
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 to determine if adequate resources would be available to meet the projected demands. The potential impacts of project-related fuel consumption are addressed in Section 4.17.1, *Energy Supply*. Potential effects of regional growth induced by the LAX Master Plan are addressed in subsection 4.17.2.7, *Cumulative Impacts*, below.

4.17.2.2 General Approach and Methodology

The potential for implementation of the LAX Master Plan alternatives to restrict access to existing natural resources (timber, mineral, and petroleum) was first evaluated qualitatively by comparing the location of the resources to the Master Plan boundaries. (The Master Plan boundaries are defined in the Introduction to Chapter 4 of this Final EIS/EIR.) Other means of access to potentially restricted resources and the value of those resources were then considered in the impact analysis. Direct and indirect growth in the vicinity of LAX and elsewhere in the region associated with the Master Plan would also result in the increased use of natural resources. Potential impacts are addressed in subsection 4.17.2.7, *Cumulative Impacts*, below.

Information on existing mineral and timber resources was obtained from the City of Los Angeles General Plan Framework EIR.⁶⁸⁹ Information on petroleum resources was obtained from the U.S. Department of Energy's Advanced Computational Technology Initiative (ACTI) Oil and Gas Data Infrastructure Project Database.⁶⁹⁰ Economic values of petroleum resources were obtained from the California Department of Conservation Division of Oil, Gas, and Geothermal Resources (DOGGR).

The use of local natural resources for the construction of Master Plan improvements was also evaluated to determine if adequate resources would be available to meet the projected demands. This analysis considered aggregate resources, as these resources are generally limited to local suppliers due to high transportation costs. It is common for other natural resources used in construction to be imported from outside the region. Consumption of petroleum resources is addressed in Section 4.17.1, *Energy Supply*.

The availability of aggregates for construction of the proposed Master Plan improvements was evaluated quantitatively, by comparing the quantity of aggregate projected to be required to known aggregate resources in the Los Angeles region.⁶⁹¹ Data regarding aggregate resources was obtained from the California Department of Conservation, Division of Mines and Geology (CDMG).

4.17.2.3 Affected Environment/Environmental Baseline

Mineral Resources

The Surface Mining and Reclamation Act (SMARA) of 1975 was enacted by the California Legislature, in part, to identify and protect mineral resources in areas subject to urban expansion or other irreversible land use which would preclude mineral extraction.⁶⁹² In accordance with SMARA, Mineral Resource Zones were established on the basis of an evaluation of the mineral resource potential.⁶⁹³ Mineral Resource Zones are classified by the State Mining and Geology Board based upon input provided by the State Geologist. MRZ-1 zones are areas where adequate information indicates that no significant

⁶⁸⁹ Envicom Corporation, et. al., Draft City of Los Angeles General Plan Framework EIR, prepared for the City of Los Angeles, Department of City Planning, January 1995.

⁶⁹⁰ U.S. Department of Energy, Advanced Computational Technology Initiative, Oil and Gas Data Infrastructure Project Database, Available: <http://wildcat.llnl.gov/cgi/CA/fieldq> [April 20, 2000].

⁶⁹¹ For the analysis of aggregate resources, the Los Angeles region includes Los Angeles County, Ventura County, and Orange County. It also includes parts of San Bernardino County and Riverside County. DOGGR refers to this area as the "Los Angeles Metropolitan Area."

⁶⁹² California Department of Conservation, Surface Mining and Reclamation Act of 1975 and Associated Regulations, Available: http://www.consrv.ca.gov/omr/SMARA/SMARA_Regs/note26.html [April 20, 2000].

⁶⁹³ California Department of Conservation, Mineral Land Classification of the Greater Los Angeles Area Special Report 143 Part V-VII, 1987.

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aggregate deposits are present, or where it is judged that little likelihood exists for their presence. MRZ-2 zones have the potential for aggregate extraction.⁶⁹⁴ MRZ-3 represents areas containing mineral deposits the significance of which cannot be evaluated from available data.

The area within the Master Plan boundaries is located in an MRZ-3 zone. The City of Los Angeles General Plan Framework EIR indicates that the Master Plan boundaries are not within an area containing significant mineral deposits.⁶⁹⁵

Timber Resources

No timber resources occur within the Master Plan boundaries. Trees in the area are used for landscaping and are not appropriate for building purposes.

Petroleum Resources

Five oil fields are present in the LAX vicinity: the Inglewood Oil Field located about six miles to the northeast, the Playa del Rey Oil Field located about five miles to the northwest, the El Segundo Oil Field located about one mile to the south, the Potrero Oil Field located about four miles to the northeast, and the Hyperion Oil Field located directly beneath, and adjacent to, the southwestern part of LAX. The Hyperion Oil Field consists of 15 proven productive acres. The one active well on this field produced 10,400 barrels of oil in 1996. This well is not located within the Master Plan boundaries.⁶⁹⁶

There are no active wells at LAX; however, there are seven plugged and/or abandoned wells located within the existing airport boundaries. **Figure F4.17.2-1**, Locations of Abandoned and Producing Oil and Gas Wells, shows the location of the active and abandoned oil and gas wells within or adjacent to the Master Plan boundaries.

A producing well is also located on the proposed Scattergood Fuel Farm site. DOGGR records indicate that the well was directionally drilled, presumably to the nearby El Segundo Oil Field. This well produced 960 barrels of oil and 1,202 million cubic feet of natural gas in 1997,⁶⁹⁷ which represents approximately 15 percent of the oil produced within the entire El Segundo Oil Field. This is a fairly low level of production for a single production well.⁶⁹⁸ It should be noted that oil prices fluctuate widely.⁶⁹⁹ However, the average price per barrel of crude oil in January 1997 was approximately \$24.⁷⁰⁰ Based on this value, the oil well at the Scattergood Fuel Farm site generated revenues of approximately \$23,040 in 1997. The El Segundo Oil Field produced approximately 6,042⁷⁰¹ barrels of oil in 1997, generating an estimated \$145,008 in revenue.

Aggregate Resources

Aggregate is the basic filler material (e.g., sand, gravel, and stone) used to prepare concrete. It is composed of natural or crushed, hard, sound, and durable particles of nonreactive minerals.⁷⁰² The following analysis addresses both "reserves" and "resources." Reserves are aggregate deposits owned and controlled by mining companies that are authorized for extraction by appropriate regulatory agencies. Resources are all available aggregate resources in an area, including reserves.

⁶⁹⁴ Envicom Corporation, et. al., Draft City of Los Angeles General Plan Framework EIR, prepared for the City of Los Angeles, Department of City Planning, January 1995.

⁶⁹⁵ Envicom Corporation, et. al., Draft City of Los Angeles General Plan Framework EIR, prepared for the City of Los Angeles, Department of City Planning, January 1995.

⁶⁹⁶ U.S. Department of Energy, Advanced Computational Technology Initiative, Oil and Gas Data Infrastructure Project Database, Available: <http://wildcat.llnl.gov/cgi/CA/fieldq> [April 20, 2000].

⁶⁹⁷ U.S. Department of Energy, Advanced Computational Technology Initiative, Oil and Gas Data Infrastructure Project Database, Available: <http://wildcat.llnl.gov/cgi/CA/fieldq> [April 20, 2000].

⁶⁹⁸ Sanchez, David, Environmental Engineer, California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, Personal Communication, December 20, 1999.

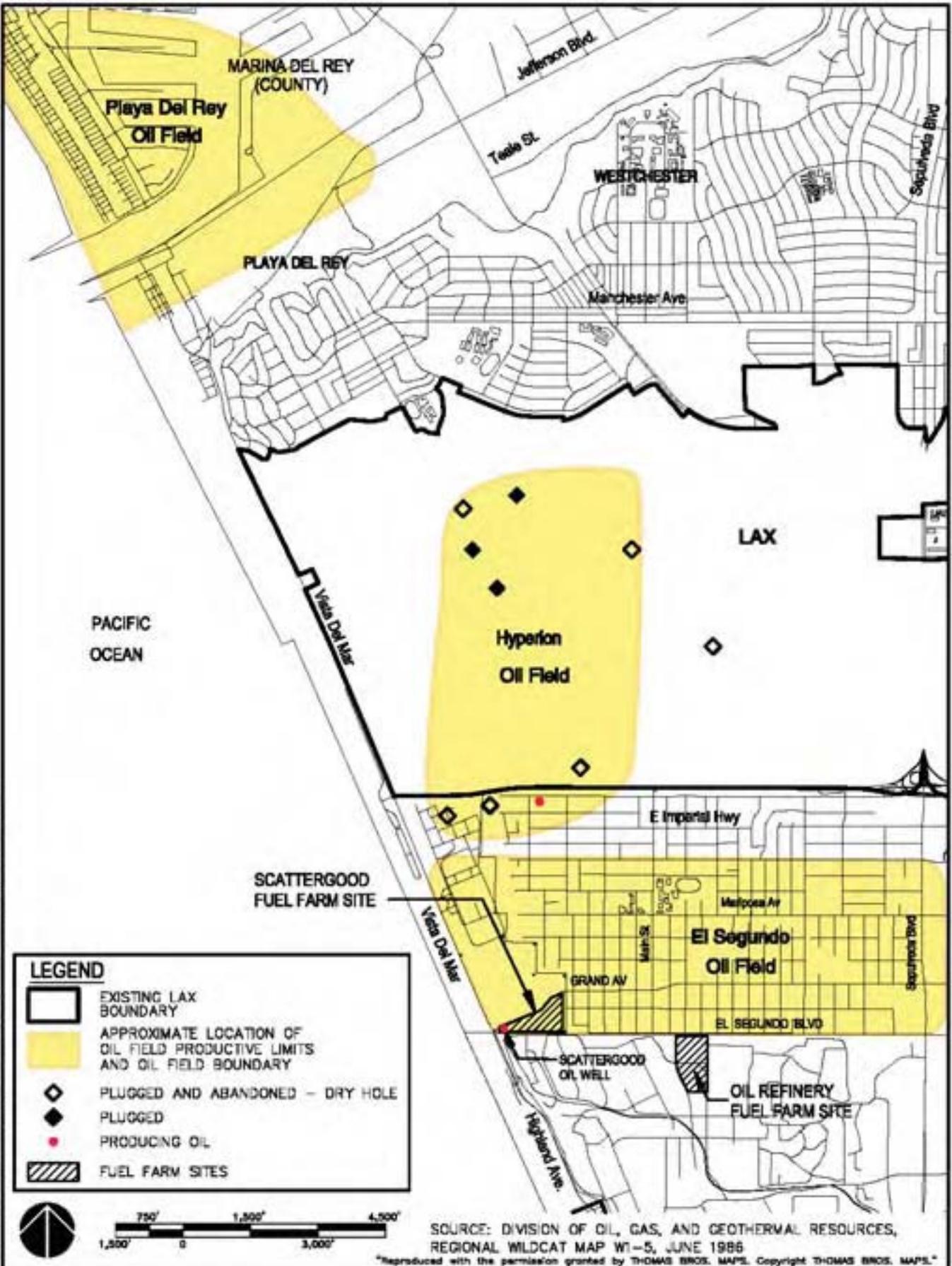
⁶⁹⁹ U.S. Department of Energy, Energy Information Administration, Available: <http://www.eia.doe.gov> [April 20, 2000].

⁷⁰⁰ U.S. Department of Energy, Energy Information Administration, Available: <http://www.eia.doe.gov> [April 20, 2000].

⁷⁰¹ U.S. Department of Energy, Advanced Computational Technology Initiative, Oil and Gas Data Infrastructure Project Database, Available: <http://wildcat.llnl.gov/cgi/CA/fieldq> [April 20, 2000].

⁷⁰² Evans, Anderson, Manson, Maud, Clark, and Fife, Aggregates in the Greater Los Angeles Area, Special Report 139, 1979.

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SOURCE: DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES, REGIONAL WILDCAT MAP W1-5, JUNE 1986
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Table F4.17.2-1, Aggregate Reserves in the Los Angeles Region, identifies aggregate production areas in the region and their depletion dates. The closest aggregate production area to LAX is in the Sun Valley area, approximately 20 miles northeast of LAX. 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.⁷⁰³

Table F4.17.2-1

Aggregate Reserves in the Los Angeles Region

Production Area	Approximate Distance from LAX	Estimated Aggregate Reserves	Projected Depletion Date
Corona/Glen Ivy	50 miles	830 million tons combined	2028
Irvine Lake/Santa Ana Canyon	43 miles	50 million tons combined	2009
Irwindale	33 miles	250 million tons	2017
Little Rock Creek Fan	45 miles	250 million tons	2046
Moorpark/Simi	30 miles	130 million tons combined	2014
San Antonio Fan	45 miles	40 million tons	2006
Soledad	33 miles	160 million tons	2046
Sun Valley	20 miles	Unknown	Unknown

Source: Beeby, David, Russell Miller, Robert Hill, and Robert Grunwald, California Department of Conservation, Division of Mines and Geology, Aggregate Resources in the Los Angeles Metropolitan Area, 1999, Wessel, Alan, Vice President of Sales Management, Vulcan Materials Co., Personal Communication, December 20, 2002.

Currently permitted reserves in the Los Angeles region total approximately 1.7 billion tons. It is anticipated that presently permitted aggregate reserves within Los Angeles County will be depleted in 2016, unless new resources are permitted for mining or alternative resources are utilized.⁷⁰⁴ However, obtaining permits for aggregate reserves has been an extremely complex and difficult process. Many applications for mining permits have been denied due to strong opposition from homeowners and farmers. For such reasons, very few aggregate mining permits have been granted within the past ten years.⁷⁰⁵

As indicated in **Table F4.17.2-1**, aggregate reserves are also available at numerous other aggregate production areas within the Los Angeles region, but outside of Los Angeles County, generally between 30 and 50 miles from LAX. These permitted regional reserves are projected to be sufficient to meet aggregate demands through 2046.⁷⁰⁶

Additional aggregate resources are present within Los Angeles County and the Los Angeles region. These resources have not been permitted for extraction and their availability is therefore speculative. They have not been included in the DOGGR aggregate projections; these projections include only permitted reserves.

Recycled construction waste materials have become a key source of aggregate base material in Los Angeles County. It is estimated that as much as 25 percent of the construction aggregate sold in the Los Angeles region is produced from recycled material. In Los Angeles County, a number of construction materials are recycled, including concrete, sand, and asphalt. At LAX, there is currently a concrete batch plant that crushes removed pavement for use as filler below new paving. The use of recycled materials will serve to extend the life of aggregate resources and reserves in Los Angeles County and within the Los Angeles region.⁷⁰⁷

⁷⁰³ Wessel, Alan, Vice President of Sales Management, Vulcan Materials Co., Personal Communication, December 20, 2002.

⁷⁰⁴ California Department of Conservation, Division of Mines and Geology, Update of Mineral Land Classification of Portland Cement Concrete Aggregate in Ventura, Los Angeles, and Orange Counties, California, Part II - Los Angeles County, 1994.

⁷⁰⁵ Lifsher, Marc, "Permit Delays Hurt Aggregate Production," The Wall Street Journal, April 12, 2000.

⁷⁰⁶ California Department of Conservation, Division of Mines and Geology, Update of Mineral Land Classification of Portland Cement Concrete Aggregate in Ventura, Los Angeles, and Orange Counties, California, Part II - Los Angeles County, 1994.

⁷⁰⁷ California Department of Conservation, Division of Mines and Geology, Update of Mineral Land Classification of Portland

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4.17.2.4 Thresholds of Significance

4.17.2.4.1 CEQA Thresholds of Significance

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.⁷⁰⁸ 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*.

4.17.2.4.2 Federal Standards

There are no federal standards that define significance thresholds for natural resource impacts. It is the policy of the FAA to encourage the development of facilities that exemplify the principles of environmental design, including waste minimization and resource conservation. These FAA policies and responsibilities are addressed through the impacts analyses relating to the CEQA Thresholds of Significance presented above, as well as in Section 4.17.1, *Energy*, and Section 4.19, *Solid Waste*.

4.17.2.5 Master Plan Commitments

No Master Plan commitments for natural resources are proposed.

4.17.2.6 Environmental Consequences

As described in the Analytical Framework discussion in the introduction to Chapter 4, the basis for determining impacts under CEQA is different from that of NEPA. Under CEQA, the impacts of a proposed project and alternatives are measured against the "environmental baseline," which is normally the physical conditions that existed at the time the Notice of Preparation was published (i.e., June 1997, or 1996 when a full year of data is appropriate, for the LAX Master Plan Draft EIS/EIR). As such, the CEQA analysis in this Final EIS/EIR uses the environmental baseline, or in some cases an "adjusted environmental baseline," as the basis by which to measure and evaluate the impacts of each alternative. Under NEPA, the impacts of each action alternative (i.e., build alternative) are measured against the conditions that would otherwise occur in the future if no action were to occur (i.e., the "No Action" alternative). As such, the NEPA analysis in this Final EIS/EIR uses the No Action/No Project Alternative as the basis by which to measure and evaluate the impacts of each build alternative (i.e., Alternatives A, B, C, and D) in the future (i.e., at buildout in 2015 or, for construction-related impacts, selected future interim year). Based on this fundamental difference in the approach to evaluating impacts, the nature and significance of impacts determined under CEQA are not necessarily representative of, or applicable to, impacts determined under NEPA. The following presentation of environmental consequences should, therefore, be reviewed and considered accordingly.

⁷⁰⁸ Cement Concrete Aggregate in Ventura, Los Angeles, and Orange Counties, California, Part II - Los Angeles County, 1994.
City of Los Angeles, Draft L.A. CEQA Thresholds Guide, May 14, 1998.

4.17.2.6.1 No Action/No Project Alternative

As discussed in subsection 4.17.2.3, *Affected Environment/Environmental Baseline*, there are no actively-mined mineral, timber, or petroleum resources within the Master Plan boundaries; therefore, the No Action/No Project Alternative would not restrict access to these resources.

The No Action/No Project Alternative contains various features that are especially pertinent to the analysis of natural resources impacts. Some of these features include:

- ◆ Two new high-speed taxiways
- ◆ Parking facilities
- ◆ Cargo facilities
- ◆ The buildout of LAX Northside and Continental City

Construction of these facilities would require relatively minor quantities of aggregate. The amount required would not result in a substantial reduction in available supplies. Moreover, in order to reduce demands on aggregate materials, to the extent possible, suitable materials would be reused at LAX. Construction of these facilities would also require timber in quantities typical of urban development. It is not anticipated that the use of timber resources would result in a substantial reduction in available timber supplies.

4.17.2.6.2 Alternative A - Added Runway North

As discussed in subsection 4.17.2.3, *Affected Environment/Environmental Baseline*, there are no actively-mined mineral, timber, or petroleum resources within the Master Plan boundaries; therefore, Alternative A would not restrict access to these resources.

Aggregate materials would be used for construction of new and replacement runways; terminal, cargo, maintenance and ancillary buildings; and other improvements. As shown in **Table F4.17.2-2**, Estimated Aggregate Consumption for Alternatives A, B, C, and D, the total amount of aggregate required for the construction of Alternative A is estimated to be 20,477,000 tons, or about one 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. Recycling of construction materials would be consistent with FAA policies that encourage the development of facilities that exemplify the highest standards of design, including sustainability through waste minimization and resource conservation. The amount of aggregate required for the construction of Alternative A would be substantially greater than that required for the No Action/No Project Alternative.

Table F4.17.2-2

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 discussed in subsection 4.17.2.3, *Affected Environment/Environmental Baseline*, the presently permitted aggregate reserves within Los Angeles County are projected to be depleted in 2016. However, CDMG anticipates that currently permitted aggregate reserves in the Los Angeles region will be available through 2046. Although use of materials from more distant production areas may be more costly, the need for aggregate materials for Alternative A would not result in a significant impact on available reserves and impacts associated with aggregate consumption would be less than significant.

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Construction of improvements associated with Alternative A would consist predominantly of steel and concrete structures. Some buildings would require timber. The amounts of timber resources used in project construction would depend on the exact nature and design of structures, roads, and other improvements. Such detailed project information is not known at this level of planning and, therefore, amounts of construction materials cannot be quantified at this time. However, the proposed improvements are not unique and would use timber in quantities typical of urban development. It is not anticipated that the use of timber resources would result in a substantial reduction in available timber supplies. Therefore, impacts associated with timber consumption would be less than significant.

The amount of timber required for the construction of Alternative A, which would not result in a significant impact on available timber supplies, would be substantially greater than that required for the No Action/No Project Alternative, based on the comparative difference in the level of construction activity.

4.17.2.6.3 Alternative B - Added Runway South

Under Alternative B, a low-producing oil and natural gas well located on the Scattergood Fuel Farm site would be plugged and abandoned to allow for the construction of the fuel farm. As noted previously, this well accounts for 15 percent of the oil produced within the El Segundo Oil Field. Due to the low production rates of this well, the volume of the petroleum resources affected is not considered to be substantial. Moreover, if needed, available drilling methods would allow access to the petroleum resources from alternate locations; therefore, permanent loss of access to these resources would not occur. For these reasons, the removal of the oil and natural gas well at the Scattergood Fuel Farm site would not constitute a significant impact to petroleum resources.

As shown in **Table F4.17.2-2**, the total amount of aggregate required for the construction of Alternative B is estimated to be 20,854,000 tons, only two percent more than for Alternative A. Therefore, the impacts of Alternative B on aggregate would be virtually the same as Alternative A. As with Alternative A, under Alternative B, the need for aggregate materials would not result in a significant impact on available reserves and impacts associated with aggregate consumption would be less than significant.

The amount of aggregate required for the construction of Alternative B, which would not result in a significant impact on available reserves, would be substantially greater than that required for the No Action/No Project Alternative, based on the comparative difference in the level of construction activity.

As with Alternative A, construction of improvements proposed under Alternative B 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. Therefore, impacts associated with timber consumption would be less than significant.

The amount of timber required for the construction of Alternative B, which would not result in a significant impact on available timber supplies, would be substantially greater than that required for the No Action/No Project Alternative, based on the comparative difference in the level of construction activity.

4.17.2.6.4 Alternative C - No Additional Runway

As discussed in subsection 4.17.2.3, *Affected Environment/Environmental Baseline*, there are no actively-mined mineral, timber, or petroleum resources within the Master Plan boundaries; therefore, Alternative C would not restrict access to these resources. As shown in **Table F4.17.2-2**, the total amount of aggregate required for the construction of Alternative C is estimated to be 18,372,000 tons. The impacts of Alternative C on aggregate reserves would be substantially the same as those of Alternatives A and B, although Alternative C would require approximately 12 percent less aggregate than would Alternatives A and B. As with Alternatives A and B, under Alternative C, the need for aggregate materials would not result in a significant impact on available reserves and impacts associated with aggregate consumption would be less than significant.

The amount of aggregate required for the construction of Alternative C, which would not result in a significant impact on available reserves, would be substantially greater than that required for the No Action/No Project Alternative, based on the comparative difference in the level of construction activity.

As with Alternatives A and B, construction of improvements proposed under Alternative C 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. Therefore, impacts associated with timber consumption would be less than significant.

The amount of timber required for the construction of Alternative C, which would not result in a significant impact on available timber supplies, would be substantially greater than that required for the No Action/No Project Alternative, based on the comparative difference in the level of construction activity.

4.17.2.6.5 Alternative D - Enhanced Safety and Security Plan

As discussed above, there are no actively-mined mineral, timber, or petroleum resources within the Master Plan boundaries; therefore, Alternative D would not restrict access to these resources. As shown in **Table F4.17.2-2**, 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. Similar to the other build alternatives, construction materials from demolition work would be recycled; therefore, not all of this demand for aggregate would require raw materials. Recycling of construction materials would be consistent with FAA policies that encourage the development of facilities that exemplify the highest standards of design, including sustainability through waste minimization and resource conservation. The amount of aggregate required for the construction of Alternative D would be substantially greater than that required for the No Action/No Project Alternative.

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 aggregate consumption would be less than significant.

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. Therefore, impacts associated with timber consumption would be less than significant.

The amount of timber required for the construction of Alternative D, which would not result in a significant impact on available timber supplies, would be substantially greater than that required for the No Action/No Project Alternative, based on the comparative difference in the level of construction activity.

4.17.2.7 Cumulative Impacts

As discussed under subsection 4.17.2.3, *Affected Environment/Environmental Baseline*, it is anticipated that currently permitted aggregate reserves will be depleted in 2016, unless new resources are permitted for mining or alternative resources are utilized. Aggregate reserves are also available at numerous other aggregate production areas within the Los Angeles region, but outside of Los Angeles County. These permitted regional reserves are projected to be sufficient to meet aggregate demands through 2046. Recycled construction materials, including concrete, sand, and asphalt, have become a key source of aggregate base material in Los Angeles County. In Los Angeles County, a number of construction materials are recycled. The use of recycled materials will extend the life of aggregate resources and reserves in Los Angeles County and within the region.

4.17.2.7.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, cumulative development in the Los Angeles region would place increasing demands on regional aggregate reserves. The No Action/No Project Alternative would require a small amount of these resources, compared to total cumulative demands. Permitted aggregate reserves in Los Angeles County are projected to be available until 2016. Construction of improvements associated with the No Action/No Project Alternative would be completed within this timeframe.

The most notable major project in proximity to LAX is the Playa Vista project. Implementation of Playa Vista, combined with development of LAX Northside and Continental City, would result in cumulative demands on aggregate reserves. However, as stated earlier, permitted aggregate reserves in the Los Angeles region are projected to be available through 2046. The use of recycled materials would serve to

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extend the life of aggregate resources and reserves in the region. As a result, sufficient aggregate would be available to supply cumulative demands.

4.17.2.7.2 Alternatives A, B, and C

As previously discussed under subsection 4.17.2.6, *Environmental Consequences*, construction of improvements associated with Alternatives A, B, or C would require greater amounts of aggregate than would the No Action/No Project Alternative. For each of these three alternatives, project-related construction would require approximately one 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 residences and businesses that would be relocated within the region due to acquisition associated with Alternatives A, B, or C. Relocated residents and businesses would primarily need additional housing and office buildings. Because adequate supplies of aggregate resources are anticipated to be available, the impacts of increased population would be less than significant.

Cumulative impacts could also occur as a result of future development in the region. As indicated above, the most notable major project in proximity to LAX is Playa Vista. Development associated with Playa Vista and other projects in the region, in combination with the proposed Master Plan improvements, would directly increase the use of aggregate resources. As addressed in subsection 4.17.2.3, *Affected Environment/Environmental Baseline*, 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, cumulative impacts to natural resources would be less than significant.

4.17.2.7.3 Alternative D - Enhanced Safety and Security Plan

As previously discussed under subsection 4.17.2.6, *Environmental Consequences*, 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. Relocated 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 region. However, as stated earlier, 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, cumulative 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.