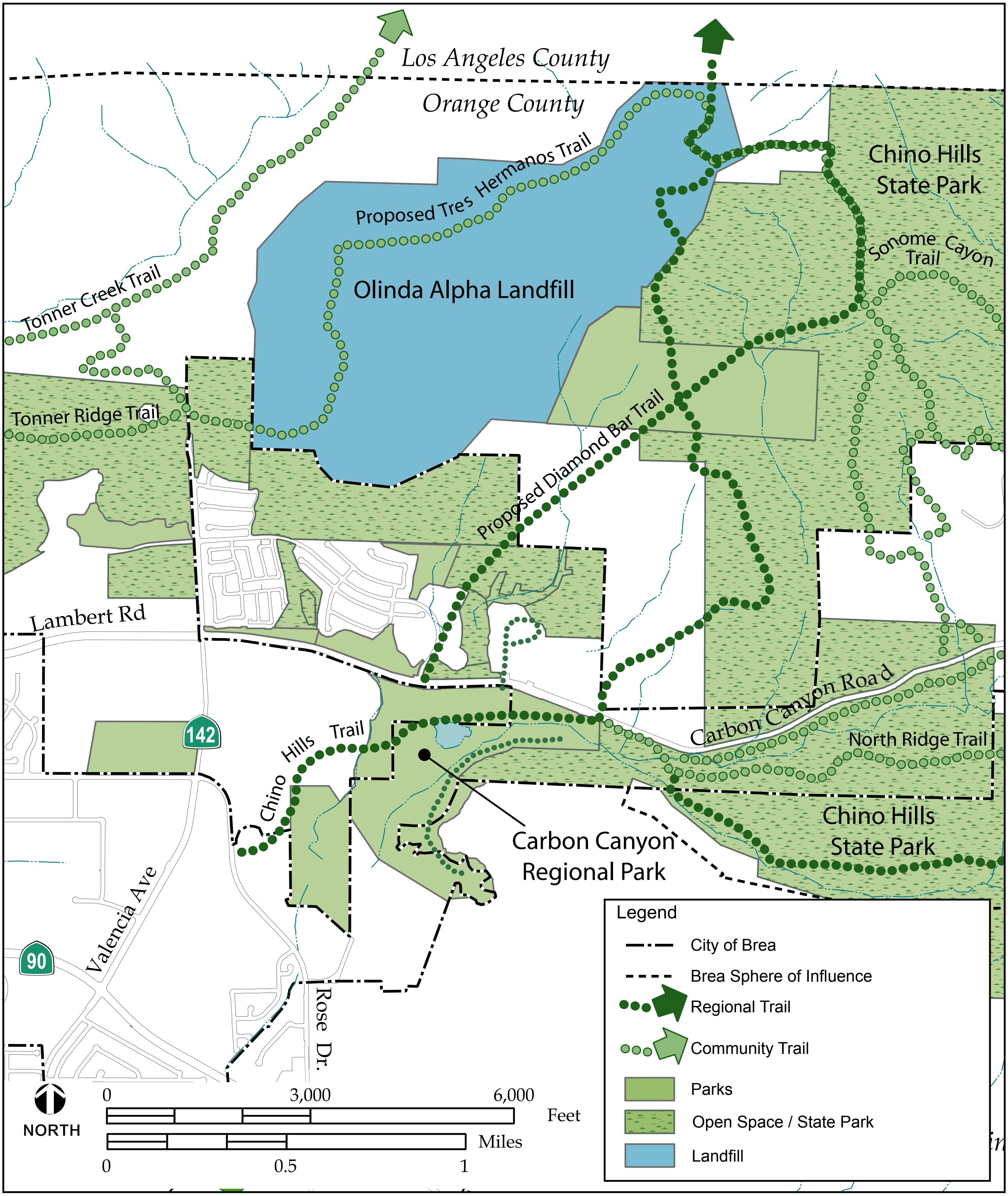
Public service impacts would be considered significant and adverse if the proposed project:

- Results in a need for the substantial expansion of existing facilities.
- Results in an increase in demand for services that could not be met by existing or planned resources.
- Results in an increase in emergency response time.
- Results in need for new/altered government facilities/services regarding parks.

5.11.3 METHODOLOGY RELATED TO PUBLIC SERVICES

The OCFA was contacted to determine if the proposed project would result in a significant adverse impact on its ability to provide fire protection and emergency services to the landfill and surrounding area.

The proposed expansion project was compared to the County of Orange Master Plan of Regional Recreation Facilities and City of Brea General Plan Recreation Element for consistency.



Source: City of Brea General Plan (2003), County of Orange General Plan (2000) and P&D Consultants, Inc. (2004).

Figure 5.11-2

Riding and Hiking Trails in the Vicinity of the Olinda Alpha Landfill

5.11.4 POTENTIAL IMPACTS

5.11.4.1 Fire Protection and Emergency Services

The design and operation of the expansion area at the landfill will incorporate required fire safety features in compliance with the OCFA similar to existing features associated with the existing landfill operations. The OCFA has stated that they are currently upgrading several fire stations in the project area; however, the proposed project will not result in the need for additional fire service personnel nor would it require the need to expand any existing facilities or construction of new facilities.

Because the landfill property is in the Very High Fire Severity Hazard Zone, all new development on the site will conform to applicable wildland occupancy standards. Therefore, no significant adverse impact is anticipated.

Olinda Alpha Landfill has regulatory mandates requiring extensive operational procedures for the prevention and control of fires. Section 5.10.5 (Existing Conditions) discusses the existing fire control, prevention practices and fire fighting provisions currently used at the landfill. The proposed vertical and horizontal expansion at the landfill will result in the continued operation of the landfill from 2013 to approximately 2021. The operation of the landfill will include continued adherence to applicable state and local ordinances related to fire prevention and control. Therefore, no significant adverse impact is anticipated.

5.11.4.2 Recreational Opportunities

The Olinda Alpha Landfill property is designated on the County of Orange Master Plan of Regional Recreational Facilities and the City of Brea General Plan as a future County passive use regional park. The planned post-closure use of the existing landfill would result in the conversion of the landfill property to a passive use regional park. The vertical and horizontal expansion will result in the continued operation of the landfill from 2013 to approximately 2021 which will delay the use of this site for recreational use for at least eight years. However, it will not preclude the recreational opportunity of this site after closure of the landfill. This short term delay is not considered to be a significant adverse impact.

The City of Brea currently exceeds the established service standard of five acres of park and recreation facilities per 1,000 residents. The City's GP buildout estimates up to 50,483 people living in the City of Brea in 2023. Brea will still exceed its park service standard with implementation of the GP. Therefore, the vertical and horizontal expansion will not result in a significant adverse impact on the City of Brea's ability to meet its parkland service standard.

Implementation of the proposed project does not include the construction of residential or commercial uses which would result in the increased use of area parks or regional recreational facilities. The proposed project will not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated. Implementation of the proposed project will not result in the need for new or altered recreational facilities.

5.11.4.3 Regional Biking, Riding and Hiking Trails

The proposed vertical and horizontal expansion of Olinda Alpha Landfill will not impact any existing trails. The County of Orange Master Plan of Regional Riding and Hiking Trails does not identify any existing trails or trail staging areas on the landfill property. The alignment for the proposed Diamond Bar Trail is depicted in the Master Plan along the northeastern landfill property boundary. Implementation of this conceptual trail alignment is not planned in the near future and most likely would be implemented after closure of the landfill. If this proposed trail is implemented prior to landfill closure, it should be located outside the landfill property.

The City of Brea Trail Plan identifies the proposed alignment of the Tres Hermanos Trail as traversing the landfill property from the southwest to the northeast. However, implementation of this trail will not occur until after landfill closure. The City's Trail Plan identifies the alignment of the Chino Hills Trail along the west part of the landfill property. As with the Diamond Bar Trail, if these trails are implemented prior to landfill closure, they should be located outside the landfill property. For these conceptual trails, if they are constructed after landfill closure, they would likely be located on the landfill property as part of the future Olinda Regional Park use.

5.11.5 MITIGATION MEASURES

Impacts to public services (fire protection services and parks) will be less than significant and no mitigation is required.

5.11.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts to public services (fire protection and parks) are less than significant.

5.12 BIOLOGICAL RESOURCES

This Section describes existing biological resources within the maximum 33-acre landfill expansion area, potential adverse impacts of the landfill expansion on biological resources, and mitigation measures to reduce or avoid potentially significant adverse impacts of the proposed project on biological resources.

5.12.1 EXISTING CONDITIONS

5.12.1.1 Plant Communities

The plant communities in the proposed landfill expansion area were determined during biological field surveys. There are five plant communities present within the 33-acre expansion area surveyed, as shown on Figure 5.12-1: cut/slope revegetation (10.6 acres), toyon-sumac chaparral (16.9 acres), Venturan-Diegan transitional coastal sage scrub (CSS, 4.0 acres), oak woodland (1.3 acres) and ruderal non-native grassland (0.2 acre). Each of these plant communities is described below.

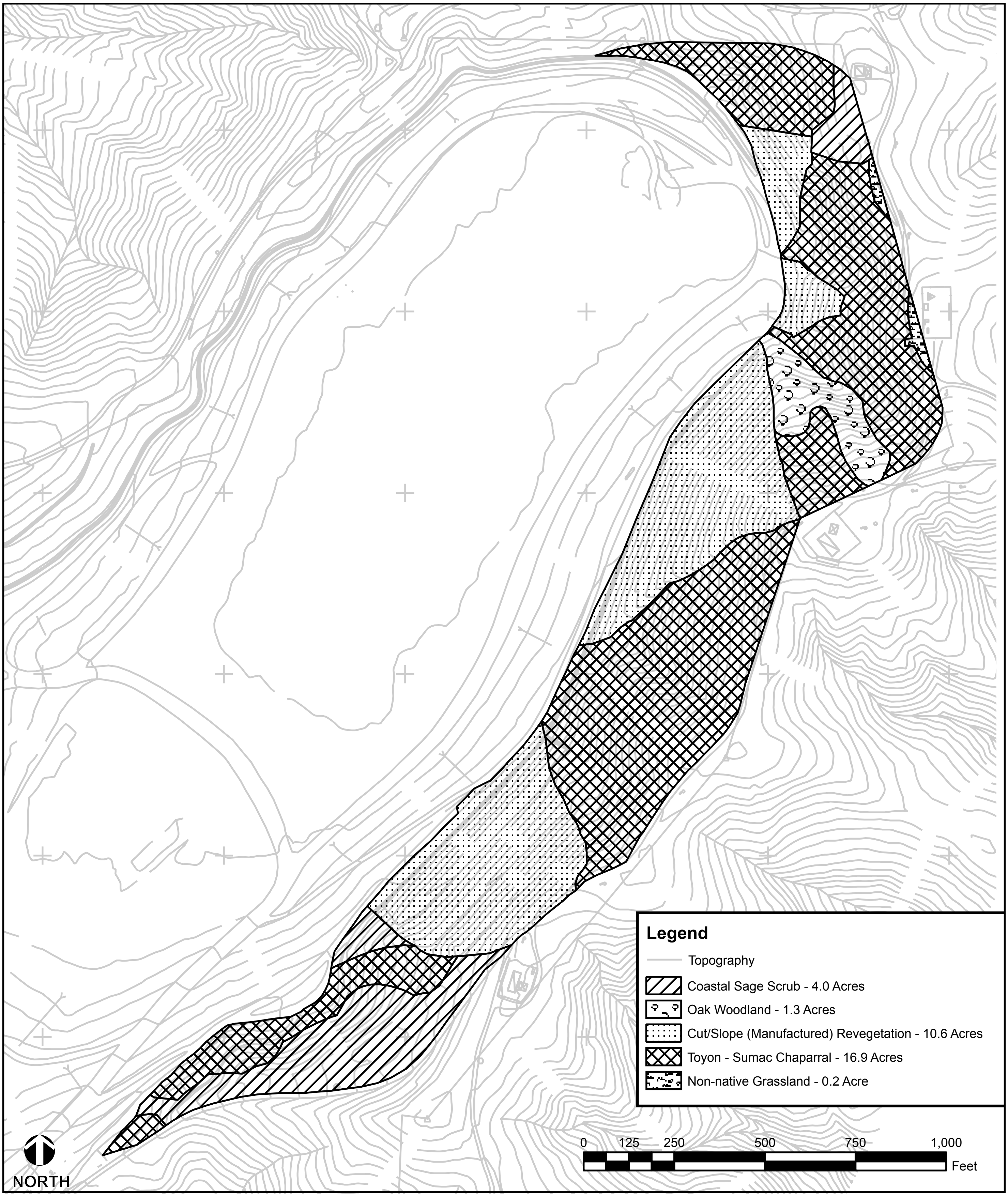
<u>Cut/Slope Revegetation</u>

The plant community classified as cut/slope revegetation comprises 10.6 acres of the expansion area. It is present on the cut-slopes where previous ground disturbance has occurred. These areas were hydroseeded in 1996 as part of a landslide remediation project (County of Orange, IWMD). The hydroseeding, in combination with recolonization by surrounding native plant species, has created a plant assemblage consisting of California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), deerweed (*Lotus scoparius*), thick-leaved yerba santa (*Eriodictyon crassifolium*), California encelia (*Encelia californica*), saltbush (*Atriplex* spp.) and Parish's viguiera (*Viguiera parishii*). Currently, the height of the vegetation varies between 1.5 and five feet. The structure of the vegetation has changed and grown in stature over the past year and provides some foraging, refuge and nesting habitat for wildlife species.

<u>Venturan-Diegan Transitional Coastal Sage Scrub</u>

Venturan-Diegan transitional CSS comprises 4.0 acres of the expansion area. This scrub association is dominated by low stature, drought deciduous species. This transitional association often contains elements of two recognized geographical associations of CSS, Venturan and Diegan. The Orange County Habitat Classification System (OCHCS; Gray and Bramlet 1992) recognizes 12 subassociations of Venturan-Diegan transitional CSS. The most prevalent subassociation on the landfill expansion site was California sagebrush-California buckwheat scrub.

The vegetative cover of the Venturan-Diegan traditional CSS within the expansion area varies from open to dense. It is dominated by California sagebrush and California buckwheat. Additional common plant species detected during the survey and common to this plant community include deerweed, black sage, purple sage (*Salvia leucophylla*), white sage (*Salvia*



Source: P&D Consultants, Inc. (2004).

Figure 5.12-1
Plant Communities in the 33-Acre Expansion Area

apiana), California brickellia (*Brickellia californica*), Parish's viguiera, California sunflower (*Helianthus californicus*), white sweet clover (*Melilotus alba*), blue-eyed grass (*Sisyrinchium bellum*) and California encelia (*Encelia californica*). Two woody shrubs, lemonade berry (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*), were also common as subdominants in this community. Site factors include low moisture availability, with steep, xeric slopes and clay-rich soils that are slow to release stored water. This community typically intergrates at higher elevations with several chaparral associations.

Additional plant species not detected but common to this plant community include narrow-leaved bedstraw (*Galium angustifolium*), California wishbone bush (*Mirabilis californica*) and coastal goldenbush (*Isocoma menziesii* var. *menziesii*). Native bunchgrasses, including purple needlegrass (*Nassella pulchra*), foothill needlegrass (*Nassella lepida*) and coast range melic (*Melica imperfecta*), often occur as understory in the spaces between the shrubs.

Toyon-Sumac Chaparral

Toyon-sumac chaparral typically contains broad-leaved sclerophyll shrubs, ranging from 6.5 to 13 feet tall, and often forms dense, nearly impenetrable vegetation dominated by a number of plant species. The toyon-sumac plant community occupies 6.9 acres in the expansion area. The common plant species detected during the survey included lemonade berry, toyon (*Heteromeles arbutifolia*) and laurel sumac. Other plant species detected included chaparral currant (*Ribes malvaceum*), fuchsia-flowered gooseberry (*Ribes speciosum*), silver bush lupine (*Lupinus albifrons*), poison oak (*Toxicodendron diversilobum*), mule-fat (*Baccharis salicifolia*), coast live oak (*Quercus agrifolia*), blue elderberry (*Sambucus mexicana*), wild-cucumber (*Marah fabaceus*), chaparral bush mallow (*Malacothamnus fasciculatus*) and sticky monkeyflower (*Mimulus aurantiacus*). Within the lateral expansion area, the toyon-sumac chaparral occupied areas are in an undisturbed condition offering foraging, refuge, burrowing and nesting habitat for wildlife. This plant community is abundant throughout the Chino Hills-Puente Hills area.

Plants are typically deep-rooted in this habitat. There is usually little or no understory vegetation, though often there is a considerable accumulation of leaf litter. Growth may occur throughout the year but it is highest in spring and much reduced during the late summer-fall dry season or during the winter at higher elevations. The flowering season for most chaparral species extends from late winter to early summer. This community is adapted to repeated fires, to which many species respond by stump sprouting. A dense cover of annual herbs may appear during the first growing season after a fire, followed in subsequent years by perennial herbs, short-lived shrubs and re-establishment of dominance by the original shrub species. Site factors include dry, rocky, often steep slopes with little soil. Slopes are typically north-facing in southern California; the slopes within the landfill expansion area are generally north-northwest facing.

Coast Live Oak Woodland

Coast live oak woodland is considered a sensitive plant community by the California Department of Fish and Game (CDFG) as listed in the California Natural Diversity Database (CNDDB 2003). The distribution of coast live oak woodland includes the outer South Coast Ranges, and coastal slopes of the Transverse and Peninsular Ranges, usually below 4,000 feet. Within coast live oak woodlands, only one dominant tree species exists, coast live oak, which is evergreen. Within this plant community, coast live oaks ranged from 35 to 40 feet in height. The other tree species present in this community in the landfill expansion area was southern black walnut (*Juglans californica*). Within the expansion area, the shrub layer was well developed creating vegetative layers and structure. The dominant shrub plant species was blue elderberry. Other shrub plant species present included toyon, fuchsia-flowered gooseberry, lemonade berry and laurel sumac. Within the expansion area, this community is on a north-facing slope in a shaded ravine. The complexity of the overstory has created damp conditions in the understory, with species of fern and rotting logs present. Within the expansion area, the coast live oak woodland areas were in undisturbed condition offering foraging, refuge, burrowing and nesting habitat. Within the expansion area, coast live oak woodland is limited to 1.3 acres.

Ruderal Non-Native Grassland

Grassland plant communities are typically characterized by both native bunchgrasses and non-native annual grasses. Grassland habitat occurs in isolated areas within the expansion area (0.2 acre). It appears associated with areas that have been subject to disturbance. The types of vegetation vary according to the nature and severity of the disturbance and generally include shortpod mustard (*Hirshfeldia incana*), tocalote, Russian thistle (*Salsola tragus*), cardoon, milk thistle (*Silybum marianum*), Australian saltbush and cheeseweed (*Malva parviflora*). Non-native annual grasses such as oats, bromes and barleys are often a substantial component of grassland areas.

5.12.1.2 Wildlife Species

In general, the plant communities within the approximate 33-acre expansion area would be expected to contain many species typical of these habitats. This would include amphibians, reptiles, birds and mammals, as described below. Special interest wildlife species are described later in this Section.

The following species were detected on the landfill expansion site during the field surveys. Within the oak woodland, a garden slender salamander (*Batrachoseps major*) was located under a rotting log. Tracks of mule deer (*Odocoileus hemionus*) and scat of bobcat (*Felis rufus*) were detected. A coyote (*Canis latrans*) was also detected on-site.

The following bird species were located within the expansion area during the biological surveys: lesser goldfinch (*Carduelis psaltria*), song sparrow (*Melospiza melodia*), yellow-rumped warbler (*Dendroica coronata*), wrentit (*Chamaea fasciata*), house finch (*Carpodacus mexicanus*), Anna's hummingbird (*Calypte anna*), Allen's hummingbird (*Selasphorus sasin*), common raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), northern flicker (*Colaptes auratus*), white-crowned sparrow (*Zonotrichia leucophrys*), golden-crowned sparrow (*Zonotrichia atricapilla*), California towhee (*Pipilo crissalis*), spotted towhee (*Pipilo maculates*), house wren (*Troglodytes aedon*), rufous-crowned sparrow (*Aimophila ruficeps*), Bewick's wren (*Thryomanes bewickii*), greater roadrunner (*Geococcyx californianus*), western scrub jay (*Aphelocoma californica*), California thrasher (*Toxostoma redivivum*), phainopepla (*Phainopepla nitens*), Cassin's kingbird

(*Tyrannus vociferans*), bushtit (*Psaltriparus minimus*) and Lincoln's sparrow (*Melospiza lincolnii*).

5.12.1.3 Wildlife Corridors

The regional context of Olinda Alpha Landfill is an important consideration in the analysis of wildlife movement through the proposed landfill expansion area. Tonner Canyon, north and west of the landfill property, is an important wildlife corridor linking animal movement from one side of SR 57 to the other (City of Brea General Plan Final EIR 2003 and Wildlife Corridor Conservation Authority (WCCA) 2002). To the immediate east of the landfill property is Chino Hills State Park, and further east is Carbon Canyon. Both these areas are known as important wildlife movement areas (City of Brea General Plan Final EIR 2003). They compose what is known as the Puente-Chino Hills wildlife corridor, which connects Cleveland National Forest in the Santa Ana Mountains with the Whittier-Puente Hills to the west-northwest. The species diversity and importance of this wildlife corridor are such that the WCCA, a joint powers authority represented by the Cities of Whittier, La Habra Heights, Diamond Bar and Brea, and Los Angeles County, California Department of Parks and Recreation, CDFG and Santa Monica Mountains Conservation Authority was formed. The WCCA was created to provide the proper planning, conservation and environmental protection of the habitat in this wildlife corridor.

Immediately to the west of the expansion area is the active landfill, which creates conditions largely unsuitable for wildlife movement. Because of the existing landfilling activities, east-west wildlife movement is highly restricted in that area. Currently, east-west wildlife movement is occurring north of the landfill, where fewer constraints to movement are present. The east border of the proposed expansion area is on the west-facing side of an existing ridgeline. Currently, any north-south wildlife movement in the vicinity of the expansion area would be following this geographic feature, and would fall outside of the direct impact area for the proposed expansion.

5.12.1.4 Special Interest Habitats/Species

There are no listed species of plants or wildlife confirmed to be present within the expansion area. Other special interest habitats and species in the landfill expansion area are described below.

<u>Coast Live Oak Woodland</u>

Coast live oak woodland is listed as a sensitive plant community by the CDFG (CNDDB 2003). On the expansion area, this plant community occupies 1.3 acres.

<u>Venturan-Diegan Transitional Coastal Sage Scrub</u>

Both the Diegan and Venturan CSS communities are ranked as very threatened by the CNDDB (2003). On the expansion area, this plant community occupies 4.0 acres.

Intermediate Mariposa Lily

Intermediate mariposa lily (*Calochortus weedii* var. *intermedius*) is known to occur on dry, rocky open slopes and rock outcrops in CSS and chaparral at elevations from 390 to 2,000 feet. It is included on the California Native Plant Society (CNPS) 1B list (rare, threatened or endangered in California and elsewhere). The expansion area contains approximately 20.9 acres of suitable habitat for intermediate mariposa lily. This species blooms from May to July, and its presence is difficult to determine outside of this time period.

Many-Stemmed Dudleya

Many-stemmed dudleya (*Dudleya multicaulis*) is often associated with clay soils in barrens, rocky places and ridgelines, as well as thinly vegetated openings in chaparral and CSS habitats. It prefers heavy, clay-like soils on sloped terrain, and the majority of populations are associated with CSS. It is on the CNPS 1B list, meaning it is rare, threatened or endangered in California and elsewhere. The expansion area contains approximately 20.9 acres of suitable habitat for many-stemmed dudleya. This species blooms from April to July, and its presence is difficult to determine outside of this time period.

Orange-Throated Whiptail

The orange-throated whiptail (*Aspidoscelis hyperythrus*) is a California Species of Concern (CSC) species. The preferred habitats for this species include chaparral, CSS and oak woodland. This species relies on perennial vegetation because its major food source, termites, requires perennial plants as a food base. California buckwheat, a colonizing species of disturbed, sandy soils, is an important indicator of favorable habitat for orange-throated whiptail. This species prefers inter-shrub spacing of 10 to 40 percent bare ground cover, which is required for foraging and thermoregulatory behavior. The landfill expansion area contains habitat suitable for orange-throated whiptail, although none were sighted during the field surveys.

Coast Horned Lizard

The coast horned lizard (*Phrynosoma coronatum blainvillei*), a CSC species, is found in a wide variety of vegetation types including CSS, chaparral and oak woodland. This species requires areas with frequent pockets of open microhabitat for thermoregulation. Although none were detected during the surveys, the habitat characteristics of the landfill expansion area are suitable for coast horned lizard.

Northern Red-Diamond Rattlesnake

The northern red-diamond rattlesnake (*Crotalus ruber rubber*) is a CSC species. Although this snake is recorded from a number of vegetation types, it is most commonly associated with heavy brush with large rocks or boulders. Dense chaparral or boulder associated CSS provide suitable habitat. Availability of suitable dens for both hibernation and breeding may be a limiting factor in its distribution. The landfill expansion area contains habitat suitable for northern red-diamond rattlesnake. Although none were sighted during the field surveys, northern red-diamond rattlesnakes have been seen at the landfill expansion area.

Coast Patch-Nosed Snake

The coast patch-nosed snake (*Salvadora hexalepis virgultea*) is a CSC species. This snake is associated with brushy or shrubby vegetation, such as CSS and chaparral. There is little information on the specific habitat requirements of this species except that it requires small mammal burrows for refuge and overwintering sites. The landfill expansion area contains suitable coast patch-nosed snake habitat, although none were sighted during the field surveys.

Coastal California Gnatcatcher

The coastal California gnatcatcher (*Polioptila californica californica*, CAGN) is a federally threatened species (USFWS 1993). Habitat preferences of the CAGN primarily include CSS communities. CSS is composed of relatively low-growing, dry-season deciduous and succulent plants. The gnatcatcher prefers CSS with an open or broken canopy but is also found in low scrub with a closed canopy. It is generally scarce in scrub dominated by tall shrubs (e.g. taller than approximately five feet).

In general, the habitat qualities of the landfill expansion area are marginally suitable for CAGN. The most suitable habitats included the plant communities classified as Venturan-Diegan CSS and cut/slope revegetation which together total 14.6 acres on the landfill expansion site. This habitat is not ideally suited to CAGN because of the lack of contiguous, high quality CSS. Additionally, the expansion area contains steep slopes that would not typically be preferred by CAGN.

The critical habitat designation by USFWS (2000) for CAGN excludes the Olinda Alpha Landfill property. However, critical habitat for CAGN is located immediately to the west, north and east edges of the landfill property.

A total of six (6) protocol surveys for CAGN were conducted by Douglas Willick (Permit TE821404-3) and Gilberto Ruiz (Permit TE 840036-2) to determine presence/absence of this species. All surveys were conducted during appropriate weather conditions per USFWS survey requirements.

Records from the CNDDB (2003) show that the three closest recorded observations of CAGN to the landfill expansion area were approximately 1.5 miles to the southwest (1999), 2.5 miles to the southeast (1999) and 3.5 miles to the west (2001). An important factor is the difference in elevation from these recorded sites (average of 600 feet) compared to the expansion area (1,200 feet). According to Atwood (1990), 94 percent of all CAGN locality records (Los Angeles, Orange and San Diego Counties) occur at or below an elevation of 820 feet, which makes the suitability of the landfill expansion area marginal for CAGN.

Coastal Cactus Wren

The coastal cactus wren (*Campylorhynchus brunneicapillus*), a CSC species, is an obligate, nonmigratory resident of the CSS plant community. It is closely associated with three species of cacti and occurs in thickets of cholla (*Opuntia prolifera)* and prickly pear (*Opuntia littoralis* and

Opuntia oricola) dominated stands of CSS below 1500 feet in elevation. Characteristic shrubs associated with habitat occupied by the cactus wren include California buckwheat, California sagebrush, several sage species and scattered shrubs approaching tree-size, such as laurel sumac and lemonade berry. The proposed landfill expansion area provides only marginally suitable habitat for this species due to the lack of cacti species.

Rufous-Crowned Sparrow

The rufous-crowned sparrow (*Aimophila ruficeps canescens*) is a CSC species. Suitable habitat for this species includes moderate to steep CSS and chaparral, and often occurs near the edges of the denser scrub and chaparral associations. The rufous-crowned sparrow prefers stands of California sagebrush but also colonizes sparse CSS and chaparral recovering from a burn. Optimal habitat consists of sparse, low brush on slopes preferably interspersed with boulders and outcrops. It is generally absent from dense, unbroken stands of CSS and chaparral. The dominant overstory shrubs associated with the habitats used by rufous-crowned sparrow include California sagebrush, purple sage, black sage, California encelia, coyote brush (*Baccharis pilularis*), mock heather *(Ericameria ericoides*), deer weed, giant rye (*Leymus condensatus*) and buckwheat. This species was detected within the landfill expansion area and suitable habitat exists in that area for this bird.

Bell's Sage Sparrow

The Bell's sage sparrow (*Amphispiza belli belli*) is a CSC species. The sage sparrow prefers semi-open habitats with evenly spaced shrubs three to six feet high. Vertical structure, habitat patchiness and vegetation density may be more important in habitat selection by the sage sparrow than the specific shrub species. Tall, overgrown chaparral stands generally have fewer sage sparrows than shorter shrubs. The Bell's sage sparrow seeks cover in fairly dense stands in chaparral and scrub habitats in the breeding season, and they forage on the ground beneath and between shrubs. In general, this species is closely associated with sagebrush. CSS plant species associated with Bell's sage sparrow include *artemisia, purshia* and *atriplex* as well as mixed brush and cactus patches in arid washes. The landfill expansion area provides habitat characteristics that are suitable for Bell's sage sparrow.

5.12.2 THRESHOLDS OF SIGNIFICANCE

Biological resource impacts would be considered significant and adverse if the proposed project would result in one or more of the following conditions:

- Substantially and adversely affect, either directly or through habitat modifications, a candidate, sensitive, threatened or endangered species.
- Substantially and adversely affect any riparian habitat or other sensitive natural community.
- Interfere substantially with the movement of any resident or migratory fish or wildlife species.

The evaluation of impacts with these thresholds must also consider the resource and its extent and distribution locally and regionally. Determining whether an impact is significant depends on whether or not the loss would be substantial with respect to local or regional extent of the species.

5.12.3 METHODOLOGY RELATED TO BIOLOGICAL RESOURCES

A search of the CNDDB (2003) was completed for the four closest quadrangles to Olinda Alpha Landfill: the La Habra, Yorba Linda, Anaheim and Orange quadrangles. In addition, the assessment of existing biological resources on the expansion site was aided by biological surveys on February 17 and March 5, 2004, by Mikael Romich, P&D Biologist. During these visits, the site was surveyed for existing biological resources in the expansion area. All plants and animals detected were noted and plant community mapping was completed with the aid of an aerial photograph. These plant community delineations were then transferred to a Geographic Information System (GIS) to allow acreage calculations.

The OCHCS (Gray and Bramlet 1992) was used to classify the plant communities in the landfill expansion area based on characteristic plant species and structure. The OCHCS divides plant communities into associations and subassociations. An association is a particular type of plant community that has been described sufficiently and repeatedly in several locations such that it is considered to have a relatively consistent species composition, a characteristic physiognomy (growth form or structure) and a distribution that is characteristic of a particular habitat. For this analysis, plant communities were classified into associations.

5.12.4 POTENTIAL IMPACTS

5.12.4.1 Impacts on Plant Communities

The conversion of the 33-acre expansion area to landfill uses will adversely impact all the plant communities and biological resources currently occupying that site. The impacted plant communities will include 10.6 acres of cut/slope revegetation, 16.9 acres of toyon-sumac chaparral and 0.2 acre of ruderal non-native grassland. Additionally, there will be impacts to 1.3 acres of coast live oak woodland, a sensitive natural community, and 4.0 acres of Venturan-Diegan transitional CSS, a very threatened community.

The impacts to the 16.9 acres of toyon-sumac chaparral and the 0.2 acres of grassland are not considered adverse and significant because they are not considered special status plant communities and are found abundantly on a local and regional scale.

The adverse impacts to 4.0 acres of Venturan-Diegan CSS are considered significant because it is a threatened community and provides marginally suitable habitat for the CAGN.

The adverse impacts to 10.6 acres of cut/slope revegetation are considered significant because they have the potential to provide marginally suitable habitat for the CAGN.

The adverse impacts to 1.3 acres of coast live oak are significant because it is considered a sensitive natural community.

5.12.4.2 Impacts on Special Interest Species

Two sensitive plant species (CNPS 1B list) may be impacted by the landfill expansion project: intermediate mariposa lily and many-stemmed dudleya. Although these species have not been confirmed within the proposed expansion area, suitable habitat for these species does exist within the expansion area.

Protocol surveys for CAGN were conducted on-site within the 33-acre expansion area, but did not reveal the presence of this species. As such, no impacts to CAGN are expected to occur with project implementation.

The rufous-crowned sparrow, a CSC species, was confirmed within the expansion area during biological surveys. The northern red-diamond rattlesnake, a CSC species, was confirmed within the landfill expansion area. Although their presence was not confirmed, the expansion area provides suitable habitat for the following CSC species: orange-throated whiptail, coast horned lizard, coast patch-nosed lizard, coastal cactus wren and Bell's sage sparrow. As a result, these species will potentially be adversely impacted by the proposed landfill expansion. Generally, adverse impacts to CSC species are not considered significant because of their abundance on a regional scale.

5.12.4.3 Impacts to Wildlife Corridors

The 33-acre expansion area is part of the existing landfill property and is within the Puente-Chino Hills wildlife corridor. To determine the impacts to wildlife movement, the area surrounding the landfill expansion area must be considered. Immediately to the west is the active landfill, which creates conditions largely unsuitable for wildlife movement. Because of the existing landfilling activities, east-west wildlife movement is highly restricted in that area. Currently, east-west wildlife movement is occurring north of the landfill, where fewer constraints to movement are present. The proposed eastern expansion of the landfill will shift landfilling activities a maximum of 440 feet directly east. Therefore, the landfill expansion is not expected to further reduce east-west wildlife movement.

The east border of the proposed expansion area is on the west-facing side of an existing ridgeline. Currently, any north-south wildlife movement in the vicinity of the expansion area would be following this geographic feature, and would fall outside of the direct impact area for the proposed expansion. If wildlife were directly using the habitat within the expansion area for movement, there is abundant open space to the immediate east in Chino Hills State Park that would provide opportunities for north-south movement. Therefore, general north-south wildlife movement patterns in the vicinity of the expansion area are not anticipated to be directly impacted by this proposed project.

The indirect effects of the landfill expansion on wildlife movement may include the generation of dust, noise and light emissions that could potentially disturb animal behavior. These effects would most greatly impact wildlife movement east-northeast of the expansion area, in Chino Hills State Park. The expansion area will remain on the western side of an existing ridgeline. The ridgeline will act as a natural filter to dust and noise, allowing the eastern slope of the existing ridgeline to remain largely undisturbed. In addition, the majority of wildlife species using movement corridors would do so during evening hours when there is no landfill activity occurring because the landfilling operations terminate at dark.

The indirect effects of dust on wildlife movement are not expected to be significant. The County of Orange IWMD, as operator of the landfill, already implemented a dust control program to minimize particulate matter from entering the air during existing landfill operations. This program will continue and will be expanded to cover operations within the proposed landfill expansion area.

The indirect effects of noise on wildlife movement are not expected to be significant. After a period of acclimation to noise events, the wildlife would be expected to use adjacent areas normally. The most potentially disruptive noise event is the “cracker shell” which is used to scare gulls away. Based on qualitative notes during field surveys, this existing “cracker shell” noise did not appear to disrupt wildlife resident within the landfill expansion area.

The indirect effects of light on wildlife movement are not expected to be significant. Existing sources of night light at the landfill are minimal because there is no operation after daylight hours. There is no planned night lighting within the proposed landfill expansion area.

The expansion of the landfill will postpone closure and reuse of the property from 2013 to 2021. After closure of the landfill, the site is proposed for conversion to a passive use regional park. The existing conditions at the landfill do not provide suitable habitat or dispersion qualities for wildlife movement. However, it is anticipated that post-closure conditions (i.e. hydroseeded slopes and greenbelts) would provide more suitable conditions for wildlife movement. The suitability and value of the planned regional park to wildlife movement will depend on the specific park development plan and the recreation uses implemented on the site. In particular, the amount of vegetation restored to natural conditions and the degree of recreation use would influence suitability for wildlife movement.

Recent research (Crooks 2002, Tigas et al. 2002, Riley et al. 2003) has provided new information on how bobcat and coyote react to fragmentation and urbanization. In general, both species can be tolerant of fragmentation and human development but particular behavioral modifications occur. For example, the general pattern of activity for coyote and bobcat is crepuscular (rest during the day, traveling to foraging areas at dusk, foraging and rest during the night, and traveling to resting areas at dawn). With human disturbance, they are even less active during the day when human activity is high and become more active at night when human activity is low. Although these species may be tolerant of a fragmented landscape, they utilize natural areas more than developed areas, expand their home range in increasingly urbanized areas, and shift their use of developed areas to periods of decreased human presence (Riley et al. 2003). The eight year postponement of the landfill property for conversion to the regional park would delay the time frame for additional wildlife access and movement through the area.

5.12.5 MITIGATION MEASURES

The following mitigation measures will reduce impacts of the proposed to below a level of significance.

B-1 Prior to the removal of the 1.3 acres of coast live oak, IWMD shall prepare and submit a Mitigation Monitoring and Reporting Program (MMRP) to the CDFG for review and approval. In accordance with an approved MMRP, IWMD will replace the 1.3 acres of coast live oak woodland at a 1:1 ratio (or as otherwise approved by the CDFG). The location of coast live oak plantings on the landfill will be determined in consultation with CDFG and a qualified ecologist. However, if the ultimate location of these replacement oaks are within the disposal area of the landfill, the RWQCB-SA will need to approve the plan to ensure that the tree root system does not compromise landfill operations and/or closure (final cover) requirements.

B-2 Prior to the removal of the 4.0 acres of CSS and the 10.4 acres of cut/slope revegetation, IWMD shall prepare and submit a Coastal Sage Scrub Mitigation Plan (CSSMP), to the CDFG for review and approval. In accordance with an approved CSSMP, the IWMD will replace the 4.0 acres of CSS and the 10.4 acres of cut/slope revegetation, which provide marginally suitable habitat for the California gnatcatcher, at a 1:1 ratio (or as otherwise approved by the CDFG). Guidelines for the CSSMP are:

- The mitigation areas/sites shall have been evaluated and selected on the basis of their suitability for use as coastal sage scrub revegetation areas. The parameters evaluated shall include but not be limited to soil conditions, slope aspect, proximity to adjacent coastal sage scrub, level of difficulty of site preparation, and ownership status.
- The mitigation plan shall provide procedures to prepare the soils in the mitigation area, provide detailed seeding/planting mixtures, provide seeding/planting methods and provide any other procedures that will be used for successful revegetation.
- Maintenance and monitoring goals shall be established.

5.12.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The proposed project would result in significant adverse impacts to certain biological resources. Implementation of mitigation measures B-1 and B-2, above, will reduce these potential impacts of the proposed landfill expansion to below a level of significance.

SECTION 6.0
ALTERNATIVES TO THE PROPOSED PROJECT

SECTION 6.0
ALTERNATIVES TO THE PROPOSED PROJECT

6.1 OVERVIEW

This Section of the Environmental Impact Report (EIR) describes alternatives to the proposed expansion project at Olinda Alpha Landfill. In addition to the evaluation of the preferred project Alternative discussed in Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance), Section 15126.6 of the California Environmental Quality Act (CEQA) Guidelines requires that an EIR describe a range of reasonable alternatives to the proposed project that could feasibly attain most of the basic objectives of the project and are capable of avoiding or substantially lessening any of the significant effects of the proposed project. Section 15126.6 also requires that a No Project Alternative shall be evaluated along with its impacts. The No Project Alternative described in this Section considers the environmental consequences if the proposed project is not implemented.

In addition to the No Project Alternative discussed below and the proposed project analyzed in Section 5.0, this Section discusses two other project alternatives and alternatives that were considered but rejected. Potential environmental impacts associated with the two alternatives to the proposed project are discussed in this Section for the same environmental parameters addressed for the proposed project. A summary discussing the feasibility of the two alternatives is also provided.

6.2 PROJECT OBJECTIVES

Section 4.6 (Project Objectives) identified the project objectives for the proposed expansion at Olinda Alpha Landfill. These objectives are repeated here to allow meaningful comparison of the proposed expansion with the other two project Alternatives and the No Project Alternative and to provide for an understanding of the alternatives that were considered but rejected. The objectives of the proposed project to expand Olinda Alpha Landfill, which were derived from the Regional Landfill Options for Orange County (RELOOC) study goals and objectives and the RELOOC planning process, are:

- Define future waste disposal system by 2004 to provide a basis for renegotiation of WDAs with Orange County cities, franchised haulers and Districts.

- Ensure that the County's near term waste disposal needs are met.

- Maximize capacity of the existing Olinda Alpha Landfill.

- Maintain adequate revenues and local control of waste disposal to provide consistent and reliable public rates and fees.

- Maintain efficient, cost effective and high quality Integrated Waste Management Department (IWMD) operations.

- Minimize adverse environmental impacts associated with municipal solid waste (MSW) disposal.

6.3 ALTERNATIVE 1 – NO PROJECT ALTERNATIVE

6.3.1 DESCRIPTION OF ALTERNATIVE 1

The No Project Alternative would include no action by the County of Orange related to changes in landfilling activities, footprint and operations at Olinda Alpha Landfill. Under this Alternative, the proposed expansion and the extended life of the landfill would not occur. The landfill would continue to operate at its existing permitted capacity and closure date with no increase in long term physical capacity. As such, under this Alternative, the Olinda Alpha Landfill would continue to receive up to an annual average of 7,000 tons per day (TPD) of MSW under the existing Memorandum of Understanding (MOU) between the City of Brea and IWMD and would operate until its permitted closure date of 2013. Under this Alternative, importation of MSW into Orange County landfills would end in 2013. As described earlier in Section 4.3.1.2 (Tonnage Projections for RELOOC), on closure of Olinda Alpha Landfill in 2013, approximately 1,000 TPD of MSW, which is in excess of what could be accommodated at the Frank R. Bowerman (FRB) and Prima Deshecha Landfills within the existing permitted levels, would have to be accommodated at landfills outside Orange County. Under the No Project Alternative, the maximum daily permitted tonnages at the FRB Landfill and Prima Deshecha Landfill would be the same as existing levels, at 8,500 TPD and 4,000 TPD, respectively. The total permitted landfill capacity in Orange County in 2013, when Olinda Alpha Landfill closes, would be 12,500 TPD (8,500 + 4,000 = 12,500 TPD). This permitted system capacity would be approximately 1,000 TPD short of the projected daily tonnage demand of approximately 13,500 TPD in 2021. For the analysis of the No Project Alternative and the alternatives to the proposed project for the Olinda Alpha Landfill expansion evaluated in this Section, this 1,000 TPD shortfall was assumed. Under the No Project Alternative, this excess tonnage beyond the permit limits would need to be transported out of Orange County for disposal. The projected excess 1,000 TPD of MSW to be exported out of County is based on population projections for the system demand by 2013 as described in detail earlier in Section 4.3.1.2. Out-of-County landfills would have to be permitted to accept the excess tonnage from Orange County and may include El Sobrante Landfill in Riverside County and/or the Mid-Valley Landfill in San Bernardino County.

6.3.2 IMPACTS OF THE NO PROJECT ALTERNATIVE

6.3.2.1 Land Use and Planning

The No Project Alternative would not have any significant adverse impacts on planned land uses or land use policies within Orange County or within the City of Brea because there would be no landfill expansion or extended landfill life under the No Project Alternative. There would be no need to renegotiate the MOU between the County and the City of Brea. However, there would be land use policy impacts with out-of-County landfilling since the excess 1,000 TPD of MSW would need to be disposed of out of Orange County. Negotiations between the Counties and development of a MOU to increase daily tonnage limits would be required. Therefore, adverse impacts related to land use policy for out-of-County landfilling are anticipated under the No Project Alternative.

6.3.2.2 Geology and Soils

Under the No Project Alternative, there would be no disruption or displacement of soils on Olinda Alpha Landfill property other than that which would occur under existing operations and permits including closure. . In addition, there would be no disruption or displacement of soils other than what has been permitted at landfills outside of the County. Therefore, no adverse impacts related to geology and soils are anticipated under the No Action Alternative.

6.3.2.3 Hydrogeology and Geology

Under the No Project Alternative, there would be no additional refuse placement or potential leachate generation on the project site that would require coordination with the landfill section of the Regional Water Quality Control Board (RWQCB-SA). In addition, out-of-County landfilling would not have additional refuse placement or potential leachate generation other than what has been permitted. Out-of-County landfilling would still be required to coordinate with the landfill section of the RWQCB-SA. Therefore, no adverse impacts related to hydrogeology and water quality are anticipated under the No Project Alternative.

6.3.2.4 Surface Water Hydrology

Under the No Project Alternative, there would be no additional surface water flow on Olinda Alpha Landfill that would require a NPDES Permit and the SWPPP and BMPs that accompany the NPDES Permit. Out-of-County landfilling would not have additional surface water flow other than what has been permitted under the federally required industrial NPDES Permit to discharge storm flows. Therefore, no adverse impacts related to surface water hydrology are anticipated under the No Project Alternative.

6.3.2.5 Transportation and Circulation

Under the No Project Alternative, Olinda Alpha Landfill would close in 2013 on its currently scheduled closure date. Under this Alternative, importation of MSW from out-of-County would cease in 2013. After the 2013 closure, approximately 4,000 TPD of MSW would need to be accommodated at the Prima and FRB landfills in-County and approximately 1,000 TPD of MSW would have to be accommodated at landfills outside Orange County. Until 2013, the Olinda Alpha Landfill related traffic would be the same as existing conditions, with MSW traffic volumes ranging from a low of 364 daily vehicles to a high of 1,248 daily vehicles. These vehicles would be removed from the existing road network in the vicinity of Olinda Alpha Landfill in 2013. On an average day about 2,170 daily vehicles would be removed from the road system near Olinda Alpha Landfill after 2013 and would be traveling on the road system leading to the FRB, Prima Deshecha and out-of-County landfills. Therefore, there would be greater traffic occurring on road systems leading to the alternate landfill locations for diverted Olinda Alpha Landfill MSW after closure in 2013.

At present, a County Regional Park is planned for the landfill site after landfilling is terminated. The regional park would add traffic to the road system in the landfill vicinity; however, because the exact nature of the park is undefined at this date, that impact cannot be quantified.

6.3.2.6 Air Quality

Under the No Project Alternative, there would be an increase in air quality impacts once Olinda Alpha Landfill is closed in 2013. The increased mileage for truck trips required to transport MSW to the FRB and Prima Deshecha landfills in-County and outside the County would result in an increase in disposal vehicle exhaust. On-site equipment use at the other in-County and out-of-County landfills will be expected to be the same as those used for Olinda Alpha Landfill because quantities of MSW that need to be disposed of after closure of Olinda Alpha Landfill will be the same. Because on-site equipment use is projected to be the same as required at Olinda Alpha Landfill, emissions from this equipment would likewise be the same. Stationary sources of emissions (flares/power generation) would be provided at the other landfills accepting the diverted MSW. Because of the greater travel distance to transport MSW from the Olinda Alpha Landfill service area to other landfills, there would be a greater generation of air pollutant emissions under the No Project Alternative.

6.3.2.7 Noise

Under the No Project Alternative, there may be the potential for adverse increased noise impacts on sensitive receptors located along the travel routes of trucks hauling MSW to other in-County and out-of-County landfills after Olinda Alpha Landfill closes in 2013. The destination and route of travel for diverted MSW subsequent to the closure of Olinda Alpha Landfill is speculative. The potential for these impacts to occur would be dependent on the routes traveled by these trucks in Orange County and on the route to out-of-County landfills. On-site noise at landfills for which Olinda Alpha Landfill MSW would be diverted can be expected to increase due to the necessity for an increase in on-site equipment to dispose of the MSW. The potential for noise impacts at noise sensitive receptors in the vicinity of the landfills accepting diverted Olinda Alpha Landfill MSW is dependant on the proximity of these noise sensitive receptors to the landfill.

6.3.2.8 Aesthetics

The No Project Alternative would not change the aesthetic quality of views of Olinda Alpha Landfill because no expansion of the landfill or changes in landfilling practices would occur under this Alternative. The No Project Alternative has the potential to positively change the aesthetic quality of the views of landfills outside of Orange County because there would be less of an impact if those landfills close earlier than originally projected because of the additional MSW diverted from the Olinda Alpha Landfill. No adverse impacts related to aesthetics are anticipated under the No Action Alternative.

6.3.2.9 Cultural and Scientific Resources

The No Project Alternative would not involve excavation or grading on the landfill site beyond that which is currently permitted including final closure of Olinda Alpha Landfill. Even though other in-County and out-of-County landfilling includes the disruption or displacement of soils which has the potential to result in archeological or paleontological resources impacts, the areas anticipated to be disturbed have already been assessed under current landfilling permits. The No Project Alternative will not result in new adverse impacts related to cultural resources and scientific resources.

6.3.2.10 Hazards

Under the No Project Alternative, there would be no change from existing conditions at Olinda Alpha Landfill related to hazards and hazardous materials. Hazardous material disposal at other in-County and out-of-County landfilling would not be permitted. However, there would be a limited and shorter time use of hazardous materials on-site such as fuels, oils and other materials used in the operation and maintenance of landfill equipment and vehicles. This creates the potential for spills and leaks of fuel, oils and other liquids which would be similar to existing conditions and to the impacts under the proposed project. Potential impacts related to hazards would be similar under the No Project Alternative and the proposed project.

6.3.2.11 Public Services

Under the No Project Alternative, there would be no change from existing conditions at Olinda Alpha Landfill related to public services. Other in-County and out-of-County landfilling would not involve significant adverse impacts to public services because the landfilling activities will not increase the need for additional services. No adverse impacts related to public services are anticipated under the No Project Alternative. However, the costs for solid waste services in Orange County under the No Project Alternative will increase due to the longer hauling distances.

6.3.2.12 Biological Resources

Under the No Project Alternative, biological resources on Olinda Alpha Landfill property would remain as they currently exist. The existing vegetation would remain on the project site. Other in-County and out-of-County landfilling has the potential to impact biological resources. The biological resources anticipated to be disturbed have already been assessed and permitted at those landfills. No adverse impacts related to biological resources are anticipated under the No Project Alternative.

6.3.3 SUMMARY OF THE NO PROJECT ALTERNATIVE

Under the No Project Alternative, no change from existing conditions, no expansion and no extension of the life of Olinda Alpha Landfill would occur. This Alternative would be the environmentally superior alternative in the vicinity of the landfill because there would be less physical change to existing environmental conditions compared to the proposed project and the project alternatives. However, environmental impacts associated with hauling/disposing of waste at alternate disposal sites would occur (as discussed above in Section 6.3.2).

There would also be an increase in transport and disposal costs (for out-of-County landfills) which cannot be quantified as the costs would be determined by haulers transporting MSW diverted from the Olinda Alpha Landfill. Although economics is not a consideration under CEQA, one of the primary objectives of RELOOC and the Olinda Alpha Landfill Implementation project is to "maintain adequate revenues and local control of waste disposal to provide consistent and reliable public rates and fees". With exportation of MSW to out-of-County landfills under the No Project Alternative, that objective is not met.

6.4 ALTERNATIVE 2 – TWO LANDFILL SYSTEM IN 2013 (PRIMA DESHECHA DAILY TONNAGE INCREASE)

6.4.1 DESCRIPTION OF ALTERNATIVE 2

Alternative 2 assumes changes to Prima Deshecha Landfill to accommodate increased MSW as follows:

- Increase permitted TPD at Prima Deshecha Landfill from 4,000 TPD to 5,000 TPD when Olinda Alpha Landfill closes in 2013.
- Permitted TPD at FRB Landfill will remain at 8,500 TPD when Olinda Alpha Landfill closes in 2013.
- Olinda Alpha Landfill continues to accept an annual average of 7,000 TPD until its closure date in 2013.
- No expansion at Olinda Alpha Landfill, present capacity unchanged through remaining life.
- County importation at all three Orange County landfills ceases in 2013, with a net reduction of approximately 2,075 TPD imported to Olinda Alpha Landfill; approximately 830 TPD imported into FRB Landfill and approximately 920 TPD imported into Prima Deshecha Landfill (projected amount for 2013 according to County of Orange - RELOOC Demand Model Runs R1 Thru R5).

Alternative 2 proposes increasing the current permitted TPD at Prima Deshecha Landfill from 4,000 to 5,000 TPD when Olinda Alpha Landfill closes at its permitted closure date of 2013. This increase would accommodate projections for the system demand in 2021 based on forecasted population growth (see Section 4.3.1.2) and factors in the lower total tonnage with importation ceasing in 2013. At FRB Landfill, the permitted TPD received would remain unchanged at 8,500 TPD. Based on the RELOOC Demand model (discussed in Section 4.3.1.2) approximately 4,900 TPD of Olinda Alpha Landfill MSW would be diverted to the FRB and Prima Deshecha landfills under Alternative 2.

Under Alternative 2, no expansion or extension of the Olinda Alpha Landfill closure date would occur. All importation of out-of-County MSW would cease in 2013 when there is no longer capacity in the system to accommodate imported waste. The Prima Deshecha Landfill 2001 General Development Plan (GDP) remaining refuse capacity would remain unchanged at 77.6 million tons (MT) as of 2001 GDP. However, the incremental increase of the Prima Deshecha Landfill in-flow waste stream from 4,000 TPD to a permitted limit of 5,000 TPD would accelerate its anticipated closure date from 2067 to approximately 2056 based on current population projections and existing disposal technologies. The accelerated closure date to 2056 results in a net reduction of 11 years in the life of Prima Deshecha Landfill under Alternative 2.

Under Alternative 2, the number of truck trips to Prima Deshecha Landfill would increase although the period over which those would occur would be reduced by 11 years because the life of the landfill would be shortened under this Alternative.

Under Alternative 2, the existing County MOU with the City of San Juan Capistrano would need to be amended prior to 2013 to provide for the increase in permitted daily tonnage. Similarly, permits currently in-place with the California Integrated Waste Management Board (CIWMB) and other regulatory agencies with jurisdictional oversight for Prima Deshecha Landfill would need to be amended.

6.4.2 IMPACTS OF ALTERNATIVE 2

6.4.2.1 Land Use and Planning

Under Alternative 2, there would be significant adverse impacts to land use policies. Specifically, the existing County MOU with the City of San Juan Capistrano would need to be amended prior to 2013 to provide for the increase in the permitted daily tonnage. Similarly, existing permits with the CIWMB and other regulatory agencies with jurisdictional oversight for Prima Deshecha Landfill would need to be amended. Therefore, impacts associated with land use policies under Alternative 2 would be similar to land use impacts under the proposed expansion project at Olinda Alpha Landfill although a different MOU would be affected by each.

6.4.2.2 Geology and Soils

Under Alternative 2, there would be no disruption or displacement of soils other than what has been permitted in support of the Prima Deshecha Landfill 2001 GDP. Therefore, no adverse impacts related to geology and soils are anticipated under Alternative 2.

6.4.2.3 Hydrogeology and Water Quality

Under Alternative 2, there would be no additional refuse placement or potential leachate generation other than what has been permitted in support of the Prima Deshecha Landfill 2001 GDP. Prima Deshecha Landfill would still be required to coordinate with the landfill section of the RWQCB-SA. Therefore, no adverse impacts related to hydrogeology and water quality are anticipated under Alternative 2.

6.4.2.4 Surface Water Hydrology

Under Alternative 2, there would be no additional surface water flow other than what has been permitted under the federally required industrial NPDES Permit to discharge storm flows at the Prima Deshecha Landfill. In addition, landfill capacity would not be impacted. Therefore, no adverse impacts related to surface water hydrology are anticipated under Alternative 2.

6.4.2.5 Transportation and Circulation

Under Alternative 2, Olinda Alpha Landfill would close in 2013 and importation of waste from out-of-County would cease. Permitted maximum TPD at Prima Deshecha Landfill would increase from 4,000 to 5,000 TPD. At FRB Landfill the maximum permitted TPD would remain unchanged at 8,500 TPD.

As with Alternative 1, the Olinda Alpha Landfill related traffic until 2013 would be the same as existing conditions (see Alternative 1).

Longer trips to the more distant Prima Deshecha Landfill would occur and would impact roads serving Prima Deshecha Landfill as it accommodates this increased disposal rate for the remaining period that this landfill is open (its lifespan would be reduced substantially, with closure accelerated from 2067 to 2056). As a result, although there would be increased traffic and longer trips to the Prima Deshecha Landfill, this traffic would occur for a shorter duration as a result of the shortened lifespan of this landfill.

6.4.2.6 Air Quality

Under Alternative 2, there would be an increase in air quality impacts during operation of Prima Deshecha Landfill, due to the increase in truck trips to and from this landfill and resultant increase in disposal vehicle exhaust. On-site equipment use will be expected to be the same as that used for Olinda Alpha Landfill because quantities of MSW that need to be disposed of after closure of Olinda Alpha Landfill will be the same. Because on-site equipment use is projected to be the same as that required at Olinda Alpha Landfill, emissions from this equipment would likewise be the same. Stationary sources of emissions (flares/power generation) would be provided at Prima Deshecha Landfill accepting the diverted MSW. Overall, because of the greater travel distance to transport MSW from the Olinda Alpha Landfill service area to Prima Deshecha Landfill, there would be a greater generation of air pollutant emissions which would occur under Alternative 2.

6.4.2.7 Noise

Under Alternative 2, there would be an increase in noise impacts during operation of Prima Deshecha Landfill due to the increased truck trips. Traffic noise along travel routes to Prima Deshecha Landfill will increase due to the diverted vehicle trips subsequent to the closure of Olinda Alpha Landfill. Landfill-related traffic at Olinda Alpha Landfill would be reduced to only those employees and contractors responsible for constructing closure improvements and providing post-closure maintenance and monitoring. Traffic noise along access roads would be reduced to those similar to levels for the future no project scenario in proximity of Olinda Alpha Landfill. In addition, although no significant adverse impacts have been identified, traffic-related vibration would also be reduced due to lower traffic volumes without the proposed project. On-site equipment use would also increase over existing conditions at Prima Deshecha Landfill, in response to the increased volumes of refuse disposal trucks causing an increase in noise levels. The potential for noise impacts at noise sensitive receptors in the vicinity of Prima Deshecha Landfill is dependant on the proximity of these noise sensitive receptors to the landfill.

6.4.2.8 Aesthetics

Alternative 2 has the potential to change the aesthetic quality of the views of Prima Deshecha Landfill. Because the landfill would close 11 years earlier under this Alternative, there is potential for less of an impact than if it stayed open until 2067. Therefore, potential impacts related to aesthetics would be less under Alternative 2 than under the proposed project.

6.4.2.9 Cultural and Scientific Resources

Alternative 2 includes the disruption or displacement of soils which has the potential to result in archeological or paleontological resources impacts. The areas anticipated to be disturbed under Alternative 2 have already been assessed in the permits for the 2001 GDP. Therefore, Alternative 2 would not result in new adverse impacts at Prima Deshecha Landfill related to cultural and scientific resources.

6.4.2.10 Hazards

Under Alternative 2, hazardous material disposal would not be permitted at Prima Deshecha Landfill, which is the same as existing conditions at this landfill. The existing IWMD program to prevent hazardous wastes from entering this landfill would continue under Alternative 2. However, there would be a limited and shorter time use of hazardous materials on-site such as fuels, oils and other materials used in the operation and maintenance of landfill equipment and vehicles. This creates the potential for spills and leaks of fuel, oils and other liquids which would be similar to existing conditions and to the impacts under the proposed project. Therefore, potential impacts related to hazards would be similar under Alternative 2 and the proposed project.

6.4.2.11 Public Services

Similar to the proposed project, Alternative 2 would not involve significant impacts to public services in Orange County because the landfilling activities will not increase the need for additional services at Prima Deshecha Landfill. Therefore, no adverse impacts related to public services are anticipated under Alternative 2. However, the costs for solid waste services will increase due to the longer hauling distances.

6.4.2.12 Biological Resources

Alternative 2 has the potential to impact biological resources at Prima Deshecha Landfill. The biological resources anticipated to be disturbed under Alternative 2 have already been assessed in the permits for the 2001 GDP. Therefore, Alternative 2 would not result in new adverse impacts related to biological resources at Prima Deshecha Landfill.

6.4.3 SUMMARY OF ALTERNATIVE 2

Alternative 2 would result in impacts similar to the proposed project. However, the incremental increase of the in-flow waste stream at Prima Deshecha Landfill from 4,000 TPD to a daily permit limit of 5,000 TPD would result in greater impacts related to transportation and circulation, air quality and noise under Alternative 2 than under the proposed project (as discussed above in Section 6.4.2).

6.5 ALTERNATIVE 3 – TWO LANDFILL SYSTEM IN 2013 (FRANK R. BOWERMAN DAILY TONNAGE INCREASE)

6.5.1 DESCRIPTION OF ALTERNATIVE 3

Alternative 3 assumes changes to FRB and Prima Deshecha Landfills to accommodate increased MSW as follows:

- Increase permitted TPD at FRB Landfill from 8,500 TPD to 9,500 TPD when Olinda Alpha Landfill closes in 2013.
- Permitted TPD at Prima Deshecha Landfill remains at 4,000 TPD when Olinda Alpha Landfill closes in 2013.
- Olinda Alpha Landfill continues to accept up to 7,000 TPD until its closure date in 2013.
- No expansion at Olinda Alpha Landfill, present capacity unchanged through remaining life.
- County importation at all three Orange County landfills ceases in 2013, with a net reduction of approximately 2,075 TPD imported to Olinda Alpha Landfill; approximately 830 TPD imported into FRB Landfill and approximately 920 TPD imported into Prima Deshecha Landfill (projected amount for 2013 according to County of Orange - RELOOC Demand Model Runs R1 Thru R5).

Alternative 3 proposes increasing the current permitted TPD at FRB Landfill from 8,500 TPD to 9,500 TPD when Olinda Alpha Landfill closes on its permitted closure date in 2013. This increase would accommodate projections for the system demand in 2021 based on forecasted population growth (see Section 4.3.1.2) and factors in the lower total tonnage with importation ceasing in 2013. The permitted TPD at Prima Deshecha Landfill would remain unchanged at 4,000 TPD. Based on the RELOOC Demand model (discussed in Section 4.3.1.2), approximately 4,900 TPD of Olinda Alpha Landfill MSW would be diverted to the FRB and Prima Deshecha landfills under Alternative 3.

Under Alternative 3, no expansion or extension of Olinda Alpha Landfill's closure date would occur. All out-of-County importation of MSW would cease in 2013 when there no longer is capacity in the system to accommodate imported waste.

At present, the permitted closure date of FRB Landfill is 2022. Alternative 3 would accelerate the closure date to 2021 based on current population projections and existing disposal technologies. This accelerated closure date for the FRB Landfill results in a net reduction of one year of life at this landfill which just meets the horizon year goal of 2021 for this EIR. After 2021, the County would have one remaining landfill in their system. Under Alternative 3, the number of truck trips to the FRB Landfill would increase although the duration of the trips would be reduced because the life of the landfill would be shortened by one year.

Under Alternative 3, the County's existing Settlement Agreement with the City of Irvine would need to be amended prior to 2013 to provide for the increased permitted daily tonnage. Similarly, existing permits with the CIWMB and other regulatory agencies with jurisdictional oversight for these landfills would need to be amended.

6.5.2 IMPACTS OF ALTERNATIVE 3

6.5.2.1 Land Use and Planning

Under Alternative 3, there would be significant impacts to land use policies. Specifically, the County's MOU with the Cities of San Juan Capistrano and San Clemente and the existing Settlement Agreement with the City of Irvine would need to be amended prior to 2013 to provide for the increase in the permitted daily tonnage. Similarly, existing permits with the CIWMB and other regulatory agencies with jurisdictional oversight for the landfill would need to be amended. Therefore, adverse impacts related to land use policies would occur under Alternative 3.

6.5.2.2 Geology and Soils

Under Alternative 3, there would be no disruption or displacement of soils other than what has been permitted at FRB Landfill. Therefore, no adverse impacts related to geology and soils are anticipated under Alternative 3.

6.5.2.3 Hydrogeology and Water Quality

Under Alternative 3, there would be no additional refuse replacement or potential leachate generation other than what has been permitted at FRB Landfill. FRB Landfill would still be required to coordinate with the landfill section of the RWQCB-SA. Therefore, no adverse impacts related to hydrogeology and water quality are anticipated under Alternative 3.

6.5.2.4 Surface Water Hydrology

Under Alternative 3, there would be no additional surface water flow other than what has been permitted under the federally required industrial NPDES Permit to discharge storm flows at FRB Landfill. In addition, landfill capacity would not be impacted. Therefore, no adverse impacts related to surface water hydrology are anticipated under Alternative 3.

6.5.2.5 Transportation and Circulation

Under Alternative 3, Olinda Alpha Landfill would close in 2013 and importation of waste from out-of-County would cease. Permitted maximum TPD at FRB Landfill would increase from 8,500 to 9,500 TPD. Prima Deshecha's permitted TPD would remain unchanged at 4,000 TPD.

As with Alternatives 1 and 2, the Olinda Alpha Landfill related traffic until 2013 would be the same as existing conditions.

Longer trips to the more distant FRB and Prima Deshecha Landfills and traffic impacts on roads serving both these landfills would be anticipated to occur due to increased tonnage levels than if Olinda Alpha Landfill were to continue to operate until 2021. Although higher traffic impacts are anticipated at both FRB and Prima Deshecha with increased tonnages, the closure dates of each landfill would be accelerated, thereby removing traffic from the road networks adjacent to those facilities sooner than their currently scheduled closure dates.

6.5.2.6 Air Quality

Under Alternative 3, there would be an increase in air quality emissions during operation of FRB Landfill. The closure of Olinda Alpha Landfill would divert MSW truck trips to FRB Landfill which is further from the Olinda Alpha Landfill service area. Due to the increase in MSW truck travel distances to and from the FRB Landfill, there would be a corresponding increase in vehicle exhaust. On-site equipment use will be expected to be the same as used for Olinda Alpha Landfill because quantities of MSW that need to be disposed of after closure of Olinda Alpha Landfill will be the same. Because on-site equipment use is projected to be the same as required at Olinda Alpha Landfill, emissions from this equipment would likewise be the same. Stationary sources of emissions (flares/power generation) would be provided at FRB Landfill accepting the diverted MSW. Overall, because of the greater travel distance to transport MSW from the Olinda Alpha Landfill service area to FRB Landfill, there would be a greater generation of air pollutant emissions under Alternative 3.

6.5.2.7 Noise

Under Alternative 3, no expansion would occur at Olinda Alpha Landfill after 2013, no additional construction and no landfill activities would occur. Noise associated with on-site construction and landfill operations would cease to occur at Olinda Alpha Landfill 2013 but would increase at landfills accepting the diverted MSW.

Under this Alternative, no refuse or waste trucks would come to the Olinda Alpha Landfill after 2013. Therefore, landfill-related traffic would be reduced to only those employees required to process and maintain the landfill closure plan. Traffic noise along access roads would be reduced. In addition, traffic-related vibration would also be reduced.

Because truck trips to FRB Landfill would increase as a result of this project alternative, traffic noise and vibration along access roads leading to FRB Landfill would increase.

Regionally, noise and vibration associated with vehicles carrying MSW would be relocated along routes to other landfills accepting MSW that was previously destined for Olinda Alpha Landfill.

6.5.2.8 Aesthetics

Alternative 3 has the potential to change the aesthetic quality of the views of the FRB Landfill. Because the landfill closure date would be scheduled to occur one year earlier, there is the potential to create less of an impact than it would if it stayed open until 2022 although the change would likely not be noticeable. Therefore, potential impacts related to aesthetics would be less for Alternative 3 than under the proposed project.

6.5.2.9 Cultural and Scientific Resources

Alternative 3 includes the disruption or displacement of soils which has the potential to result in archeological or paleontological resources impacts. The areas anticipated to be disturbed under Alternative 3 have already been assessed and permitted at the landfills. Therefore, Alternative 3 would not result in new adverse impacts related to cultural and scientific resources.

6.5.2.10 Hazards

Under Alternative 3, hazardous material disposal would not be permitted at the landfills, which is the same as existing conditions at Orange County's landfills. The existing IWMD program to prevent hazardous wastes from entering landfills would continue under Alternative 3. There would be continued limited use of hazardous materials on-site such as fuels, oils and other materials used in the operation and maintenance of landfill equipment and vehicles. This creates the potential for spills and leaks of fuel, oils and other liquids which would be similar to existing conditions at the landfills and to the impacts under the proposed project. Therefore, potential impacts related to hazards would be similar under Alternative 3 and the proposed project.

6.5.2.11 Public Services

Similar to the proposed project, Alternative 3 would not involve significant adverse impacts to public services in Orange County because the landfilling activities will not increase the need for additional services. Therefore, no impacts related to public services are anticipated under Alternative 3.

6.5.2.12 Biological Resources

Alternative 3 has the potential to impact biological resources at FRB Landfill. However, the biological resources anticipated to be disturbed under Alternative 3 have already been assessed and permitted at the landfill. Therefore, Alternative 3 would not result in new adverse impacts related to biological resources.

6.5.3 SUMMARY OF ALTERNATIVE 3

Alternative 3 would result in impacts similar to the impacts under the proposed project. However, the incremental increase of in-flow waste stream at FRB Landfill, from 8,500 TPD to 9,500 TPD would result in greater impacts to transportation and circulation, air quality and noise under Alternative 3 than under the proposed project (as discussed above in Section 6.5.2).

6.6 ALTERNATIVES CONSIDERED BUT REJECTED

CEQA requires that an EIR address only those alternatives necessary to permit a reasoned choice. These alternatives must foster informed decision-making and public participation. The EIR must also provide the rationale for the selection or rejection of various alternatives.

The CEQA Guidelines state that an EIR should "…identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts."

The alternatives to the proposed expansion at Olinda Alpha Landfill which were considered but rejected and not evaluated in detail in this EIR are described in this Section. As discussed in Section 4.3 (History and Evolution of the Proposed Project), the RELOOC process consisted of not only a Feasibility Study, but an inter-governmental coordination process and public outreach program. The RELOOC Strategic Plan was formulated based on feedback on a variety options for waste disposal for Orange County. The options in the Feasibility Study that were not carried forward in the Strategic Plan are considered as alternatives to the proposed project that were rejected and not evaluated in detail in this EIR.

6.6.1 EARLY CESSATION OF MSW IMPORTATION FROM OUTSIDE THE COUNTY

As discussed under the existing conditions for Olinda Alpha Landfill, all three Orange County landfills are currently under contract to import MSW from San Diego, Riverside, San Bernardino and Los Angeles Counties. Cessation of these import activities could meet several of the project objectives.

The effects of importation were studied by the County to understand its role in capacity considerations at the Orange County landfills. Importation is a revenue generator from the tipping fees and is linked to the County's Plan of Adjustment [Bankruptcy] Recovery program. It is estimated that approximately 1,175,000 tons per year of import are deposited in Orange County's landfills system-wide. Importation is scheduled to continue until 2015 when the importation agreements expire. If importation were to cease earlier than 2015 (the earliest estimate of when that could occur is 2005), the life span of the three County landfills is anticipated to be increased by just under three years assuming the annual system demand of 4,062,000 tons per year discussed in Section 4.3.1.2 (1,175,000 tons/yr [10 yrs] ÷ 4,062,000 tons/yr = 2.9 yrs). Therefore, cessation of importation does not address overall capacity needs because, while it does preserve some capacity, it does not preserve enough to address the County's future short and long term capacity needs.

In addition, discontinuing importation would constitute a change of conditions specified in bond documents and County Plan of Adjustment, necessitating a return to bankruptcy court. This would create the risk of an adverse effect on the County's bond ratings and possibly the need to defease the bonds. The fact that the tipping fee revenue from importation is a part of the County's Bond Recovery program makes the cessation of importation a complicated legal and fiscal matter, making the feasibility of this alternative uncertain. Therefore, an alternative to cease importation of MSW from outside Orange County was not evaluated in detail in this EIR.

6.6.2 RELOOC FEASIBILITY STUDY ALTERNATIVES

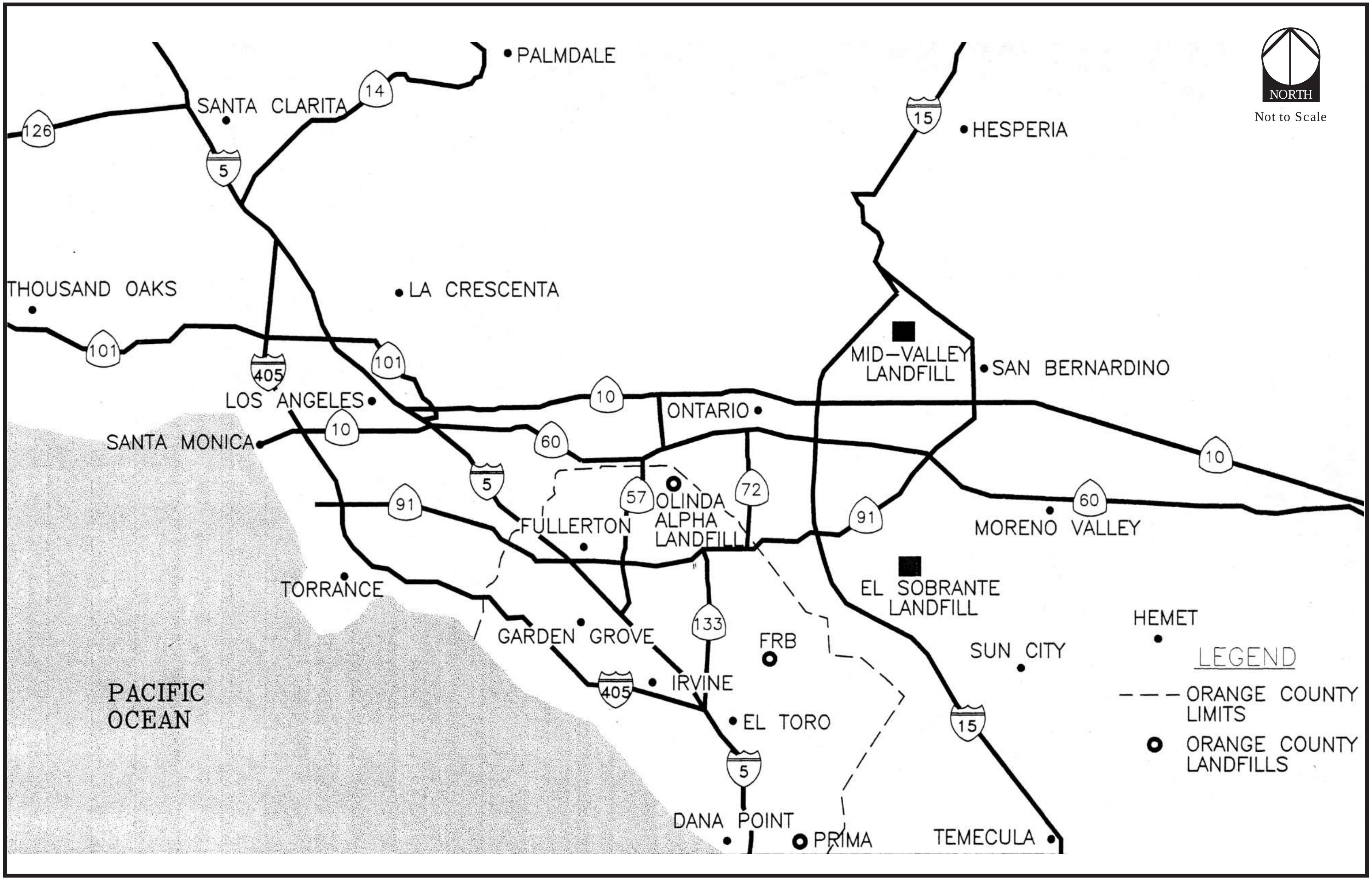
The RELOOC Strategic Plan recommendations were based on the RELOOC Feasibility Study which investigated a full range of disposal options for MSW disposal for Orange County including maximization of in-County capacity, out-of-County export, alternative disposal technologies and other possible programs that could accommodate the County's future waste disposal needs. Several of those options were incorporated in the RELOOC Strategic Plan including the proposed expansion of Olinda Alpha Landfill. A number of options were considered and rejected in that effort and are briefly described below along with the reasons why they were rejected as viable options for the County waste disposal needs and as alternatives to the proposed project at Olinda Alpha Landfill.

6.6.2.1 Export

Both truck and rail haul export are options for MSW disposal which the County of Orange may need to consider in the future once capacity at the three existing County landfills is exhausted. The cost for export versus maximizing the capacity of the existing County landfills was a serious factor is the consideration of export as either a short or long term solution for waste disposal options for the County. These options are described below, but were not carried forward in the RELOOC process because of cost, environmental and other considerations.

<u>Truck Export to Out-of-County Landfills</u>

Two landfills outside Orange County were evaluated for the possibility of accepting exported MSW from Orange County: Mid-Valley Sanitary Landfill in the City of Rialto and El Sobrante Landfill in unincorporated Riverside County. Both are operating Class III landfills similar to Olinda Alpha Landfill. The locations of these landfills are shown on Figure 6-1.



Source: Bryan A. Stirrat & Associates (2004).

Figure 6-1
Out-of-County Landfill Sites for Truck Export

Mid-Valley Sanitary Landfill (MVSL)

The MVSL is currently operating as a Class III, non-hazardous solid waste landfill in the City of Rialto in San Bernardino County. The existing landfill area covers 142 acres. An EIR evaluated expanding the landfill disposal area by 266 acres. The total landfill area, including the existing acreage and the proposed expansion, would be 408 acres. The EIR evaluated increasing the permitted average TPD limit to 7,500 maximum TPD. In 1998, the MVSL accepted an average of 880 TPD. In 1997, the permitted capacity of the MVSL was 24.4 million cubic yards (mcy). The EIR evaluated increasing the capacity of the MVSL to 82 mcy. The estimated average TPD that will be deposited in MVSl in 2006 is 3,027 TPD which is 973 TPD less than the daily capacity (4,000 TPD) evaluated in the EIR. This daily capacity limit will need to be revised if waste from Orange County is transported to this site. The estimated closure date assumed in the EIR for MVSL is 2036. (Source: Mid-Valley Sanitary Landfill Expansion Final Environmental Impact Report (January 29, 1998) and the Addendum to the Final EIR (June 1998)).

El Sobrante Landfill

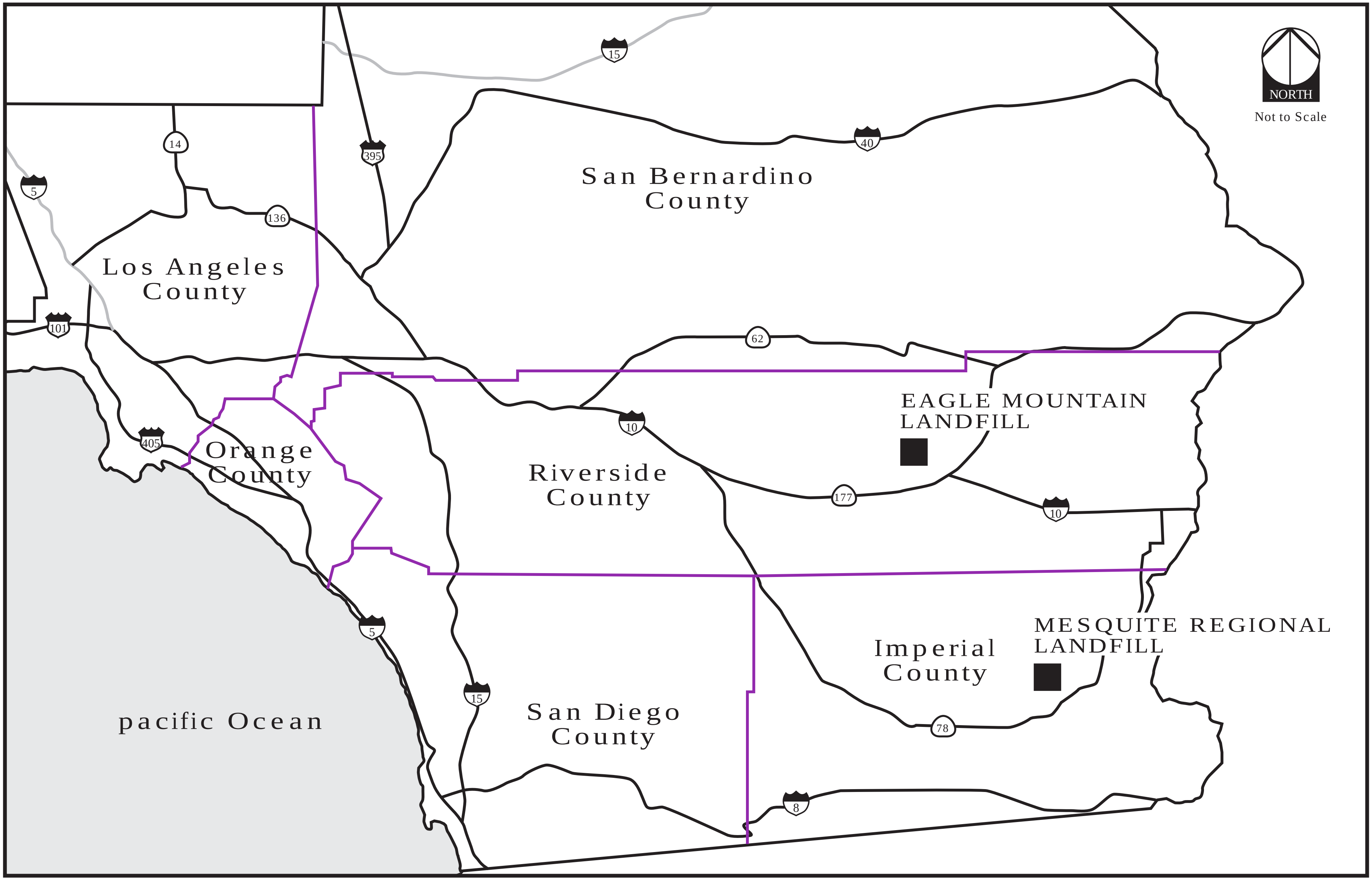
The El Sobrante Landfill, approximately two miles south of Lake Matthews in western Riverside County, is currently operating as a Class III, non-hazardous solid waste landfill. The existing landfill site described in that landfill EIR covered 1,322 acres. The 1,322 acres consisted of approximately 178 acres of landfill area and 1,144 acres of open space. In 1996, the landfill footprint occupied 90 acres of the total 178 acres planned for landfilling. The EIR evaluated the expansion of the graded footprint of the landfill to 656 acres and increasing the existing permitted daily capacity from 4,000 TPD to 10,000 TPD, for a net increase of 6,000 TPD. The EIR evaluated the expansion of the capacity of El Sobrante Landfill from the approximately nine million tons to 109 million tons, a net increase of 100 million tons. The El Sobrante Landfill is estimated to close in 2026. (Source: El Sobrante Landfill Expansion Final Environmental Impact Report (April 1996) and an Update to the final EIR (July 1998)).

Rail Haul Export to Distant Landfills

Two landfills some distance from Orange County were evaluated for the possibility of accepting exported Orange County MSW via rail haul: Eagle Mountain Landfill in eastern Riverside County and Mesquite Regional Landfill in Imperial County. These alternatives would involve the use of an inter-modal facility in the City of Industry as a waste transfer station where the waste for landfilling would be loaded on rail cars and exported to one of these two landfills. The locations of these two facilities is shown on Figure 6-2.

Eagle Mountain Landfill

This is a planned and fully permitted Class III, non-hazardous solid waste landfill in an unused, open pit mine on approximately 4,654 acres in Riverside County. Landfilling will occur on approximately 2,164 acres. The anticipated capacity of this landfill is 700 million tons. The anticipated maximum permitted capacity is up to 20,000 TPD with approximately 16,000 TPD delivered by rail and approximately 4,000 TPD by truck. The anticipated life of this landfill is 117 years.



Source: P&D Consultants (2004).

Figure 6-2
Out-of-County Landfill Sites for Rail Haul Export

The landfill project includes the existing 52 mile Kaiser-owned rail line, which extends from Rail Yard I on the landfill site to the existing Southern Pacific Transportation Company (SPTC) main line. An approximately five-mile long rail spur, extending from about the mid-point of the 52 mile long Kaiser line to Rail Yard II on the landfill site is also part of the project. As stated in the EIR/Environmental Impacts Statement (EIS) for this landfill, the majority of solid waste collected in population centers in the seven southern California Counties would be trucked to existing or future transfer stations/materials recovery facilities (MRFs). At these stations, recyclable materials and potentially hazardous materials would be removed for separate disposal. The resulting solid waste residue would be loaded into 20 to 53 foot long containers which will be loaded on rail cars for transport to Eagle Mountain Landfill. The rail cars would be covered to control litter, vectors and odor. Although not specified in the EIR/EIS, it is assumed that the majority of the rail transport would occur on the SPTC line. (Source: Eagle Mountain Landfill Project, Riverside County, California, Draft Environmental Impact Statement /Environmental Impact Report (July 1996)).

Mesquite Regional Landfill

This is a planned and fully permitted Class III, non-hazardous solid waste landfill on approximately 4,250 acres in Imperial County, with the landfill itself occupying approximately 2,290 acres. The anticipated capacity of this landfill is 600 million tons. The anticipated maximum permitted capacity is 20,000 TPD. The anticipated life of this landfill is 100 years.

The landfill project includes an approximately five-mile long railroad spur from the existing SPTC main line track to the landfill site. MSW collected in population centers in a seven County area would be trucked to existing or future transfer stations/MRFs. At these transfer stations, recyclable materials and potentially hazardous materials would be removed for separate disposal. The resulting MSW residue would be transported to an intermodal rail facility where it would be loaded on to rail cars for transport to Mesquite Regional Landfill. The rails cars would be approximately 40 feet long, have capacity for 25 tons of waste and would be covered to control litter, vectors and odor. At the maximum disposal rate of 20,000 TPD, five 16-car trains would serve the landfill each day. Truck delivery of solid waste to the landfill will not occur, except for certain circumstances, from Imperial County and in the event the SPTC tracks are closed temporarily as a result of an accident or damage to the tracks.

The EIS/EIR for this landfill assumed the existing SPTC Intermodal Station in the City of Industry would be used as the transfer station in early years of the operation of the landfill. The EIS/EIR further noted that waste loading could later be moved to Los Angeles Transportation Center or to other new intermodal facilities that may be constructed in the future. (Source: Final Environmental Impact Statement and Environmental Impact Report for the Proposed Mesquite Regional Landfill (June 1995) and two Addenda to the EIR (July 14, 1995 and September 10, 1996)).

6.6.2.2 Off-Site Alternative: New Landfill in Gypsum Canyon

Construction of a new landfill in Gypsum Canyon was evaluated. Gypsum Canyon is southeast of Olinda Alpha Landfill near State Route 91 and the Orange/Riverside County line. Gypsum Canyon is in private ownership. The area where the landfill would be located has been pre-zoned by the City of Anaheim for residential development making the entitled land prohibitively expensive for acquisition. In addition, the site is not available for purchase by the County from the property owner. Therefore, this Alternative was not brought forward in the RELOOC Strategic Plan and was not considered further in this EIR.

6.6.2.3 Alternative Technology Assessment

The following alternative technologies were evaluated in the RELOOC Feasibility Study (report dated December, 2001):

- Bio-refining (the transformation of organic material to bio-fuels and bio-chemicals).
- Bio-diesel (the conversion of cooking oils to diesel fuel).
- Composting (the conversion of MSW for a soil additive).
- Anaerobic digestions (the conversion of organics to fuel gas, and fiber and liquid for a soil additive).
- Fixation (the chemical transformation of waste into inert construction products).
- Gasification (the thermal breakdown of waste to synthetic gas, ash, and water).
- Kinetic disintegration (the breakdown of waste by sound waves into aggregate and other products).
- Plasma arch technology (the thermal transformation of waste to gases and stable products).
- Pyrolysis (the thermal breakdown of waste in the absence of oxygen to gas, liquids, and solid products).
- Waste-to-energy (combustion of MSW, either mass-burn or RDF, for the creation of steam and electricity.

These technologies were researched and, with the exception of composting technologies, there was only one full scale, reference plant processing MSW in North America for any of the alternative technologies researched. That was an anaerobic digestion plant in Newmarket, Ontario which is designed to process 650 TPD. Therefore, while these technologies hold promise for the future, their application for use in Orange County at this time is speculative given the exclusivity of the technology application in the United States. Most of these alternative technologies have only been tested on small scale pilot projects which would not be applicable to the waste volume to be handled for Olinda Alpha Landfill or other Orange County landfills. Further discussion of the alternative technologies evaluated for RELOOC is included in the RELOOC Feasibility Study report available at IWMD's offices. Technologies resulting in more efficient use of the available capacity at the landfills continues to be studied, but as an adjunct to capacity needs not as an alternative to the proposed Olinda Alpha Landfill project.

6.6.3 NO BUILD ALTERNATIVE – PARK IMPLEMENTATION

As an extension of the No Project Alternative, this alternative examined the timing of implementation of the proposed Olinda Regional Park. This park is proposed on the landfill property, after the termination of landfilling activities and the closure of the landfill. While the proposed expansion would not change the ultimate use of the site as a passive use regional park, it would affect the timing of implementation of the regional park and trails accessing and crossing the site. This alternative is essentially an extension of the No Project Alternative which itself assumes closure of the landfill in 2013 and its reuse and conversion to passive use regional park use.

Section 15126.6(e)(3)(B) of the CEQA Guidelines states:

> “If the project is other than a land use or regulatory plan, for example a development project on identifiable property, the "no project" alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the project is approved. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this "no project" consequence should be discussed. In certain instances, the no project alternative means "no build" wherein the existing environmental setting is maintained. However, where failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment.”

The future plans for all the County landfills assume their development as regional parks after termination of landfilling activities and closure of the landfills. The landfill properties are identified as “Passive Use Regional Parks” on the County’s Master Plan of Regional Recreational Facilities. The reason for the reuse of the landfill properties as regional parks is that after closure and reclamation occurs, these sites will be suitable for active and/or passive park uses. However, there is no deadline or dependency for these areas to be developed into regional parks by any particular date.

The proposed Olinda Regional Park (Olinda beta parcels) is discussed in the County of Orange Recreation Element Appendix VII-8 (Regional Recreation Facilities Inventory) as follows:

> “10. Olinda Disposal Site. Site currently owned by County and used for sanitary landfill, with ± 100 acres set aside in Brea Canyon. When current use is terminated, recommend conversion of the site to a restored natural regional park.”

The 100-acre area in Brea Canyon (Olinda beta parcels) is shown as an existing regional park under the County’s listing of existing facilities. However, this area will not be available for use as a park by the public for safety and security reasons until after closure of the landfill. In addition, no design plans or funding sources have been developed or identified at this time for this passive use regional park. Implementation of the park assuming closure of Olinda Alpha Landfill in 2013 has not been planned or designed to date.

Development of the Olinda Alpha Landfill property as a regional park does not meet any of the project objectives defined in Section 4.6 and would result in the fiscal and environmental impacts described under the No Project Alternative in addition to the cost of park development, without the benefit of the offset from additional revenue from maximizing the use of Olinda Alpha Landfill. This Alternative was rejected for these reasons and, therefore, was not evaluated in detail in this EIR.

6.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Table 6-1 shows a comparison of the environmental effects of the proposed project, the project alternatives and the No Project Alternatives. Each of the build alternatives would result in environmental impacts greater than would occur under the No Project Alternative. Therefore, the No Project Alternative is the environmentally superior alternative, although it would not meet project objectives as discussed earlier. Section 15126.6(e) of the CEQA Guidelines states that if the No Project Alternative is selected as the environmentally superior alternative, then the EIR shall also identify an environmental superior alternative among the other alternatives. Of the remaining alternatives, the proposed project is the environmentally superior alternative.

TABLE 6-1
COMPARISON OF THE ENVIRONMENTAL IMPACTS OF ALL PROJECT ALTERNATIVES

Environmental Parameter	Proposed Project	No Project Alternative	Alternative 2	Alternative 3
Land Use and Planning	2	2	2	2
Geology and Soils	2	1	1	1
Hydrogeology and Water Quality	2	1	1	1
Surface Water Hydrology	2	1	1	1
Transportation and Circulation	2	2/3	2/3	2/3
Air Quality	2	2/3	2/3	2/3
Noise	2	2/3	2/3	2/3
Aesthetics	1	1	1	1
Cultural and Scientific Resources	2	2	2	2
Hazards	2	2	2	2
Public Services	1	1	1	1
Biological Resources	2	1	1	1

<u>Legend</u>
1. Insignificant or no impact.
2. Impact that can be mitigated to a level of insignificance.
3. Impact that can not be mitigated to a level of insignificance.

Source: P&D Consultants, Inc. (2004).

6.8 ABILITY OF THE ALTERNATIVE TO MEET THE PROJECT OBJECTIVES

As shown in Table 6-2, the only Alternative which meets all the project objectives is the proposed project. The No Project Alternative is the only alternative which does not meet any of the project objectives. Alternatives 2 and 3 meet all the project objectives except the objective to expand Olinda Alpha Landfill. However, Alternatives 2 and 3 do not meet the other project objectives to the same degree as the proposed project.

TABLE 6-2
ABILITY OF THE ALTERNATIVES TO MEET THE PROJECT OBJECTIVES

PROJECT OBJECTIVES	**Proposed Project**	**No Project Alternative**	**Alternative 2**	**Alternative 3**
	Does the Alternative meet the Project Objective?			
Define future waste disposal system by 2004 to provide a basis for renegotiation of WDAs with Orange County cities, franchised haulers and Districts.	Yes	No	Yes	Yes
Ensure that the County's near term waste disposal needs are met.	Yes	No	Yes	Yes
Maximize capacity of the existing Olinda Alpha Landfill.	Yes	No	No	No
Maintain adequate revenue and local control of waste disposal to provide consistent and reliable public rates and fees.	Yes	No	No	No
Maintain efficient, cost effective and high quality IWMD operations.	Yes	No	Yes	Yes
Minimize adverse environmental impacts associated with MSW disposal.	Yes	No	Yes	Yes

Source: P&D Consultants, Inc. (2004).

SECTION 7.0
GROWTH INDUCING IMPACTS

SECTION 7.0
GROWTH INDUCING IMPACTS

7.1 DEFINITION OF GROWTH INDUCING IMPACTS

Section 15126.2(d) of the California Environmental Quality Act (CEQA) Guidelines requires that an Environmental Impact Report (EIR) describe the potential growth inducing impacts of a proposed project. Specifically, Section 15126.2(d) states:

> "Discuss the ways in which the proposed project could foster economic development or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment.... Also discuss the characteristics of some projects which may encourage and facilitate other activities that could substantially affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental or of little significance to the environment."

7.2 GROWTH INDUCING IMPACTS RELATED TO THE PROPOSED PROJECT

The number of employees at the Olinda Alpha Landfill will not change with implementation of the proposed project. Employees will continue to perform landfill operations including administration, landfill cover operations and other landfill-related operations. The number of pieces and types of equipment utilized at the Olinda Alpha Landfill would also remain unchanged.

The major extension of local infrastructure improvements such as water, sewer, natural gas and electrical lines or roads into undeveloped areas that previously did not have these improvements is an inducement to growth. In fact, development into new areas cannot occur without these improvements. However, the expansion of a solid waste landfill for a limited time period (i.e., eight-year extension) would not in itself be an inducement to growth. Local development will continue to occur with or without the landfill expansion. More distant landfills would be available to serve new development but at a potentially much greater financial cost. The improvements under the proposed project would not entail new residences or the extension of major infrastructure facilities (i.e., sewer, or water lines, roads, etc.) that would result in secondary or indirect growth in and around the area. Therefore, growth inducing impacts would not occur from the proposed project.

SECTION 8.0
CUMULATIVE IMPACTS

SECTION 8.0
CUMULATIVE IMPACTS

8.1 DEFINITION OF CUMULATIVE IMPACTS

Section 15130 of the California Environmental Quality Act (CEQA) Guidelines requires that an Environmental Impact Report (EIR) discuss cumulative impacts of a project when the project's incremental effect is potentially cumulatively considerable. As defined by the CEQA Guidelines, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR. To facilitate the discussion of potentially cumulative impacts that could result from implementation of the proposed project, each impact category evaluated in Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance After Mitigation) is addressed individually in this cumulative impacts analysis.

A simple comparison of the cumulative environment contrasted with the increment of impact on its face is not an adequate rationale for concluding that a project does not have a cumulative effect. This is known as the ratio theory approach. Neither is the one molecule rule of change or addition an appropriate standard, where any increment, no matter how small, would be considered cumulatively significant. The most current interpretation of the standard is whether "any additional amount of effect should be considered significant in the context of the existing cumulative effect" (*Communities For A Better Environment V. California Resources Agency,* 126 California Reporter, 2d. 441, Cal.App.3 Dist., 2002). The same case states further:

> "[T]his does not mean, however, that *any* additional effect in a nonattainment area for that effect *necessarily* creates a significant cumulative impact; the "one [additional] molecule rule" is not the law. …[t]he lead agency shall consider whether the cumulative impact is significant and whether the proposed project's incremental effects are cumulatively considerable."

The objective of cumulative impact analysis is to look at trends with regard to each environmental parameter and ensure that past, present and future projects in an area are aggregated to examine impacts in a big picture contextual approach. In the context of the proposed Olinda Alpha Landfill expansion there are conditions that must be considered in the local and, depending on the parameter, regional contexts of the project.

The cumulative impacts analysis provided here is consistent with the process contemplated by Section 15130(a) of the CEQA Guidelines in which the analysis of cumulative effects in an EIR is based on two determinations: Is the combined impact of this project and other projects significant? Is the project's incremental effect cumulatively considerable? The cumulative impact must be analyzed only if the combined impact is significant and the project's incremental effect is found to be cumulatively considerable (CEQA Guidelines 15130(a)(2) and (3). When an EIR determines that a cumulative impact is not significant, or that the project's incremental effect is not cumulatively considerable, the EIR should briefly describe the basis for that determination (CEQA Guidelines 15130(a)(2) and (3).

8.2 CUMULATIVE PROJECTS

As discussed in the previous section, one way to determine trends in an area for cumulative analysis is through an inventory of projects in the project study area which are in the process of, or which will be developed in the near future. The proposed expansion of Olinda Alpha Landfill is not proposed to change any aspect of the daily operations of or at the landfill. The relevant change with regard to cumulative impacts is the extension of landfilling operations from 2013 to 2021. Therefore, proposed development projects scheduled to develop post-2013 to 2021 were identified as the relevant cumulative projects for this analysis.

Approved and proposed development in the study area is expected be almost entirely completed by the post 2013 horizon operation extension of the landfill. Therefore, the City of Brea's General Plan (GP) was used as guidance on future development in the study area due to its horizon year of 2020 in lieu of the list approach. In addition, the Tonner Hills Planned Community (PC) was considered in this analysis, which is east of the landfill property, and is a recently approved residential community that is scheduled to be constructed between 2004 and 2014. This PC comprises 790 acres with 914 dwelling units, open space, mixed commercial uses and oil extraction. Because of the proximity of this future development to the landfill property, it is considered in some of this cumulative analysis.

8.3 CUMULATIVE IMPACTS ANALYSIS

8.3.1 CUMULATIVE IMPACTS RELATED TO LAND USE AND PLANNING

The proposed expansion of the landfill and the extension of the use of the landfill to 2021 would not result in any cumulative land use impacts. While development around the landfill property represents incremental growth of the area and the intensification of uses incumbent with that growth, the landfill operations would remain the same under both existing conditions and the proposed project. The only change is the landfilling operation would be to continue operations for an additional eight years beyond the previous 2013 closure date. The landfill property is designated as a public facilities use in both the County of Orange GP Land Use Element (LUE) and the City of Brea GP LUE. The extension of landfilling on the landfill property of an additional eight years would not have cumulative impacts on the planned land uses in the City or unincorporated area of Orange County.

8.3.2 CUMULATIVE IMPACTS RELATED TO GEOLOGY AND SOILS

The horizontal and vertical expansions of and the extended time period for landfilling operations will require additional fill/cover. This will require importing soil to the site after about 2015. Potential sources for this imported soil will be provided by existing commercial quarries. However, the demand for these cover soils will occur over a limited period lasting only until closure of the landfill in 2021. Soil sources are readily available to provide this material. Therefore, this effect is not considered cumulatively significant.

8.3.3 CUMULATIVE IMPACTS RELATED TO HYDROGEOLOGY AND WATER QUALITY

Section 5.3 (Hydrogeology and Water Quality) concluded that there is a potential for impacts to groundwater as a result of the proposed project. However, with implementation of the mitigation measures identified in Section 5.3, the impacts would be considered less than significant. Given that the LCRS for landfilling operations is subject to approval by the RWQCB-SA and must comply with federal and state requirements (27 CCR), no cumulatively considerable impacts would occur to groundwater as a result of the proposed project.

8.3.4 CUMULATIVE IMPACTS RELATED TO SURFACE WATER HYDROLOGY

Section 5.4 (Surface Water Hydrology) concluded that there is a potential for impacts to surface flow as a result of the proposed project. However, with implementation of the mitigation measures identified in Section 5.4, the impacts would be considered less than significant. Given that the drainage facilities for the landfill expansion will be designed, constructed and operated to accommodate the anticipated volume of precipitation and peak flows from surface run-off under the precipitation conditions specified in Title 27 of the CCR, no cumulatively considerable impacts would occur to surface water as a result of the proposed project. The landfill expansion will continue to operate under an NPDES Permit to discharge storm flows. The project will comply with the criteria and restrictions of the NPDES Permit and the SWPPP and BMPs that accompany that permit.

8.3.5 CUMULATIVE IMPACTS RELATED TO TRANSPORTATION AND CIRCULATION

As discussed in Section 5.5 (Transportation and Circulation), the daily operations at Olinda Alpha Landfill would not change (i.e. no change in traffic volume associated with the landfill operations would occur), but the interval of time over which those operations occur would be extended. The traffic analysis in Section 5.5 included background traffic and growth based on the buildout of the Brea GP and is consistent with the assumptions of the future circulation system at buildout (the year 2025 in the GP). Therefore, the traffic analysis in Section 5.5 is already inclusive of the cumulative projects and growth in the area through 2021. Refer to Section 5.5 for cumulative traffic impacts.

8.3.6 CUMULATIVE IMPACTS RELATED TO AIR QUALITY

Emissions associated with cumulative construction are based on the quantity and types of construction equipment working concurrently on any given day during project construction. Estimates of when and what types of equipment used for construction of projects in the local area are extremely speculative. The combined emissions from concurrent construction of cumulative projects would likely exceed the SCAQMD thresholds and would result in a significant adverse air quality impact.

During the operational phase of the project, air pollutant emissions would exceed the SCAQMD operational phase thresholds. As such, the project is considered by the SCAQMD to be a significant source of emissions. Because the South Coast air basin is in nonattainment for ozone and fine particulate matter (PM10) and the proposed project exceeds the SCAQMD thresholds, project emissions would contribute to the nonattainment of these pollutants and thereby result in a significant cumulative impact to air quality.

8.3.7 CUMULATIVE IMPACTS RELATED TO NOISE

Because the project expansion area is at least 4,250 feet from the nearest off-site sensitive uses, noise associated with construction and daily operations on the project site would have little or no cumulative noise impacts on off-site uses.

Off-site landfill-related traffic, including heavy-duty waste/refuse trucks, would contribute to potentially significant noise impacts due to the 10 to 12 dBA difference with project traffic over the no project scenario. However, existing and proposed homes along the access roads, including Valencia Avenue north of Carbon Canyon Road, have or would be required (by the City of Brea) to have a sound wall along their property line for their outdoor living area so that the 65 dBA CNEL standard is not exceeded. In addition, traffic noise at homes or other sensitive uses along Imperial Highway leading to the project site are or will have been mitigated through sound wall implementation associated with the Imperial Highway Smart Street project. Therefore, no significant cumulative noise impacts are anticipated from the proposed project.

No significant vibration impacts were identified for both on-site operations and off-site truck traffic. Therefore, no significant cumulative vibration impacts would occur.

8.3.8 CUMULATIVE IMPACTS RELATED TO AESTHETICS

As discussed in Section 5.7 (Aesthetics), the proposed project would not result in significant adverse impacts to visual resources or viewsheds after mitigation. Some of the landfilling operations will be visible for short periods of time and as soil stockpiling and grading operations occur, exposed soil will be visible from off-site areas. This will occur with or without the proposed project. The extension of the use of the landfill for landfilling will result in delay in the final revegetation and reclamation of the site by eight years. This additional period of visible operations and exposed soil contributes to the overall aesthetic environment of the area. This contribution is not cumulatively considerable, as it will be mitigated through interim landscaping on-site. Therefore, the project would have no cumulatively adverse impacts related to aesthetics.

8.3.9 CUMULATIVE IMPACTS RELATED TO CULTURAL AND SCIENTIFIC RESOURCES

Section 5.8 (Cultural and Scientific Resources) concluded there was a very low likelihood for finding significant resources on the site. Precautionary mitigation measures were added to the project and described in Section 5.8 to ensure that any previously unknown resources on the site would be protected should they be discovered during grading operations. Given the low likelihood of resources being on-site and the fact that other projects in the area are typically subject to similar protective mitigation for cultural and paleontological resources, no cumulatively considerable impacts would occur to these resources as a result of the proposed project.

8.3.10 CUMULATIVE IMPACTS RELATED TO HAZARDS

Only municipal solid waste (MSW) is accepted at Olinda Alpha Landfill, although limited special wastes (i.e., tires) also are accepted. Hazardous materials such as asbestos, batteries, chemicals, paints, non-autoclaved medical waste and other substances considered hazardous are not accepted. The landfill operates under existing regulations related to hazardous materials and has standard procedures in the event of hazards which could affect the site such as fire or earthquake. These practices would continue under the extension of landfill operations for an additional eight years for the vertical and horizontal expansions. Additionally, there are no nearby uses which, when considered with the landfill operations, increase any hazard risks on-site or to areas surrounding the landfill property. Therefore, there are no cumulatively considerable impacts on hazards from the expansion of the landfill and the extension of its operations.

8.3.11 CUMULATIVE IMPACTS RELATED TO PUBLIC SERVICES

The current operations of Olinda Alpha Landfill have minimal reliance on public services. The landfill itself provides a public service and operates in a fairly self-contained manner including on-site fire suppression facilities. As other development in the area occurs, fire and other public services will be expanded to ensure public safety and efficient emergency response times. The extended landfill operations would not increase any demand for public services. While demand for public services in the project area is expected to increase with development, the proposed landfill expansion project does not contribute to that demand and, therefore, does not have cumulatively considerable impacts to public services. As stated in the IS under Section 16 (Utilities and Service Systems), the proposed expansion will provide additional capacity for MSW.

8.3.12 CUMULATIVE IMPACTS RELATED TO BIOLOGICAL RESOURCES

As discussed in Section 5.11 (Biological Resources), the proposed project would not result in significant adverse impacts to biological resources after mitigation. As other development in the area occurs, such as Tonner Hills PC and Olinda Ranch, the potential for cumulative impacts related to biological resources is increased. According to the Tonner Hills PC Draft EIR, that project would result in a beneficial impact for the California gnatcatcher and the least Bell's vireo by resulting in a net increase of 19.5 acres of coastal sage scrub and 2.49 acres of southern arroyo willow woodland. The Tonner Hills PC in conjunction with the landfill expansion, would not contribute to adverse impacts to biological resources. The City of Industry owns 2,423 acres of open space to the north of the landfill that will be utilized for municipal use. This area includes Upper and Middle Tonner Canyon, which composes the Puente-Chino Hills wildlife corridor. Municipal use of this area may contribute to the potential for cumulative impacts related to biological resources in the region.

While development in the project area is expected to increase, the proposed landfill expansion would not contribute to cumulative adverse impacts related to biological resources.

SECTION 9.0
IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

SECTION 9.0
IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

Section 15126.2(c) of the California Environmental Quality Act (CEQA) Guidelines requires that an Environmental Impact Report (EIR) discuss significant adverse irreversible environmental changes that would be caused by implementation of the proposed project. In addition, irretrievable commitments of resources should be evaluated. Implementation of the proposed project would result in both short and long term commitments of natural resources.

Construction of the proposed project would require the commitment of a relatively small amount of building materials because the nature of the project improvements is mostly a cut and fill process. During the construction and operation of the expansion at the landfill, there would be an irretrievable commitment of resources such as gasoline, diesel fuel and electricity for the operation of construction equipment such as bulldozers, graders, trucks, dump trucks and generators. Because these types of resources are anticipated to be in adequate supply into the foreseeable future, these impacts are not considered significant.

SECTION 10.0
UNAVOIDABLE ADVERSE IMPACTS

SECTION 10.0
UNAVOIDABLE ADVERSE IMPACTS

This Section summarizes the unavoidable adverse impacts associated with proposed project. Specifically, Section 15126(b) of the California Environmental Quality Act (CEQA) Guidelines requires that an Environmental Impact Report (EIR):

> "Describe any significant impacts, including those which can be mitigated, but not reduced to a level of insignificance. Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described."

Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance) documents the analysis of the potentially significant adverse impacts associated with the project. The proposed project will result in an unavoidable adverse air quality impact after mitigation as noted in the analysis in Section 5.0.

As described in Section 5.6, Air Quality, construction of the proposed project will result in short-term significant adverse impacts associated with exceeding the AQMD thresholds for PM_{10}. Therefore, during construction, this will be an unavoidable significant adverse impact of the proposed project related to air quality.

The operation of the proposed project will result in a long-term significant adverse impact associated with exceeding the AQMD thresholds for NO_x, ROC and CO. Therefore, during operations, this is considered to be a significant unavoidable adverse impact of the proposed project related to air quality.

Construction and operation of the proposed project will likewise result in an unavoidable significant impact to air quality.

SECTION 11.0
INVENTORY OF MITIGATION MEASURES

SECTION 11.0
INVENTORY OF MITIGATION MEASURES

This Section provides a complete inventory of the mitigation measures developed in response to the findings of the impacts analysis in Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance). These mitigation measures will form the basis for the Mitigation Reporting and Monitoring Program for the proposed project. The agency responsible for the implementation of these mitigation measures is the County of Orange Integrated Waste Management Department (IWMD).

11.1 MITIGATION MEASURES FOR LAND USE AND PLANNING

LU-1 Prior to acquiring revised landfill permits and finalization of design plans for the project, the County of Orange and the City of Brea will renegotiate the details of the MOU to allow the disposal of MSW over a longer period of time. Under the proposed project, closure would be extended to approximately 2021 based on increasing the site's air space capacity and increased operational efficiencies, current population projections and existing disposal technologies.

11.2 MITIGATION MEASURES FOR GEOLOGY AND SOILS

G-1 Prior to construction of the lateral expansion area, additional geologic data will be obtained and subsequent slope stability analyses will be conducted to verify assumptions made for the stability analysis included in Appendix L.

G-2 Geologic mapping will be conducted during construction to identify any changes in geologic structure that may impact the stability analysis conducted for the lateral expansion design.

11.3 MITIGATION MEASURES FOR HYDROGEOLOGY AND WATER QUALITY

HW-1 A composite liner or an alternative to the prescriptive composite liner and LCRS will be placed in the lateral expansion area to intercept and collect leachate for disposal off-site or use as dust control, as approved by the RWQCB-SA. A subdrain system will be installed, as necessary, to intercept seeps below the liner. The prescriptive or alternative liner, LCRS and subdrain will be approved by the RWQCB-SA and comply with federal and state requirements (27 CCR).

HW-2 The site will continue to comply with the site's Waste Discharge Requirements and Monitoring and Reporting Program requirements imposed by the RWQCB-SA for the protection of water quality.

HW-3 The Corrective Action System in place at the landfill will continue operating during the extended landfill operations if detections of VOCs in groundwater continue.

11.4 MITIGATION MEASURES FOR SURFACE WATER HYDROLOGY

H-1 As part of a Joint Technical Document (JTD) to be prepared by IWMD in support of a revised SWFP and WDRs for the proposed expansion, the IWMD shall present the assumptions, methods and calculations used to calculate the potential flow quantities for run-on, run-off and sediment content of storm water flow used in sizing drainage and sediment control facilities for Olinda Alpha Landfill in conformance with 27 CCR regulations.

H-2 As part of a JTD to be prepared by IWMD in support of a revised SWFP and WDRs for the expansion, the IWMD shall include surface drainage plans for Olinda Alpha Landfill expansion final grading plans, including any berms, down drain systems, perimeter drainage channel improvements and the location of off-site discharge points for run-off water in compliance with 27 CCR regulations.

H-3 Diversion and drainage facilities shall be evaluated, designed, constructed and operated to accommodate the anticipated volume of precipitation and peak flows from surface run-off under the precipitation conditions specified in Title 27 of the CCR. Drainage facilities for the landfill expansion shall be designed to prevent washout of the waste management unit during a 100-year storm event.

H-4 The landfill (including the expansion area) will continue to operate under an NPDES Permit to discharge storm flows. The criteria and restrictions of the NPDES Permit and the SWPPP and BMPs that accompany the NPDES Permit will be adhered to.

H-5 Positive drainage will be ensured in the expansion area by maintaining a two to three percent slope on all landfill deck surfaces.

H-6 During all landfilling operations in the expansion area, sediment and erosion control plans will continue to be prepared and implemented on an annual basis to reduce sediment and control erosion on the landfill site.

11.5 MITIGATION MEASURES FOR TRANSPORTATION AND CIRCULATION

T-1 Imperial Highway at Valencia Avenue. IWMD will contribute a 9.2 percent fair share of the cost to modify the southbound Valencia Avenue approach at Imperial Highway. The fair share allocation is a standard County RDMD guideline for intersections operating at a LOS E without a project and LOS F with a project as the LOS is unacceptable. Under both scenarios, IWMD will contribute its fair share to the incremental impact to the southbound Valencia Avenue approach at Imperial Highway which would change that LOS E to LOS F (Refer to Appendix F-9 for supporting calculation sheets).

The proposed modifications include one additional southbound left turn lane and re-configuration of the rest of the southbound lanes (i.e. one through and one right turn lane) to one through lane and one optional through/right lane. This measure can be accomplished with re-striping only and with no additional street widening.

This improvement will result in an ICU of 0.836 (LOS D) with mitigation compared to an ICU of 0.981 (LOS E) without mitigation.

T-2 Imperial Highway and Kraemer Boulevard. IWMD will contribute a 100 percent fair share to the cost to modify the eastbound Imperial Highway approach at Kraemer Boulevard. The 100 percent fair share allocation is a standard County RDMD guideline for intersections operating at a LOS D without a project (an acceptable LOS) and LOS E with a project (an unacceptable LOS). Since the projected traffic associated with the Olinda Alpha Landfill expansion project, on its own, would cause the LOS D at the Imperial Highway and Kraemer Boulevard intersection to operate at LOS E, IWMD will contribute 100 percent of the cost to improve the LOS to an acceptable LOS D.

The proposed modifications are to provide an eastbound right turn only lane. This mitigation measure requires widening on the south side, relocation of street light poles and other street furniture.

11.6 MITIGATION MEASURES FOR AIR QUALITY

AQ-1 Applicable dust suppression techniques from Rule 403 are summarized below. Additional dust suppression measures in the SCAQMD CEQA Air Quality Handbook are also included as part of the project's mitigation. Implementation of these dust suppression techniques will reduce the fugitive dust generation (and thus the PM_{10} component). Compliance with these rules will reduce impacts on nearby sensitive receptors.

Applicable Rule 403 measures:

a. Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).

b. Water active sites at least twice daily. (Locations where grading is to occur will be thoroughly watered prior to earth moving).

c. All trucks hauling dirt, sand, soil, or other loose materials are to be covered, or should maintain at least two feet of freeboard in accordance with the requirements of California Vehicle Code (CVC) section 23114 (freeboard means vertical space between the top of the load and top of the trailer).

d. Pave construction access roads at least 100 feet onto the site from main road.

e. Traffic speeds on all unpaved roads shall be reduced to 15 mph or less.

Additional SCAQMD *CEQA Air Quality Handbook* dust measures:

a. Revegetate disturbed areas as quickly as possible.

b. All excavating and grading operations shall be suspended when wind speeds (as instantaneous gusts) exceed 25 miles per hour (mph) and dust plumes are visible.

c. All on-site streets shall be swept once a day if visible soil materials are carried to adjacent streets (recommend water sweepers with reclaimed water).

d. Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash trucks and any equipment leaving the site each trip.

AQ-2 Dust generated by the construction activities shall be retained on-site and kept to a minimum by following the dust control measures listed below.

a. During clearing, grading, earth moving, excavation, or transportation of cut or fill materials, water trucks or sprinkler systems shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease.

b. During construction, water trucks or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this would include wetting down such areas in the late morning and after work is completed for the day and whenever wind exceeds 15 miles per hour.

c. Immediately after clearing, grading, earthmoving, or excavation is completed, the entire area of disturbed soil shall be treated until the area is paved or otherwise developed so that dust generation will not occur.

d. Soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation.

e. Trucks transporting soil, sand, cut or fill materials, and/or construction debris to or from the site shall be tarped or maintain 6 inches of freeboard from the point of origin.

11.7 MITIGATION MEASURES FOR NOISE

N-1 During all project site excavation and grading, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.

N-2 The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the active construction areas.

N-3 The construction contractor shall locate equipment staging in areas to result in the greatest distance between construction related noise sources and noise sensitive receptors nearest the active construction areas during all project construction.

N-4 The construction contractor shall restrict all construction-related activities that would result in high noise levels between the hours of 8:00 PM and 7:00 AM on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

N-5 For residential units on Valencia Avenue north of Carbon Canyon Road which are approved prior to any approval of an expansion at Olinda Alpha Landfill, which are constructed and occupied before 2013 and which would be impacted by 65 dBA CNEL or higher traffic noise, the County of Orange IWMD will contribute a fair share to a road noise reduction program for these residences, if such a program is implemented by the City of Brea. This program could potentially implement a variety of road noise reduction measures which may include reduction in road speeds on the segment of Valencia Avenue north of Carbon Canyon Road, construction of sound walls adjacent to the affected residences and/or installation of rubberized asphalt concrete on Valencia Avenue north of Carbon Canyon Road.

11.8 MITIGATION MEASURES FOR AESTHETICS

AS-1 The existing Olinda Alpha Landfill Landscape Master Plan (LMP) that was developed in concert with IWMD and the City of Brea Citizens Advisory Committee in 1994 to address minimization of interim and permanent visual impacts will be revised to include the proposed vertical and horizontal expansion. The current seed mixes in the LMP will be identified for use on the appropriate areas of the expansion. The revised LMP will execute the original goal of blending the landfill property with the adjacent native open space area. The revised plan will be approved by IWMD and the City of Brea and will be included in the Closure Plan for the site as part of the SWFP and WDR revision application.

The phased interim landscape plan included as part of the LMP will be revised to continue visual screening of the landfill operations and facilities for the expansion and to assist in blending the manufactured slopes with surrounding open space prior to landfill closure.

AS-2 All outdoor lighting, including any construction-related lighting, shall be designed, installed and operated in a manner that ensures that all direct rays from project lighting are contained within the landfill property, and that residences and undeveloped areas that may provide wildlife value are protected from spillover light and glare.

11.9 MITIGATION MEASURES FOR CULTURAL AND SCIENTIFIC RESOURCES

C-1 The construction bid package, related construction and design plans, and specifications shall require that if buried cultural material is encountered during project construction, the County's construction contractor shall immediately stop work in the area. Work shall be halted until the County can retain a qualified archaeologist, and the nature and significance of the find are determined. If significant archaeological material is found, it shall be salvaged and collected in compliance with all applicable regulations and sent to a designated museum.

C-2 If human remains are encountered during project construction, the County's construction contractor shall immediately stop work in the area. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 24 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

C-3 A Paleontological Resources Impact Mitigation Program (PRIMP) will be implemented. The PRIMP shall include, but not be limited to, the following: paleontological monitoring, preparation of any collected specimens to the point of identification, curation of specimens to a museum or similar institution and preparation of a mitigation report documenting any findings.

11.10 MITIGATION MEASURES FOR HAZARDS

No mitigation is required.

11.11 MITIGATION MEASURES FOR PUBLIC SERVICES

No mitigation is required.

11.12 MITIGATION MEASURES FOR BIOLOGICAL RESOURCES

B-1 Prior to the removal of the 1.3 acres of coast live oak, IWMD shall prepare and submit a Mitigation Monitoring and Reporting Program (MMRP) to the CDFG for review and approval. In accordance with an approved MMRP, IWMD will replace the 1.3 acres of coast live oak woodland at a 1:1 ratio (or as otherwise approved by the CDFG). The location of coast live oak plantings on the landfill will be determined in consultation with CDFG and a qualified ecologist. However, if the ultimate location of these replacement oaks are within the disposal area of the landfill, the RWQCB-SA will need to approve the plan to ensure that the tree root system does not compromise landfill operations and/or closure (final cover) requirements.

B-2 Prior to the removal of the 4.0 acres of CSS and the 10.4 acres of cut/slope revegetation, IWMD shall prepare and submit a Coastal Sage Scrub Mitigation Plan (CSSMP), to the CDFG for review and approval. In accordance with an approved CSSMP, the IWMD will replace the 4.0 acres of CSS and the 10.4 acres of cut/slope revegetation, which provide marginally suitable habitat for the California gnatcatcher, at a 1:1 ratio (or as otherwise approved by the CDFG). Guidelines for the CSSMP are:

- The mitigation areas/sites shall have been evaluated and selected on the basis of their suitability for use as coastal sage scrub revegetation areas. The parameters evaluated shall include but not be limited to soil conditions, slope aspect, proximity to adjacent coastal sage scrub, level of difficulty of site preparation, and ownership status.

- The mitigation plan shall provide procedures to prepare the soils in the mitigation area, provide detailed seeding/planting mixtures, provide seeding/planting methods and provide any other procedures that will be used for successful revegetation.

- Maintenance and monitoring goals shall be established.

SECTION 12.0
LIST OF PREPARERS

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SECTION 13.0
REFERENCES

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