
4.13 Floodplains

Overview

The floodplains section evaluates the potential impacts of the Master Plan alternatives on areas designated as floodplains. The Federal Emergency Management Agency (FEMA) defines floodplains as lowland and relatively flat areas adjoining inland and coastal waters, including what are commonly known as “100-year” floodplains, or areas that are subject to a one percent chance of flooding in any given year.

Key Conclusions

Over 99 percent of the area within the Master Plan boundaries is shown on the applicable FEMA map as subject to “minimal flooding.” However, a small, 13-acre area in an undeveloped portion of LAX, located directly north of Imperial Highway, is designated as 100-year floodplain.

This area was given its designation in the 1970s based on the topographic and drainage conditions at that time. However, conditions have since changed substantially.

- ◆ Relocation of Pershing Drive and the installation of a new storm drain have substantially improved the drainage characteristics of the area.
- ◆ Despite its designation three decades ago, the parcel no longer has the typical characteristics of a floodplain. It is not proximate to any natural water courses and has no connection to coastal waters, nor does it provide any unique natural and beneficial floodplain values compared to the surrounding non-floodplain open space.

For these reasons, the City of Los Angeles is currently initiating consultation with FEMA regarding a “letter of map revision” to remove the 100-year floodplain designation for the 13-acre parcel and reflect the current actual conditions.

Under all three build alternatives, roadways and a parking structure are proposed to be constructed at, and around, the subject 13-acre parcel. Due to its location adjacent to the existing runway system, there are no practicable alternatives to the placement of the proposed improvements within the boundaries of the 100-year floodplain.

Aside from the outcome of the “letter of map revision” process, the environmental analysis reveals that the project’s proposed encroachment on the 13-acre parcel would not threaten human life, jeopardize the use of a vital transportation facility, or notably diminish natural and beneficial floodplain values. Therefore, it is concluded that the Master Plan build alternatives would have no significant impacts related to floodplains.

Environmental Action Plan

FAA requires undertaking all practicable measures to “minimize harm and to restore and preserve the natural and beneficial floodplain values affected.”⁴⁸⁶ Implementation of a Master Plan commitment and Mitigation Measures related to hydrology and water quality and biotic resources, as described in other pertinent sections of this Draft EIS/EIR, would respond to that mandate.

Related Topics

To learn more about measures to be taken to protect water quality, see Section 4.7, *Hydrology and Water Quality*.

For information about protection of biotic resources, see Section 4.10, *Biotic Communities*.

4.13.1 Introduction

The floodplains analysis addresses the potential impacts of the Master Plan alternatives on floodplains, as designated by the Federal Emergency Management Agency (FEMA). Impacts associated with drainage and localized flooding are addressed in Section 4.7, *Hydrology and Water Quality*.

⁴⁸⁶ Federal Aviation Administration, “Airport Environmental Handbook”, [FAA Order 5050.4A](#), October 8, 1985.

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4.13.2 General Approach and Methodology

As defined in Executive Order 11988, *Floodplain Management*, floodplains are “lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year.” This flooding is defined as a 100-year flood event, and the area that is subject to a 1 percent chance of flooding in any given year is referred to as the 100-year floodplain.

To determine whether the No Action/No Project Alternative and three build alternatives would result in impacts to floodplains or floodplain management, the locations of the proposed improvements were evaluated to determine if they would result in development within a floodplain. The study area for this evaluation is limited to the composite Master Plan boundaries as defined in the Introduction to Chapter 4 of this Draft EIS/EIR.

FEMA and the U.S. Army Corps of Engineers determine floodplain boundaries on the basis of hydrologic modeling. These boundaries are presented on Flood Insurance Rate Maps. The area within the Master Plan boundaries was identified on the Flood Insurance Rate Map to determine if project activities would be located within a designated floodplain. Encroachment within the 100-year floodplain was evaluated in accordance with Executive Order 11988, *Floodplain Management*, and U.S. Department of Transportation (USDOT) Order 5650.2, *Floodplain Management and Protection*.

Facilities proposed within floodplains were evaluated qualitatively to determine if their construction would conflict with regulatory provisions concerning floodplains as provided in Section 4.13.3, *Affected Environment/Environmental Baseline*, below.

4.13.3 Affected Environment/Environmental Baseline

Regulatory Provisions Concerning Floodplains

Executive Order 11988, *Floodplains Management*, directs federal agencies to take actions to “reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains.” USDOT’s policies and procedures for implementing this executive order are contained in USDOT Order 5650.2, *Floodplain Management and Protection*. The executive order and the USDOT order establish a policy to avoid taking an action within a 100-year floodplain where practicable. As stated in FAA Order 5050.4A, *Airport Environmental Handbook*, “practicable means feasible.” “Feasibility,” in turn, is defined in terms of “safety, meeting transportation objectives, design, engineering, environment, economics, and any other applicable factors.”⁴⁸⁷ In accordance with these directives, every effort must be made to minimize the potential risks to human safety and property damage, and to avoid adverse impacts on natural and beneficial floodplain values, associated with development within floodplains.

According to USDOT Order 5650.2, if a proposed action is within the limits of a base floodplain, this is considered to be a floodplain encroachment. The USDOT order distinguishes between “encroachment” and “significant encroachment.” As defined by USDOT Order 5650.2, a significant floodplain encroachment would occur if a proposed action would likely result in one or more of the following conditions:

- ◆ A considerable probability of loss of human life.
- ◆ Likely future damage associated with the encroachment that could be substantial in cost or extent, including interruption of service on or loss of a vital transportation facility.
- ◆ A notable adverse impact on natural and beneficial floodplain values.

USDOT Order 5650.2 defines the natural and beneficial values served by floodplains as “natural moderation of floods, water quality maintenance, groundwater recharge, fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, and forestry.”

If it were determined that a proposed action would result in a “significant encroachment,” further analysis of the impacts of, and practicable alternatives to, the action would be required. In accordance with USDOT Order 5650.2, and with FAA Order 5050.4A, if a practicable alternative were identified that would

⁴⁸⁷ Federal Aviation Administration, “Airport Environmental Handbook”, FAA Order 5050.4A, October 8, 1985.

avoid floodplain encroachment, implementation of that alternative would be required.⁴⁸⁸ In accordance with FAA Order 5050.4A, “If no significant encroachment within a base floodplain is involved, it may be assumed that there would be no significant floodplain impact.”

The City of Los Angeles also regulates development within floodplains. The City’s Flood Hazard Management Specific Plan establishes permit review and mitigation procedures for issuance of development permits in areas prone to flooding. To achieve the city’s goal of minimizing effects due to flooding, the city’s Safety Element of the Los Angeles City General Plan contains Policy 1.1.6, which requires compliance with “applicable state and federal planning and development regulations, e.g., Cobey-Alquist Flood Plain Management Act.”⁴⁸⁹ In addition, City of Los Angeles General Plan Framework Policy 6.3.1 indicates that floodplains should be preserved as open space, wherever possible, to minimize risks to public safety.⁴⁹⁰

Designated Floodplains

FEMA maps of flood-prone areas throughout the U.S. are used as a basis for floodplain management decisions by local agencies, and as a basis for flood insurance rates by the National Flood Insurance Program (NFIP). In communities that participate in the NFIP, flood insurance is available for all properties within the 100-year floodplain. The City of Los Angeles participates in the NFIP.

Floodplain information obtained from the most current FEMA Flood Insurance Rate Map for the LAX area (February 4, 1987) indicates that over 99 percent of the area within the Master Plan boundaries is located in Zone C, which is considered an area of “minimal flooding.”⁴⁹¹ A small portion of LAX east of Pershing Drive - comprising 13 acres - is located within the 100-year floodplain, as shown in **Figure 4.13-1**, 100-Year FEMA Floodplain Delineation. This area is also identified as within the 100-year floodplain in the Safety Element of the Los Angeles City General Plan. The 13-acre parcel is located directly north of Imperial Highway within an undeveloped area of LAX. The parcel was designated as within the 100-year floodplain in the 1970s. At that time, the designation reflected actual flooding conditions due to topography and localized conditions. Subsequent to its designation, nearby Pershing Drive was relocated. Extensive earthwork activity occurred as a result of the roadway relocation, and the topography of the parcel and surrounding areas has substantially changed. The following discussion describes the topographical changes that have occurred within the 13-acre parcel based on a review of historical and current maps of the area. Review of a City of Los Angeles drainage map from 1965⁴⁹² indicates that a long ravine/valley paralleled Pershing Drive with elevations as low as 70 feet above mean sea level (msl) within the area designated as a 100-year flood zone. The U.S. Geologic Survey (USGS) topographic map for the Venice Quadrangle (updated 1981) shows elevations in the same area as low as 85 feet msl.⁴⁹³ Current elevations in the 13-acre parcel generally range from 100 feet to 115 feet msl before elevation falls off to approximately 85 to 90 feet msl around Imperial Highway and Pershing Drive.

As a result of the roadway relocation, flooding incidents on Pershing Drive ceased; however, during large storms, water ponded at the west end of the airport in the area of the 13-acre parcel. In the early 1980s, improvements, including a new storm drain and a detention basin, were constructed that have resulted in the elimination of ponding at the west end of the airport, although minor amounts of water accumulate in low spots.

Although the 13-acre parcel is designated as a 100-year floodplain on the FEMA map, it does not exhibit the typical characteristics of a floodplain. Floodplains are characterized as “...the lowland and relatively flat areas adjoining inland and coastal waters and other flood prone areas such as offshore islands, including at a minimum that area subject to a one percent or greater chance of flooding in any given year”.⁴⁹⁴ The 13-acre parcel is not proximate to any natural water courses, as none exist in the project

⁴⁸⁸ Federal Aviation Administration, “Airport Environmental Handbook”, FAA Order 5050.4A, October 8, 1985.

⁴⁸⁹ City of Los Angeles, Department of City Planning, Safety Element of the Los Angeles City General Plan, November 26, 1996.

⁴⁹⁰ Envicom Corporation, et. al., Draft City of Los Angeles General Plan Framework, prepared for the City of Los Angeles, Department of City Planning, January 1995.

⁴⁹¹ Federal Emergency Management Agency, Flood Insurance Rate Map, Panel 89 of 112, Community-Panel Number 060137 0089 D, February 4, 1987.

⁴⁹² City of Los Angeles, Drainage Map #563, February 1965.

⁴⁹³ U.S. Geological Survey, 7.5 Minute Series (Topographic) Map – Venice Quadrangle, 1981.

⁴⁹⁴ 40 CFR Part 6, Appendix A, Statement of Procedures on Floodplain Management and Wetland Protection.

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area, and has no connection to coastal waters. Moreover, the area does not provide any greater natural and beneficial values, including flood storage volume, as defined in USDOT Order 5650.2, than the surrounding open space that is not within the designated 100-year floodplain. Given the various changes that have occurred in this area over the last 30 years, the City of Los Angeles is initiating consultation with FEMA regarding a Letter of Map Revision to remove the 100-year floodplain designation for the 13-acre parcel. Correspondence regarding the consultation is included in Appendix C, *Agency Consultation Letters*.⁴⁹⁵ The results of this consultation will be included in the Final EIS/EIR.

4.13.4 Thresholds of Significance

4.13.4.1 CEQA Thresholds of Significance

A significant impact to floodplains or floodplains management 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:

- ◆ Significant encroachment within a base floodplain, as defined by USDOT Order 5650.2.
- ◆ Placement of structures within a 100-year flood hazard area that would impede or redirect flood flows.
- ◆ Exposure of people or structures to a significant risk of loss, injury, or death involving flooding.

These thresholds of significance are utilized because they address the potential adverse impacts normally associated with development within a floodplain, namely increased potential for flooding and the resulting adverse effects on people or property. These thresholds were derived from USDOT Order 5650.2, FAA Order 5050.4A, and the suggested Initial Study Checklist contained in the State CEQA Guidelines. Other CEQA thresholds relative to drainage and localized flooding are included in Section 4.7, *Hydrology and Water Quality*.

4.13.4.2 Federal Standards

Under USDOT Order 5650.2, a significant floodplain encroachment would occur if a proposed action would likely result in one or more of the following conditions:

- ◆ A considerable probability of loss of human life.
- ◆ Likely future damage associated with the encroachment that could be substantial in cost or extent, including interruption of service, or loss of a vital transportation facility.
- ◆ A notable adverse impact on natural and beneficial floodplain values.

4.13.5 Master Plan Commitments

No Master Plan Commitments for floodplains are proposed. However, the following Master Plan Commitment from another environmental discipline is also relevant to this analysis.

- ◆ **HWQ-1. Develop Detailed Drainage Plan.**

4.13.6 Environmental Consequences

4.13.6.1 No Action/No Project Alternative

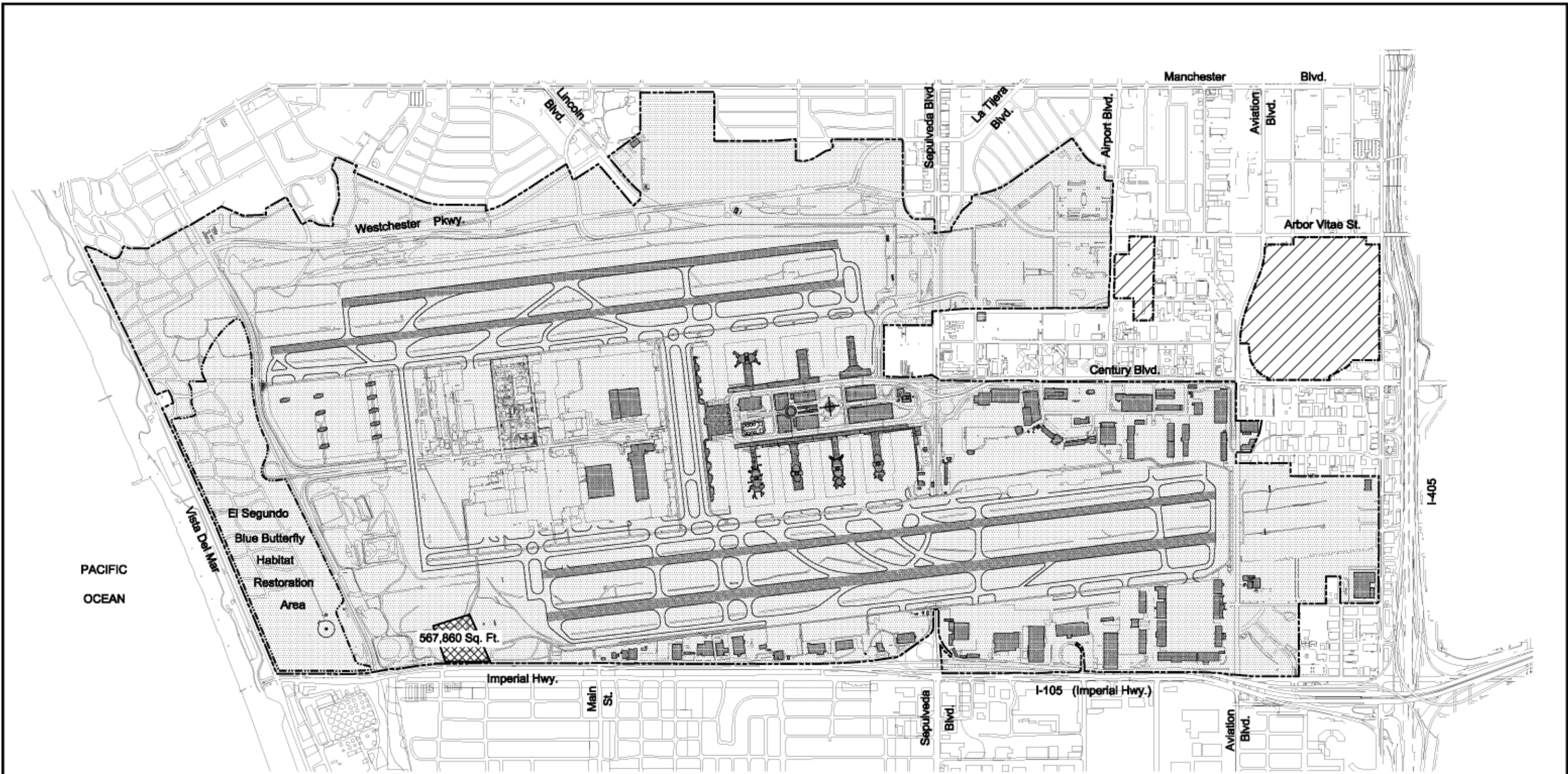
Under the No Action/No Project Alternative, no development would occur within the limits of a base floodplain (i.e., 100-year floodplain).

4.13.6.2 Alternatives A, B, and C

Implementation of Alternative A, B, or C would involve the demolition of existing structures and the construction of new facilities within the Master Plan boundaries. With the exception of the 13-acre parcel located in the southwestern portion of the airport, the area within these boundaries is designated by FEMA as being subject to minimal flooding. As indicated in Section 4.13.3, *Affected*

⁴⁹⁵ Kawaguchi, Allan and Vitaly Troyan, City of Los Angeles Department of Public Works, Bureau of Engineering, Letter to Robert H. Millard, Los Angeles World Airports; Subject: Master Plan – LAX – Requesting a Letter of Map Revision (LOMR) for Los Angeles International Airport, October 26, 2000. A copy of this correspondence is provided in Appendix C, *Agency Consultation Letters*.

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PACIFIC OCEAN

El Segundo Blue Butterfly Habitat Restoration Area

567,860 Sq. Ft.

Imperial Hwy.




Main St.

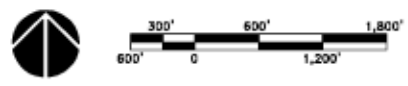
Sepulveda Blvd.

I-105 (Imperial Hwy.)

Aviation Blvd.

LEGEND

- LAX Existing Property Line
- Habitat Preserve Boundary
-  ANMP Acquisition Areas
-  100-Year Floodplain
-  Areas of Minimal Flooding



Source: Federal Environmental Management Agency,
 Flood Insurance Rate Map, Panel 89 of 112,
 Community Panel Number 060137 0089 D, February 4, 1987.

Environment/Environmental Baseline, 13 acres within LAX property are identified on the applicable FEMA map as within a 100-year floodplain, although, as explained previously, the designated area has been modified since its original designation and does not exhibit the typical characteristics of a floodplain. Under all three of the build alternatives, roadways and a parking structure are proposed to be constructed in the area designated as within the 100-year floodplain. Therefore, implementation of any of the three build alternatives would result in floodplain encroachment. In accordance with USDOT Order 5650.2, it must be determined if the encroachment is considered to be significant, as defined by the three criteria defined in the order: loss of human life, damage to a vital transportation facility or other property within the floodplain, and notable adverse impacts on natural and beneficial floodplain values.

The improvements proposed to be located within the 100-year floodplain would be designed in accordance with standard engineering practices to minimize the effects of flooding. Encroachment within the 100-year floodplain would not result in a loss of human life or in substantial future damage to LAX. The area within the 100-year floodplain provides some of the natural and beneficial floodplain values identified by USDOT Order 5650.2, including natural moderation of rainfall events, water quality maintenance, foraging habitat for flora and fauna, and open space. These values are not unique to this parcel, and are common to all of the undeveloped open space within the Master Plan boundaries.

A comprehensive analysis of potential impacts of the three build alternatives on drainage and water quality is provided in Section 4.7, *Hydrology and Water Quality*. This evaluation addresses impacts associated with converting permeable surfaces to impermeable surfaces throughout the Master Plan boundaries, including the area designated as within the 100-year floodplain. As indicated in that analysis, the conversion of permeable surfaces within the Master Plan boundaries, including the area designated as being within the 100-year floodplain, would increase runoff volumes and possibly flow rates. Existing drainage facilities are not adequate to handle these anticipated increases. Master Plan Commitment HWQ-1, Develop Detailed Drainage Plan, described in Section 4.7, *Hydrology and Water Quality*, is proposed to reduce these potential hydrology impacts to a level that is less than significant.

As described in Section 4.7, *Hydrology and Water Quality*, implementation of any of the three Master Plan build alternatives would require the development of an airport-wide Drainage Plan to avoid potentially significant drainage impacts (Master Plan Commitment HWQ-1). The Drainage Plan would mitigate potential impacts associated with increased runoff and potential resultant flooding associated with the proposed Master Plan improvements, and require implementation of "methods to minimize harm and to restore...the natural and beneficial floodplain values affected."⁴⁹⁶

Potential impacts to flora and fauna, including foraging habitat provided by open space, are addressed in Section 4.10, *Biotic Communities*. As indicated in that section, undeveloped open space at LAX provides habitat for a variety of floral and faunal species. This value, not unique to the 13-acre parcel within the 100-year floodplain, is common to all undeveloped open space within the Master Plan boundaries. Mitigation Measures MM-BC-5, Replacement of Habitat Units for Alternative A, MM-BC-6, Replacement of Habitat Units for Alternative B, and MM-BC-7, Replacement of Habitat Units for Alternative C, require LAWA to undertake mitigation for the loss of habitat units throughout LAX, including the loss of Disturbed Dune Scrub/Foredune located within the 13-acre parcel. These measures would mitigate this impact to a level that is less than significant.

Because the potential impacts noted above would be avoided or mitigated to an acceptable level, development within the designated 100-year floodplain would not result in a notable adverse impact on natural and beneficial floodplain values. Therefore, the encroachment would not be considered to be a significant encroachment as defined by USDOT Order 5650.2, and no significant floodplain impact would occur.

Development at LAX is constrained by the limited acreage of the airport property. The improvements proposed under the three build alternatives were configured to maximize the available space and limit the amount of property to be acquired. The 13-acre area designated as within the 100-year floodplain lies in the middle of an undeveloped area that is the most suitable location for the proposed improvements, namely roadways and a parking structure to serve the proposed West Terminal/concourses.

The only other area that could accommodate the proposed improvements and still be located in proximity to the West Terminal/concourses is within the Los Angeles/EI Segundo Dunes (Dunes). The Dunes are located west of Pershing Drive, on the opposite side of the street as the proposed West

⁴⁹⁶ Federal Aviation Administration, "Airport Environmental Handbook", [FAA Order 5050.4A](#), October 8, 1985.

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Terminal/concourses. The Dunes provide important habitat and open space values. The portion of the Dunes next to the proposed location of the West Terminal/concourses is a designated habitat restoration area for the endangered El Segundo blue butterfly. Development of roadways and a parking structure within the habitat restoration area would violate both the state and federal endangered species acts. Moreover, it would result in substantially greater impacts on fish, wildlife, plants, and open space than it would if developed within the designated 100-year floodplain area, and would diminish natural beauty and inhibit scientific study. These impacts would not be associated with the proposed encroachment. For these reasons, there are no practicable alternatives to the placement of the proposed improvements within the boundaries of the 100-year floodplain.

The build alternatives would be inconsistent with the City of Los Angeles General Plan Framework Policy 6.3.1, by resulting in the construction of improvements within a designated floodplain. However, as discussed above, the proposed improvements would not increase risks to public safety from flooding. Therefore, this inconsistency would not be significant.

The floodplain impacts under the three build alternatives would be greater than that under the No Action/No Project Alternative, which would have no impacts to floodplains.

4.13.7 Cumulative Impacts

As indicated in Section 4.13.3, *Affected Environment/Environmental Baseline*, a 13-acre parcel located on the airport is designated as a 100-year floodplain. There are no other defined floodplain areas in the project vicinity.

4.13.7.1 No Action/No Project Alternative

The No Action/No Project Alternative would not have any impacts on floodplains. Therefore, this alternative would not contribute to any cumulative impacts on floodplains.

4.13.7.2 Alternatives A, B, and C

As indicated in Section 4.13.6, *Environmental Consequences*, development of Alternatives A, B, or C would involve encroachment within the 100-year floodplain as designated by FEMA. However, the encroachment would not be considered to be a significant encroachment as defined by USDOT Order 5650.2, and no significant floodplain impact would occur. The floodplain designated on the FEMA map, and its associated drainage area, is located entirely within the Master Plan boundaries. Impacts with respect to floodplains would be limited to the 13 acres on the LAX property discussed above. There are no other designated floodplain areas in the project vicinity. Therefore, no cumulative impacts would result.

4.13.8 Mitigation Measures

Although implementation of any of the Master Plan build alternatives would not have a significant impact on floodplains, FAA Order 5050.4A requires taking all practicable measures to “minimize harm and to restore and preserve the natural and beneficial floodplain values affected.”⁴⁹⁷ As indicated previously in this section, the proposed floodplain encroachment would result in impacts to natural and beneficial floodplain values, notably drainage, water quality, and biotic resources. Master Plan Commitment HWQ-1, Develop Detailed Drainage Plan, and Mitigation Measures MM-BC-5, Replacement of Habitat Units for Alternative A, MM-BC-6, Replacement of Habitat Units for Alternative B, and MM-BC-7, Replacement of Habitat Units for Alternative C, would avoid these impacts, or reduce them to a less than significant level.

⁴⁹⁷ Federal Aviation Administration, “Airport Environmental Handbook”, [FAA Order 5050.4A](#), October 8, 1985.