
4.17 Energy Supply and Natural Resources

4.17.1 Energy Supply

4.17.1.1 Introduction

The energy supply analysis addresses electricity, natural gas,²³⁴ and other fossil fuel consumption for Master Plan-related activities, including construction, as more fully described in Section 4.17.1, *Energy Supply* (subsection 4.17.1.1), of the Draft EIS/EIR. Technical Report 8, *Energy Supply Technical Report*, of the Draft EIS/EIR, and Technical Report S-6, *Supplemental Energy Supply Technical Report*, of this Supplement to the Draft EIS/EIR, contain calculations of projected energy requirements.

4.17.1.2 General Approach and Methodology

The analysis of energy supply presented below is based on the general approach and methodology described in Section 4.17.1, *Energy Supply* (subsection 4.17.1.2), of the Draft EIS/EIR. In addition, the analysis completed for this Supplement to the Draft EIS/EIR includes consideration of changes to baseline conditions (see Section 4.17.1.3 below), using the same methodology applied to the 1996 baseline analysis.

4.17.1.3 Affected Environment/Environmental Baseline

The affected environment/environmental baseline related to energy supply used in this Supplement to the Draft EIS/EIR is materially the same as described in Section 4.17.1, *Energy Supply* (subsection 4.17.1.3), of the Draft EIS/EIR. However, some of the baseline energy consumption numbers have been modified to reflect changes in the square footage and to correct errors (refer to **Table S4.17.1-3**, Energy Consumption Within Master Plan Boundaries, in Section 4.17.1.6 below). This information does not alter the conclusions of the Draft EIS/EIR. A discussion of Year 2000 conditions is provided below.

Changes in conditions between 1996 and 2000 include modification of cargo, terminal, and ancillary facilities, and acquisition and demolition of 534 dwelling units within Manchester Square and Belford. These changes resulted in: 1) an increase of approximately 14 percent in airport-related electricity consumption and in an increase of approximately 9 percent in the total calculated electricity consumption within the Master Plan boundaries for Year 2000 conditions as compared to the 1996 baseline; and 2) an increase of approximately 0.6 percent in airport-related natural gas consumption and in a decrease of approximately 1 percent in natural gas consumption within the Master Plan boundaries for Year 2000 conditions as compared to the 1996 baseline (refer to **Table S4.17.1-3**, Energy Consumption Within Master Plan Boundaries, in Section 4.17.1.6 below).

- ◆ The total overall estimated fuel consumption at LAX in 1997 and in Year 2000 is presented in **Table S4.17.1-1**, 1996 Baseline and Year 2000 Fuel Consumption. **Table S4.17.1-2**, 1996 Baseline and Year 2000 Transportation Related Fuel Consumption, presents a comparison of transportation related fuel consumption between 1996 baseline conditions and Year 2000 conditions specific to ground support equipment (GSE), stationary equipment, on-airport vehicles, and off-airport vehicles. This comparison indicates an increase of approximately 19 percent in Jet A fuel, no change for Avgas, a decrease of approximately 20 percent for gasoline, a decrease of approximately 11 percent in diesel and an increase of approximately 38 percent in LNG/CNG and propane consumption for Year 2000 conditions as compared to the 1996 baseline.

²³⁴ For purposes of this analysis, the discussion of natural gas usage focuses on standard, domestic usage. Use of liquefied natural gas (LNG) and compressed natural gas (CNG) as transportation fuels for ground support equipment (GSE) and other motor vehicles is considered in the analysis of fuel consumption. These fuels are often referred to as "alternative fuels."

4.17.1 Energy Supply

Table S4.17.1-1

1996 Baseline and Year 2000 Fuel Consumption

Fuel	1996 Baseline Consumption	Year 2000 Consumption
Jet A	1,500 million gallons	1,784 million gallons
Avgas	20,000 gallons	20,000 gallons
Gasoline	142.5 million gallons	113.85 million gallons
Diesel	27.73 million gallons	24.78 million gallons
LNG/CNG and Propane	1,200 thousand therms	1,652 thousand therms

Source: Camp Dresser & McKee Inc., 2003.

Table S4.17.1-2

1996 Baseline and Year 2000 Transportation Related Fuel Consumption

	1996	2000	% Change
Gasoline (million gallons)			
Ground Support Equipment	3.70	3.15	-15%
Stationary Equipment	0.01	0.01	0%
On-Airport Vehicles	4.39	4.39	0%
Off-Airport Vehicles	134.4	106.3	-21%
Diesel (million gallons)			
Ground Support Equipment	1.47	3.34	127%
Stationary Equipment	1.13	1.13	0%
On-Airport Vehicles	2.11	2.11	0%
Off-Airport Vehicles	23.0	18.2	-20%
LNG, CNG, and Propane (therms)			
Ground Support Equipment	729	1,181	62%
Stationary Equipment	--	--	--
On-Airport Vehicles	471	471	0%
Off-Airport Vehicles	--	--	--

Source: Camp Dresser & McKee Inc., 2003.

4.17.1.4 Thresholds of Significance

4.17.1.4.1 CEQA Thresholds of Significance

As stated in Section 4.17.1, *Energy Supply* (subsection 4.17.1.4.1), of the Draft EIS/EIR, a significant energy impact would occur if the direct and indirect changes in the environment that may be caused by the particular build alternative would potentially result in one or more of the following future conditions:

- ◆ An exceedance in regional electricity or natural gas supplies or generation or distribution facilities due to project-related electricity and natural gas demand.
- ◆ A substantial increase in project-related fuel consumption relative to available supply.
- ◆ Interference with existing major electrical or natural gas infrastructure due to construction of project features.

These thresholds of significance are utilized because they address the potential concerns relative to energy associated with the LAX Master Plan alternatives, namely the potential for the project to exceed regional energy supply and distribution capabilities, and the potential for interference with existing energy utility infrastructure due to construction of the proposed Master Plan improvements. The first two thresholds were developed based upon guidance provided in the *Draft L.A. CEQA Thresholds Guide*.²³⁵

²³⁵ City of Los Angeles, *Draft L.A. CEQA Thresholds Guide*, May 14, 1998.

The third threshold was developed specifically to address potential impacts associated with the Master Plan alternatives relative to construction conflicts, which was not addressed in the *Draft L.A. CEQA Thresholds Guide*.

4.17.1.4.2 Federal Standards

As stated in Section 4.17.1, *Energy Supply* (subsection 4.17.1.4.2), of the Draft EIS/EIR, there are no federal standards for the determination of significant impacts on energy supply.

4.17.1.5 Master Plan Commitments

The following Master Plan commitments proposed for energy supply are the same as those presented in Section 4.17.1, *Energy Supply* (subsection 4.17.1.5), of the Draft EIS/EIR.

◆ E-1. Energy Conservation and Efficiency Program (Alternatives A, B, C, and D).

LAWA will seek to continually improve the energy efficiency of building design and layouts during the implementation of the LAX Master Plan. Title 24, Part 6, Article 2 of the California Administrative Code establishes maximum energy consumption levels for heating and cooling of new buildings to assure that energy conservation is incorporated into the design of new buildings. LAWA will design new facilities to meet or exceed the prescriptive standards required under Title 24. Some of the energy conservation measures that LAWA may incorporate into the design of new buildings and airports facilities may include the use of energy-efficient building materials, energy-saving lighting systems, energy-efficient air-conditioning systems, energy-efficient water-heating systems, and designed-in access for alternative means of surface transportation, including the Green Line and the APM. These energy conservation measures may be further improved upon as energy-saving design approaches and technologies develop.

◆ E-2. Coordination with Utility Providers (Alternatives A, B, C, and D).

LAWA will implement Master Plan activities in coordination with local utility providers. Utility providers will provide input on the layout of utilities at LAX to assure that LAX and the surrounding region receive both safe and uninterrupted service. When service by existing utility lines could be affected by airport design features, LAWA will work with the utility to identify alternative means providing equivalent or superior post-construction utility service.

◆ PU-1. Develop a Utility Relocation Program (Alternatives A, B, C, and D).

LAWA will develop and implement a utilities relocation program to minimize interference with existing utilities associated with LAX Master Plan facility construction. Prior to initiating construction of a Master Plan component, LAWA will prepare a construction evaluation to determine if the proposed construction will interfere with existing utility location or operation. LAWA will determine utility relocation needs and, for sites on LAX property, LAWA will develop a plan for relocating existing utilities as necessary before, during, and after construction of LAX Master Plan features. LAWA will implement the utility relocation program during construction of LAX Master Plan improvements.

4.17.1.6 Environmental Consequences

The environmental impacts to energy supply under the No Action/No Project Alternative and Alternatives A, B, and C have not materially changed from those described in Section 4.17.1, *Energy Supply* (subsection 4.17.1.6), of the Draft EIS/EIR. However, some of the energy consumption numbers have been modified since publication of the Draft EIS/EIR to reflect changes in the square footages of facilities and to correct errors (see **Table S4.17.1-3** below). These modifications do not alter the conclusions of the Draft EIS/EIR. **Table S4.17.1-3**, Energy Consumption Within Master Plan Boundaries, identifies energy consumption under each of the alternatives as well as under 1996 baseline and Year 2000 conditions.

4.17.1 Energy Supply

Table S4.17.1-3

Energy Consumption within Master Plan Boundaries

Energy Form	1996 Baseline	Year 2000	Alternative 2015				
			NA/NP	A	B	C	D
ELECTRICITY/NATURAL GAS							
Electricity (MWH/Yr)							
LAX							
Airport Land Uses							
Airport Facilities	154,818 ¹	161,348 ¹	160,552	311,416	295,462	270,642 ¹	219,052
Airport Operations ²	46,335	68,293	76,269	266,912	343,574	204,557	321,327
Subtotal Airport Uses	201,153¹	229,641	236,821	578,328	639,036³	475,199¹	540,379
Non-Airport Land Uses							
Belford	3,280	1,913	NA ¹²	NA ¹³	NA ¹³	NA ¹³	NA ¹²
LAX Northside ⁴	NA	216	66,404	NA	NA	NA	66,404
Continental City	NA	NA	40,205	NA	NA	NA	NA
Westchester Southside	NA	NA	NA	32,825	32,825	32,825	NA
Subtotal Non-Airport Uses	3,280	2,129	106,609	32,825	32,825	32,825²	66,404
SUBTOTAL AIRPORT AND NON-AIRPORT USES	204,433¹	231,770	343,430³	611,153	671,861³	508,024¹	606,783
Non-Project Uses Within Master Plan Boundaries¹⁴							
Manchester Square	11,174	9,627	NA ⁵	23,683 ⁶	NA ⁷	NA ⁷	NA ⁷
Acquisition Areas ⁸	72,291	72,292	72,291 ³	16,692	2,727	38,397 ¹	65,415
Subtotal Non-Project Uses	83,465	81,919	72,291³	40,375	2,727	38,397¹	65,415
TOTAL MASTER PLAN BOUNDARIES¹¹	287,898¹	313,689	415,721³	651,528	674,588³	544,223¹	672,197
Natural Gas (MMCF/Yr)							
LAX							
Airport Land Uses							
Airport Facilities	299	304	304	546	462	636 ¹	411
CUP	820	822	820	1,506	1,430	1,175	820
Subtotal Airport Uses	1,119	1,126	1,124	2,052	1,892	1,811¹	1,231
Non-Airport Land Uses							
Belford	28	16.4	NA ¹²	NA ¹³	NA ¹³	NA ¹³	NA ¹²
LAX Northside ⁴	NA	0.2	139	NA	NA	NA	141
Continental City	NA	NA	75	NA	NA	NA	NA
Westchester Southside	NA	NA	NA	93	93	93	NA
Subtotal Non-Airport Uses	28	16.6	214	93	93	93	139
SUBTOTAL AIRPORT AND NON-AIRPORT USES	1,147	1,143	1,338	2,145³	1,985	1,904¹	1,370
Non-Project Uses Within Master Plan Boundaries¹⁴							
Manchester Square	105 ³	86	NA ⁵	217 ⁷	NA ⁷	NA ⁷	NA ⁷
Acquisition Areas ⁷	536	536	536	143	15	289	498
Subtotal Non-Project Uses	640³	622	536	360	15	289³	498
TOTAL MASTER PLAN BOUNDARIES¹¹	1,787³	1,766	1,875³	2,505	2,000³	2,193	1,868
LIQUID FUELS							
Aircraft Fuels (Million Gallons/Yr)							
Jet A	1,500	1,784	2,767	3,599	3,599	3,371	2,866
Avgas	0.02	0.02	0.02	0.02	0.02	0.02	0.02
TOTAL MASTER PLAN BOUNDARIES	1,500	1,784	2,767	3,599	3,599	3,371	2,866

Table S4.17.1-3

Energy Consumption within Master Plan Boundaries

Energy Form	1996		Year	Alternative 2015			
	Baseline	2000		NA/NP	A	B	C
Gasoline (Million Gallons/Yr)							
Stationary Sources	0.01	0.01	0.00	0.01	0.01	0.01	0.01
On-Airport Vehicles	4.39	4.39	5.16	3.42	3.42	3.42	3.42
Off-Airport Vehicles ⁹	134.38	106.3	150.7 ¹	191.9 ¹	190.1 ¹	188.9 ¹	155.2
GSE	3.70	3.15	1.66	0.82	0.82	0.70	0.70
TOTAL MASTER PLAN BOUNDARIES¹¹	142.49	113.85	157.52¹	196.15¹	194.35¹	193.0¹	159.33
Diesel (Million Gallons/Yr)							
Stationary Sources	1.13	1.13	0.00	0.04	0.04	0.04	0.04
On-Airport Vehicles	2.11	2.11	2.53	0.55	0.55	0.55	0.55
Off-Airport Vehicles ⁹	23.02	18.2	27.1 ¹	34.5 ¹	34.2 ¹	34.0 ¹	27.9
GSE	1.47	3.34	2.83	0.06	0.06	0.05	0.06
TOTAL MASTER PLAN BOUNDARIES¹¹	27.73	24.78	32.46¹	35.15¹	34.85¹	34.64¹	28.55
TOTAL LIQUID FUELS	1,670	1,922	2,957	3,830	3,828	3,599	3,053
OTHER FUELS							
LNG, CNG, and Propane (Thousand Therms)¹⁰							
On-Airport Vehicles	471	471	925	3,524	3,524	3,524	3,524
GSE	729	1,181	1,480	2,894	2,907	2,453	2,626
TOTAL MASTER PLAN BOUNDARIES¹¹	1,200	1,652	2,405	6,418	6,431	5,977	6,150

NA = Not applicable.

¹ Modified since publication of the Draft EIS/EIR to correct an error. This modification does not alter the conclusions of the Draft EIS/EIR.

² Airport operations include the CUP, gate electrification, APM, and electric GSE and on-airport vehicles.

³ Modified since publication of the Draft EIS/EIR to correct a mathematical error. This modification does not alter the conclusions of the Draft EIS/EIR.

⁴ LAX Northside is currently subject to a trip cap (refer to Chapter 4, *Affected Environment, Consequences and Mitigation Measures* (Analytical Framework Section), of this Supplement to the Draft EIS/EIR. Under Alternative D, this trip cap would be reduced, which would effectively reduce the total amount of development allowed in LAX Northside. Therefore, energy consumption in this area may be overstated.

⁵ Under the No Action/No Project Alternative and Alternative D, existing uses would be demolished. No redevelopment is assumed.

⁶ Under Alternative A, Manchester Square is assumed to be redeveloped with commercial/light industrial uses independent of the Master Plan.

⁷ Under Alternatives B, C, and D, existing uses within Manchester Square would be demolished, and the area would be incorporated into the overall Master Plan development. Energy consumption associated with proposed land uses in this area is incorporated within "Airport Facilities" above.

⁸ No land within the acquisition areas would be acquired under the No Action/No Project Alternative. Only a portion of the land within the acquisition areas would be acquired for each individual build alternative. The land within the Master Plan boundaries that would not be acquired under a particular alternative is assumed to remain in its current use.

⁹ "Off-airport vehicles" includes energy consumed outside of the Master Plan boundaries, but associated with vehicles traveling to and from LAX and other land uses within the Master Plan boundaries.

¹⁰ The evaluation of LNG, CNG, and propane was limited to airport use.

¹¹ Information in table may not total due to rounding.

¹² Under the No Action/No Project Alternative and Alternative D, existing uses would be demolished. No redevelopment is assumed for purposes of this analysis.

¹³ Under Alternatives A, B, and C, existing uses within Belford would be demolished and the area would be incorporated into the overall Master Plan development. Energy use associated with proposed land uses in this area is incorporated within "Airport Facilities" above.

¹⁴ For purposes of this analysis, a single composite study area was established, referred to as the "Master Plan boundaries." However, for each alternative, a portion of the study area would not be incorporated into the Master Plan development.

Source: Camp Dresser & McKee Inc., 2003.

4.17.1.6.1 Alternative D - Enhanced Safety and Security Plan

A complete description of the facilities associated with Alternative D is provided in Chapter 3, *Alternatives* (subsection 3.3.2), of this Supplement to the Draft EIS/EIR. The features of Alternative D that are relevant to the analysis of energy supply are summarized herein. Under Alternative D, the building area dedicated to terminal, cargo, and ancillary airport uses would increase, and the building area for maintenance uses would slightly decrease compared to baseline conditions. Alternative D would include the development of LAX Northside. Existing uses in the acquisition areas would be demolished. As with Alternatives A, B, and C, uses within the ANMP properties (Belford and Manchester Square) will be demolished as part of a separate action being undertaken by LAWA. For purposes of this analysis, no redevelopment of the Belford property is assumed. The land within the acquisition areas and Manchester Square would be incorporated into the Master Plan.

Electricity and Natural Gas

Under Alternative D, all terminal gates would be equipped with centralized power and central air. In addition, electric vehicle charging stations would be provided for GSE, shuttles, and visitors. Increases in airport operations, such as transporting passengers around the airport, handling passenger baggage, loading and unloading cargo, and providing electrical power for airplanes at gates (gate electrification), would increase energy consumption. As with Alternatives A, B, and C, increasing numbers of passengers, flight operations, expansion of cargo facilities, and expanded airport operations, as well as the development of LAX Northside, would result in increases in electricity and natural gas consumption within the Master Plan boundaries. Also, as with the other build alternatives, operational changes would shift the forms of energy from direct fossil fuel consumption (gasoline and diesel) to electricity.

Table S4.17.1-3 shows that, under Alternative D, total electricity use for airport uses would increase by 339,226 MWH/yr over 1996 baseline conditions by 2015 (a 169 percent increase). Total natural gas use for airport uses would increase by 112 MMCF/yr over 1996 baseline conditions by 2015 (a 10 percent increase). Total annual electricity and natural gas consumption within the Master Plan boundaries would increase by 384,299 MWH/yr and 81 MMCF/yr over baseline conditions by 2015 (a 136 percent increase and 5 percent increase, respectively). The projected consumption of electricity and natural gas under Alternative D would represent 2 percent of the City's projected electrical energy demand within DWP's service area in 2015 and 0.13 percent of the projected regional natural gas demand in 2015 (refer to Section 4.17.1, *Energy Supply* (subsection 4.17.1.3), of the Draft EIS/EIR for a discussion of projected Year 2015 City electrical energy and regional natural gas demands).

In order to reduce electricity and natural gas consumption under Alternative D, LAWA would implement Master Plan Commitment E-1, Energy Conservation and Efficiency Program (Alternatives A, B, C, and D), to maximize the energy efficiency of new facilities. Similar to Alternatives A, B, and C, a sufficient supply of electricity and natural gas is expected to be available. Therefore, no significant impacts with respect to electricity and natural gas supply would occur.

However, as with the other build alternatives, under Alternative D, changes in peak electrical loads and the location of new electrical loads within the Master Plan boundaries may result in the need for upgrades to the electrical power transmission system. Under Master Plan Commitment E-2, Coordination with Utility Providers (Alternatives A, B, C, and D), a utility coordination program would be implemented by LAWA to ensure that adequate electrical distribution facilities are available to support the electricity needs associated with Alternative D. Development and implementation of a utility coordination program would reduce potential impacts to the existing electricity supply and distribution system to a level that is less than significant.

Transportation-Related Fuel Consumption

Jet A and Avgas

Under Alternative D, Jet A consumption by aircraft is estimated to be 2,866 million gallons in 2015. This represents an increase in Jet A fuel consumption over baseline conditions of 91 percent. This increase would result from increasing flight operations, changes in the mix of aircraft to heavier aircraft, and an increase in average distances aircraft would fly to their destinations. Avgas consumption is not projected to increase in 2015. Under Alternative D, the existing LAXFUEL Fuel Farm would remain in the existing location on the west side of the airport, north of World Way West. Under this alternative, the barrels per

day of Jet A consumed would remain below 200,000, the current capacity of the pipelines that transport Jet A to LAX. Thus, the impacts associated with the available supply, transmission, and storage of Jet A under Alternative D would be less than significant.

Gasoline and Diesel

Under Alternative D, gasoline consumption would be approximately 159 million gallons in 2015, an increase over baseline conditions of 12 percent. Diesel consumption is estimated to be approximately 29 million gallons in 2015, an increase over baseline conditions of 3 percent. Under this alternative, the consumption of gasoline and diesel from on-airport sources, including GSE and on-airport vehicles, would be reduced as a result of the conversion of some of these vehicles to LNG, CNG, or propane power. These decreases would be offset by increases in the amount of gasoline and diesel consumption associated with off-airport vehicle trips, including trips by both passengers and employees arriving and departing LAX, as well as trips to and from LAX Northside.

Similar to Alternatives A, B, and C, sufficient supplies of gasoline and diesel are expected to be available. Therefore, the impact associated with an increase in gasoline and diesel consumption under Alternative D would be less than significant.

LNG, CNG and Propane

Under Alternative D, the total consumption of LNG, CNG, and propane would be 6,150 thousand therms in 2015. This represents a 412 percent increase over baseline conditions. The increase in LNG, CNG, and propane fuel consumed over baseline conditions would result from increasing numbers of passenger being transported around the eastern end of LAX in on-airport vehicles, increased flight operations, greater numbers of LNG/CNG powered on-airport vehicles, and the introduction of LNG/CNG powered GSE. As with Alternatives A, B, and C, under Alternative D, the impacts associated with the supply of LNG, CNG, and propane would be less than significant.

Construction

Under Alternative D in 2015, annual diesel and gasoline consumption related to construction equipment and additional worker vehicle trips to and from the construction sites would be approximately 29.9 million gallons and 3.1 million gallons, respectively. As discussed in Section 4.17.1, *Energy Supply* (subsection 4.17.1.3), of the Draft EIS/EIR, petroleum products, including gasoline and diesel, are market-driven commodities for which adequate supplies are anticipated through 2015. Because sufficient supplies of gasoline and diesel are expected to be available, the impact associated with the consumption of gasoline and diesel for construction-related activities under Alternative D would be less than significant.

Alternative D would require new electrical and natural gas distribution infrastructure, as well as relocating and renovating on-airport facilities. The construction of this new infrastructure would be incorporated into the LAX Master Plan as part of Master Plan Commitment PU-1, Develop a Utility Relocation Program (Alternatives A, B, C, and D). As indicated previously, new facilities would be coordinated with utility providers under Master Plan Commitment E-2, Coordination with Utility Providers (Alternatives A, B, C, and D). Because the project would be designed to provide the requisite electricity and natural gas infrastructure, the need for new and relocated facilities on the airport would be a less than significant impact.

Construction associated with Alternative D would include activity near existing natural gas and electrical power lines. Excavation near natural gas or electrical power lines could cause an interruption in service to LAX or the surrounding area if improper construction methods are used or poor planning occurs. Construction near submerged high voltage electrical power lines could later affect the transmission capacity of the lines if surrounding insulation material is improperly changed. The ability of utility providers to access underground pipes or lines could also be affected by construction. Under Master Plan Commitments E-2, Coordination with Utility Providers (Alternatives A, B, C, and D), and PU-1, Develop a Utility Relocation Program (Alternatives A, B, C, and D), LAWA would work with the utility providers to assure that changes to the electrical distribution system performed under Alternative D would not adversely affect electricity or natural gas service to the surrounding area. Development and implementation of these commitments would reduce potential impacts to the existing electricity supply and distribution system from construction activities to a level that is less than significant.

4.17.1 Energy Supply

4.17.1.7 Cumulative Impacts

The cumulative impacts to energy supply associated with the No Action/No Project Alternative and Alternatives A, B, or C, in combination with other past, present, and probable future projects, have not changed from those described in Section 4.17.1, *Energy Supply* (subsection 4.17.1.7), of the Draft EIS/EIR.

4.17.1.7.1 Alternative D - Enhanced Safety and Security Plan

Demand for electricity, natural gas, and transportation-related fuels under Alternative D would increase due to new development within the Master Plan boundaries, increases in passenger activity, and aircraft operations, and development of LAX Northside. Alternative D would not result in an increase in population associated with direct employment. However, relocation of residents from Manchester Square and overall forecast growth would increase regional energy consumption. Impacts from other projects, including Playa Vista, could also occur as a result of future development in the vicinity of LAX. Regional energy supply planning programs would ensure an adequate energy supply for cumulative growth within the Los Angeles region through the year 2015. Therefore, impacts associated with cumulative increases in energy demand, including electricity, natural gas, and transportation-related fuels, would be less than significant.

4.17.1.8 Mitigation Measures

Although energy consumption associated with Alternatives A, B, C, and D could be accommodated by projected supplies, LAWA would implement Master Plan Commitment E-1, Energy Conservation and Efficiency Program (Alternatives A, B, C, and D), to reduce energy consumption associated with these alternatives. In addition, Master Plan Commitments E-2, Coordination with Utility Providers (Alternatives A, B, C, and D), and PU-1, Develop a Utility Relocation Program (Alternatives A, B, C, and D), would ensure coordination of service and minimize potential conflicts with subsurface utilities during construction. As a result, Alternatives A, B, C, and D would not have any significant impacts relative to energy consumption, and no mitigation would be required.

4.17.2 Natural Resources

4.17.2.1 Introduction

The natural resources analysis addresses the potential of the Master Plan alternatives to restrict access to natural resources, including mineral, timber, and petroleum resources. The use of local natural resources for the construction of Master Plan facilities is also evaluated, as more fully described in Section 4.17.2, *Natural Resources* (subsection 4.17.2.1), of the Draft EIS/EIR. The potential impacts of project related fuel consumption are addressed in Section 4.17.1, *Energy Supply*, of the Draft EIS/EIR and this Supplement to the Draft EIS/EIR.

4.17.2.2 General Approach and Methodology

The analysis of natural resources presented below is based on the general approach and methodology described in Section 4.17.2, *Natural Resources* (subsection 4.17.2.2), of the Draft EIS/EIR. In addition, the analysis completed for this Supplement to the Draft EIS/EIR includes consideration of changes to baseline conditions (see Section 4.17.2.3 below), using the same methodology applied to the 1996 baseline analysis.

4.17.2.3 Affected Environment/Environmental Baseline

The affected environment/environmental baseline related to natural resources used in this Supplement to the Draft EIS/EIR is the same as described in Section 4.17.2, *Natural Resources* (subsection 4.17.2.3), of the Draft EIS/EIR, with the following exception identified below that reflects current conditions. The following change to the affected environment/environmental baseline does not alter the conclusions of the Draft EIS/EIR.

- ◆ The Sun Valley production area has remaining reserves; however, current estimates of reserves in this area are not available. The operator has indicated that when its reserves are depleted, the Sun Valley production area will continue to be used to process aggregate from other nearby areas.²³⁶

4.17.2.4 Thresholds of Significance

4.17.2.4.1 CEQA Thresholds of Significance

As stated in Section 4.17.2, *Natural Resources* (subsection 4.17.2.4.1), of the Draft EIS/EIR, a significant natural resources impact would occur if the direct and indirect changes in the environment that may be caused by the particular build alternative would potentially result in one or more of the following future conditions:

- ◆ The project were to result in the permanent loss of, or loss of access to, substantial volumes of harvestable timber resources, petroleum resources, or mineral resources.
- ◆ The natural resource requirements for construction of the project were to exceed available permitted supplies.

These thresholds are utilized because they address the two potential impacts to natural resources associated with the Master Plan build alternatives: the potential for the project to restrict access to important natural resources due to the construction of new facilities on largely undeveloped areas, and the use of natural resources for the construction of improvements associated with the Master Plan alternatives. The first threshold was adapted from the *Draft L.A. CEQA Thresholds Guide* to address other resources in addition to mineral resources.²³⁷ The second threshold was developed specifically to address potential impacts associated with the Master Plan alternatives relative to natural resource consumption, which was not addressed in the *Draft L.A. CEQA Thresholds Guide*. The only other potential impacts to natural resources are associated with the consumption of fuel and other energy resources. These impacts are addressed in Section 4.17.1, *Energy Supply*.

²³⁶ Wessel, Alan, Vice President of Sales Management, Vulcan Materials Co., Personal Communication, December 20, 2002.

²³⁷ City of Los Angeles, Draft L.A. CEQA Thresholds Guide, May 14, 1998.

4.17.2 Natural Resources

4.17.2.4.2 Federal Standards

As stated in Section 4.17.2, *Natural Resources* (subsection 4.17.2.4.2), of the Draft EIS/EIR, there are no federal standards that define significance thresholds for natural resource impacts.

4.17.2.5 Master Plan Commitments

No Master Plan commitments for natural resources are proposed.

4.17.2.6 Environmental Consequences

The environmental impacts to natural resources under the No Action/No Project Alternative and Alternatives A, B, and C have not changed from those described in Section 4.17.2, *Natural Resources* (subsection 4.17.2.6), of the Draft EIS/EIR.

4.17.2.6.1 Alternative D - Enhanced Safety and Security Plan

There are no actively-mined mineral, timber, or petroleum resources within LAX or the areas proposed for acquisition under Alternative D; therefore, Alternative D would not restrict access to these resources. As shown in **Table S4.17.2-1**, Estimated Aggregate Consumption for Alternatives A, B, C, and D, the total amount of aggregate required for the construction of Alternative D is estimated to be 11,418,000 tons, or about 0.7 percent of the estimated 1.7 billion tons of currently permitted reserves in the Los Angeles region. Construction materials from demolition work would be recycled; therefore, not all of this demand for aggregate would require raw materials. The amount of aggregate required for the construction of Alternative D would be greater than that required for the No Action/No Project Alternative. The California Department of Conservation, Division of Mines and Geology (CDMG) anticipates that currently permitted aggregate reserves in the Los Angeles region will be available through 2046. The impact of Alternative D on aggregate reserves would be similar in nature to Alternatives A, B, and C, although Alternative D would require approximately 42 percent less aggregate than would the other build alternatives. As with Alternatives A, B, and C, under Alternative D, the need for aggregate materials would not result in a significant impact on available reserves. Therefore, impacts associated with natural resources consumption would be less than significant.

Table S4.17.2-1

Estimated Aggregate Consumption for Alternatives A, B, C, and D

Aggregate Use	Aggregate Required (tons)			
	Alternative A	Alternative B	Alternative C	Alternative D
Pavement - Airfield	6,588,000	8,474,000	7,612,000	6,210,000
Pavement - Roads	2,377,000	2,199,000	1,823,000	486,000
Structure - Buildings	4,000,000	3,400,000	3,723,000	3,826,000
Structure - Roadway	7,512,000	6,781,000	5,214,000	896,000
Total Aggregates	20,477,000	20,854,000	18,372,000	11,418,000

Source: Bechtel Corporation, 2000; MARRS Services, 2003.

As with Alternatives A, B, and C, construction of improvements proposed under Alternative D would require timber in amounts typical of urban development. It is not anticipated that the use of timber resources would result in a substantial reduction in available timber supplies.

4.17.2.7 Cumulative Impacts

The cumulative impacts to natural resources associated with the No Action/No Project Alternative and Alternatives A, B, or C, in combination with other past, present, and probable future projects, have not changed from those described in Section 4.17.2, *Natural Resources* (subsection 4.17.2.7), of the Draft EIS/EIR.

4.17.2.7.1 Alternative D - Enhanced Safety and Security Plan

Construction under Alternative D would require approximately 0.7 percent of total permitted aggregate reserves in the Los Angeles region. Projected direct and indirect population growth would result in cumulative increases in aggregate consumption within the Los Angeles region. A component of this growth would consist of businesses that would be relocated within the region due to acquisition associated with Alternative D. Related businesses would primarily need new office buildings. Because adequate supplies of aggregate resources are anticipated to be available, the impacts of increased population would be less than significant.

As with Alternatives A, B, and C, cumulative impacts could also occur under Alternative D as a result of future development in the vicinity of LAX. As addressed in Section 4.17.2, *Natural Resources* (subsection 4.17.2.3), of the Draft EIS/EIR, regional supplies of aggregate resources are anticipated to be available well beyond the planning horizon. In addition, recycled materials will serve to extend the life of aggregate resources and reserves within the Los Angeles region; therefore, impacts to natural resources would be less than significant.

4.17.2.8 Mitigation Measures

Implementation of Alternatives A, B, C, and D would not result in a significant impact on natural resources; therefore, no mitigation is required.

4.17.2 *Natural Resources*

This Page Intentionally Left Blank