5. ENVIRONMENTAL ACTION PLAN

Through the course of formulating, designing, evaluating, and refining the Master Plan project, measures have been, and will be, incorporated to avoid or reduce impacts to the environment. Such measures are numerous and diverse, ranging from environmentally sensitive aspects of the project's physical design to policies and practices for mitigating impacts during project construction and operation. Collectively, these measures comprise an environmental action plan to minimize the overall impacts of the Master Plan project.

The nature and characteristics of the measures that serve to avoid or reduce impacts to the environment are described in Chapter 4, *Affected Environment, Consequences, and Mitigation Measures*, relative to each environmental topic addressed therein. The numerous measures that constitute the environmental action plan for the Master Plan project are grouped into three categories - Project Design Features, Master Plan Commitments, and Proposed Mitigation Measures - as described below.

Project Design Features are physical aspects of the Master Plan that, by virtue of their design, location or function, serve to avoid or reduce environmental impacts. Although the Final EIS/EIR analyses focuses primarily on the impacts from the construction and operation of the physical features of the project, it is important to recognize that several of those key features were specifically intended and designed to avoid or reduce impacts that would otherwise occur.

Master Plan Commitments are primarily activities, policies, and practices included in the proposed Master Plan that would serve to avoid or reduce environmental impacts. The Master Plan provides a comprehensive program to guide the future development and operation of LAX, of which commitments related to the preservation, protection, and enhancement of the environment are a key element. The rationale behind the formulation of Master Plan commitments is provided in the Introduction to Chapter 4.

Proposed Mitigation Measures are additional means of avoiding or reducing environmental effects as determined in conjunction with the impacts analyses presented in Chapter 4. The mitigation measures identified in this section are applicable to the extent that the use of airport revenue to fund such measures is permissible under federal law and policies. Mitigation measures and Master Plan commitments will be incorporated into a comprehensive Mitigation Monitoring and Report Program (MMRP) and a mechanism for establishing compliance with the program will be included. A final MMRP that specifies the Master Plan commitments and mitigation measures for the selected alternative, and the monitoring and reporting procedures and requirements for each of those commitments and measures, will be included among the various planning documents to be considered during the City of Los Angeles' decision-making process for the project.

The following presents the project design features, Master Plan commitments, and proposed mitigation measures that constitute the environmental action plan for the Master Plan project.

5.1 Project Design Features

The formulation and design of the Master Plan project included attention to environmental issues, with the objective being to avoid or reduce potential environmental impacts where possible. This objective was considered in the planning of the many improvements proposed as part of the Master Plan. The following highlights some of the more notable project design features for Alternatives A, B, C, and D that achieve the objective, realizing that several other aspects of the Master Plan also contribute to the objective, but to a lesser degree.

Airside Improvements - A key aspect of the Master Plan relates to airfield and aircraft gate improvements that would both enhance existing and future operations of aircraft and improve provisions for passengers and visitors at the airport. Under Alternatives A, B, and C, the addition and/or modification of runways and improvements to taxiways would allow more efficient movement and operation of aircraft on the ground, with the direct environmental benefit of reducing air pollutant emissions from aircraft engines. Additionally, gate electrification would further reduce aircraft-related emissions. The nature and location of the runway and taxiway improvements, particularly under Alternatives A and C, are designed to direct and orient aircraft activity away from nearby residential areas and other sensitive uses, thereby reducing potential impacts related to aircraft noise and air pollutant emissions. These improvements take advantage of the airport's coastal location (whereby the higher noise levels associated with aircraft takeoffs can be oriented westward away from noise-sensitive receptors) while ensuring that sensitive

coastal resources, such as habitat for the El Segundo blue butterfly, are protected by limiting runway improvements to areas east of the El Segundo Dunes. Similarly, major improvements to better accommodate passengers and visitors at the airport, such as development of the West Terminal Area, have been situated in the west central portion of the airfield, generally away from residential areas near the airport. By so doing, potential impacts related to construction and to operational noise, and air quality impacts at the terminal gates are reduced. Alternatives A, B, and C would, to the greatest extent possible, comply with federal security requirements as they are developed.

The airfield modifications for Alternative D would reduce delays and reduce the potential for runway incursions, thereby enhancing the safety of passengers and aircraft at LAX. The modification of runways and taxiways would allow more efficient movement and operation of aircraft on the ground, with the direct environmental benefit of reducing air pollutant emissions from idling aircraft engines. Additionally, gate electrification would further reduce aircraft-related emissions. Alternative D would maintain the existing four-runway system with modifications to runways and the addition of center taxiways between runways on the north and south airfields. These modifications are designed to accommodate for Design Group V aircraft, with operational and modified Design Group VI solutions for the anticipated limited operations of New Large Aircraft (NLA). Similarly, reconfiguration of the Central Terminal Area (CTA) and addition of a West Satellite Concourse would improve passenger processing efficiency. It should be noted that the relocation of Runway 6R/24L proposed under Alternative D to help accommodate NLAs would occur by moving the runway south, away from the existing community of Westchester, and development of the West Satellite Concourse would also occur away from the community. Similar to Alternatives A, B, and C, the airfield improvements proposed under Alternative D would provide for more efficient movement of aircraft while on the ground, which engenders certain environmental benefits such as reduced air pollutant emissions that would not occur under the No Action/No Project Alternative; however, unlike Alternatives A, B, and C, Alternative D is designed to accommodate a future (2015) airport activity level comparable to that of the No Action/No Project Alternative. This relatively lower level of future airport activity provides for reduced environmental impacts compared to those of the other build alternatives. Alternative D is specifically designed with an emphasis on safety and security and would, to the greatest extent possible, comply with federal security requirements as they are developed.

Landside Improvements - Key aspects of Master Plan Alternatives A, B, and C relate to the extensive on-airport and off-airport transportation and circulation improvements that are proposed to reduce potential traffic impacts. With respect to on-airport improvements, each of these Master Plan alternatives would reduce curbfront demand at the Central Terminal Area (CTA) by relocating a substantial portion of the air passenger demand from the CTA to the new West Terminal Area, thereby spreading on-airport traffic over a wider area. The West Terminal Area would be designed to accommodate over one half of the airport's traffic, with direct access provided via a non-stop ring road linking the airport to both of the airport vicinity freeways, the San Diego Freeway (I-405) and the Glen M. Anderson Freeway (I-105). Also, the alternatives provide for substantial improvements in on-airport parking, with the planned parking capacity to exceed demand for 2015 by about 3,800 stalls. These additional public parking spaces would serve to reduce the number of double trips, and associated traffic congestion and air pollutant emissions, generated by people forced to recirculate on the terminal service loop due to CTA congestion or by not being able to find parking spaces. Alternatives A, B, and C include a single, consolidated on-airport rental car facility that would share a common shuttle bus service and would be fed by the on-airport Automated People Mover, thereby eliminating a great many congestion-causing shuttle trips.

Relative to the off-airport system for Alternatives A, B, and C, a number of major improvements are proposed around the airport area to reduce potential traffic impacts. Such improvements include: on the north, the LAX Expressway to provide direct freeway access to LAX for motorists traveling south on I-405 and for those exiting the airport heading north; from the east, I-105 would be extended so that it terminates directly onto the airport and the existing MTA Green Line would also be extended onto the airport; and, most importantly, direct freeway connections from the I-105 and I-405 would tie into a ring road that provides direct access to all parts of the airport, including the proposed new West Terminal Area. The design and operation of the ring road would reduce potential environmental impacts in several ways. It would provide an efficient access route for airport traffic, thereby diverting traffic from the surrounding surface streets, including roads within residential neighborhoods nearby. The location and configuration of the ring road would generally be confined to the edge of the airport property, thereby avoiding intrusion into, and disruption of, nearby communities. Similarly, the location and design of the LAX Expressway is intended to minimize impacts on existing communities by proposing alignments that

generally follow other existing highways (i.e., I-405 for Alternatives A and C) or vacant right-of-way (i.e., MTA right of way for Alternative B). Both the LAX Expressway and the ring road feature the use of elevated roadway sections to reduce impacts on nearby areas.

Modifications to the landside system in Alternative D would enhance the safety and security of the airport to protect the airport's critical infrastructure components by controlling access to the CTA. This would be accomplished by restricting terminal roadway access to vehicles other than FlyAway buses and other vehicles that are currently cleared to drive on the secure airside of the airport, and eliminating public parking facilities near the CTA. The new system would be composed of four primary facilities: the CTA, the GTC, the ITC, and the RAC facility. The new Automated People Mover (APM) would connect each of these facilities to the CTA. Unlike the way the terminals are accessed today, the GTC would function as the primary access point for all passenger drop-off/pick-up and would be used for private vehicle parking. The ITC would provide an intermodal facility for passengers using the MTA Green Line or regional buses and also includes premium parking for airport users. The addition of a RAC facility in Alternative D would consolidate rental car companies into a single location, which would substantially reduce the amount of rental car company shuttle trips currently experienced at LAX. The combination of the GTC, ITC, RAC, and APM provide for reduced vehicle trips and traffic congestion at, and near, the CTA, which serves to reduce traffic impacts as well as mobile source air pollutant emissions.

Alternative D would also result in an increase in parking availability at the airport. Public parking would be provided in the ITC, GTC and in an expanded Lot B. In the GTC, three garages would provide short-term and long-term parking. The parking facilities at the ITC would provide short-term parking and the surface lot north of 111th Street would be incorporated into Lot B and would provide long-term parking. A shuttle bus would transport people between this lot and the ITC for access to the CTA (via the landside APM). Alternative D would include a series of improvements to the off-airport transportation network, including adding lanes to accommodate the shift in traffic patterns associated with the relocation of the primary passenger congregation areas from the CTA to the GTC and ITC. These improvements are designed to improve those intersections that would experience the primary increase in traffic as a result of Alternative D implementation. Local surface transportation improvements associated with Alternative D would provide more efficient movement of ground vehicles and contribute to reducing the amounts of air pollutant emissions associated with the long-term operation of LAX.

5.2 Master Plan Commitments

The following provides a list of the Master Plan commitments that are identified, by environmental discipline, throughout Chapter 4 to avoid or reduce potential environmental impacts of the project.

Noise

- **N-1. Maintenance of Applicable Elements of Existing Aircraft Noise Abatement Program (Alternatives A, B, C, and D).**

  All components of the current airport noise abatement program that pertain to aircraft noise will be maintained.

Land Use

- **LU-1. Incorporation of City of Los Angeles Ordinance No. 159,526 [Q] Zoning Conditions for LAX Northside into the LAX Northside/Westchester Southside Project (Alternatives A, B, C, and D).**

  To the maximum extent feasible, all [Q] Conditions (Qualifications of Approval) from City of Los Angeles Ordinance No. 159,526 that address the Northside project area will be incorporated by LAWA into a new LAX Zone/LAX Specific Plan for the LAX Northside/Westchester Southside project. Accepting that certain conditions may be updated, revised, or determined infeasible as a result of changes to the LAX Northside project, the final conditions for the LAX Northside/Westchester Southside project will ensure that the level of environmental protection afforded by the full set of existing LAX Northside project [Q] conditions is maintained or increased.

- **LU-2. Establishment of a Landscape Maintenance Program for Parcels Acquired Due to Airport Expansion (Alternatives A, B, C, and D).**

  Land acquired and cleared for airport development will be fenced, landscaped, and maintained regularly until the properties are actually developed for airport purposes.

- **LU-3. Comply with City of Los Angeles Transportation Element Bicycle Plan (Alternatives A, B, and C).**

  LAWA will comply with bicycle policies and plans in the vicinity of LAX, most notably those outlined in the City of Los Angeles Transportation Element Bicycle Plan and the General Plan Framework. As a primary objective, LAWA will provide maximum feasible incorporation of bike paths and bike lanes into the proposed LAX Master Plan circulation systems with a fundamental priority for ensuring safe and efficient bicycle and vehicular circulation. This commitment will include the provision of bicycle lanes along Imperial Highway between Sepulveda Boulevard and immediately west of Pershing Drive. In addition, bicycle access and parking facilities will be provided at transit centers, including the West Terminal Metro Rail Station, major parking lots, and Bus Transit Centers. Bicycle facilities such as lockers and showers will also be provided where feasible to promote employee bicycle use.

- **LU-4. Neighborhood Compatibility Program (Alternatives A, B, C, and D).**

  Ongoing coordination and planning will be undertaken by LAWA to ensure that the airport is as compatible as possible with surrounding properties and neighborhoods. Measures to enforce this policy will include:

  - Along the northerly and southerly boundary areas of the airport, LAWA will provide and maintain landscaped buffer areas that will include setbacks, landscaping, screening or other appropriate view sensitive uses with the goal of avoiding land use conflicts, shielding lighting, enhancing privacy and better screening views of airport facilities from adjacent residential uses. Use of existing facilities in buffer areas may continue as required until LAWA can develop alternative facilities.
  - Locate airport uses and activities with the potential to adversely affect nearby residential land uses through noise, light spill-over, odor, vibration and other consequences of airport operations and development as far from adjacent residential neighborhoods as feasible.
  - Provide community outreach efforts to property owners and occupants when new development on airport property is in proximity to and could potentially affect nearby residential uses.

- **LU-5. Comply with City of Los Angeles Transportation Element Bicycle Plan (Alternative D).**

  LAWA will comply with bicycle policies and plans in the vicinity of LAX, most notably those outlined in the City of Los Angeles Transportation Element Bicycle Plan and the General Plan Framework, including Pershing Drive, Sepulveda Boulevard, and Aviation Boulevard. As a priority, a Class I bike path will be incorporated on Aviation Boulevard, as practical and feasible per the standards identified in the City of Los Angeles Transportation Element Bicycle Plan generally extending from the Inglewood City limits (Arbor Vitae Street) to the north to Imperial Highway to the south. As a primary objective, LAWA will provide maximum feasible incorporation of other bike paths and bike lanes into the design of projects that will be constructed under the LAX Master Plan program with a fundamental emphasis on ensuring safe and efficient bicycle and vehicular circulation. In addition, bicycle access and parking facilities will be provided at the Ground Transportation Center, Intermodal Transportation Center, and major parking lots. Bicycle facilities such as lockers and showers will also be provided where feasible to promote employee bicycle use.

On-Airport Surface Transportation

- **ST-1. Adequate West Terminal Design (Alternatives A, B, and C).**

  The West Terminal Area surface transportation system and curbfront, commercial vehicle staging areas, and APM systems will be designed to adequately accommodate all forecast vehicular activity through 2015.

- **ST-2. Non-Peak CTA Deliveries (Alternatives A, B, C, and D).**

  Deliveries to the CTA terminal reconstruction projects will be limited to non-peak traffic hours whenever possible.

- **ST-3. Construction Traffic Uses Upper Level (Alternatives A, B, and C).**

  All construction traffic required to travel through the CTA will use the upper level roadways whenever practical and feasible since the upper level roadways are typically less congested than lower level roads. Four curb areas will be designated for construction deliveries. Each curb area will be a minimum length of one hundred feet, to allow terminal access for construction vehicles. Two of the curb areas will be located on World Way North and two will be located on World Way South. One of the curb areas will be in close proximity to Tom Bradley International Terminal.

- **ST-4. Limited Short-Term Lane Closures (Alternatives A, B, and C).**

  When construction of any new ramps at the Century Boulevard/Sepulveda Boulevard interchange or the APM elevated structures requires short-term lane closures, the lane closures will be for as brief a period as practical, with a goal that closures would last for no more than twelve consecutive hours at a time and would principally be scheduled for non-peak periods.

- **ST-5. Additional Lot C Shuttles (Alternatives A, B, and C).**

  Additional shuttles, as needed, will be added between the Remote Public Parking Lot C and the CTA to accommodate the closure of parking areas when the CTA Parking Expansion project is being constructed.

- **ST-6. Removal of Spoil Material (Alternatives A, B, and C).**

  The spoil material that is removed from the APM and Commercial Vehicle Road (CVR) tunneling projects in the CTA vicinity will be stockpiled and subsequently removed from a point west of the CTA to minimize interruptions in the CTA curb operations.

- **ST-7. Adequate GTC, ITC, and APM Design (Alternative D).**

  LAWA will ensure that the surface transportation system and curbfront for the GTC and ITC, commercial vehicle staging areas, and APM systems will be designed to adequately accommodate all forecast vehicular activity through 2015.

- **ST-8. Limited Short-Term Lane Closures (Alternative D).**

  When construction of any new ramps at the Century Boulevard/Sepulveda Boulevard interchange or construction for the GTC, ITC, or APM elevated structures require short-term lane closures, the lane closures will be for as brief a period as practical and with a goal that closures would principally be scheduled for non-peak periods.

Off-Airport Surface Transportation

- **ST-9. Construction Deliveries (Alternatives A, B, C, and D).**

  Construction deliveries requiring lane closures shall receive prior approval from the Construction Coordination Office. Notification of deliveries shall be made with sufficient time to allow for any modifications of approved traffic detour plans.

- **ST-10. Designated Truck Routes (Alternatives A, B, and C).**

  For dirt and aggregate and all other materials and equipment, truck deliveries will be on designated routes only (freeways and non-residential streets). Every effort will be made for routes to avoid residential frontages. The designated routes on City of Los Angeles streets are subject to approval by LADOT's Bureau of Traffic Management and may include, but will not necessarily be limited to:

  - Florence Avenue (I-405 to Aviation Boulevard)
  - Manchester Avenue (east of Aviation Boulevard)
  - Aviation Boulevard (Manchester Boulevard to Imperial Highway)
  - Arbor Vitae Street (I-405 to Sepulveda Boulevard)
  - Westchester Parkway
  - Imperial Highway (east of Sepulveda Boulevard)
  - La Cienega Boulevard (Manchester Boulevard to Imperial Highway)

- Airport Boulevard (south of Arbor Vitae Street)
- Sepulveda Boulevard (La Tijera Boulevard to Imperial Highway)
- I-405
- I-105 (east of Sepulveda Boulevard)
- Pershing Drive (Westchester Parkway to Imperial Highway)

- **ST-11. Stockpile Locations (Alternatives A, B, and C).**

  Stockpile locations will be confined to the eastern area of the airport vicinity, to the extent practical and feasible. Multiple stockpile locations may be provided, as required.

- **ST-12. Designated Truck Delivery Hours (Alternatives A, B, C, and D).**

  Truck deliveries shall be encouraged to use nighttime hours and shall avoid the peak periods of 7:00 a.m. to 9:00 a.m. and 4:30 p.m. to 6:30 p.m.

- **ST-13. Construction Employee Parking Locations (Alternatives A, B, and C).**

  Employee parking will be provided along the east end of the airport, to the extent possible. Shuttle buses will transport employees to construction sites. In addition, remote parking locations (of not less than 1 mile away from project construction activities) will be established for construction employees with shuttle service to the airport. An emergency return system will be established for employees that must leave unexpectedly.

- **ST-14. Construction Employee Shift Hours (Alternatives A, B, C, and D).**

  Shift hours that do not coincide with the heaviest commuter traffic periods (7:00 a.m. to 9:00 a.m., 4:30 p.m. to 6:30 p.m.) will be established. Work periods will be extended to include weekends and multiple work shifts, to the extent possible and necessary.

- **ST-15. Separation of Construction Traffic (Alternatives A, B, and C).**

  Construction traffic will be separated from regular airport traffic by various means, including keeping in service as haul routes any existing roads that would be replaced and any detour routes (where appropriate), even after the parallel new roadway is open to traffic.

- **ST-16. Designated Haul Routes (Alternatives A, B, C, and D).**

  Every effort will be made to ensure that haul routes are located away from sensitive noise receptors.

- **ST-17. Maintenance of Haul Routes (Alternatives A, B, C, and D).**

  Haul routes on off-airport roadways will be maintained periodically and will comply with City of Los Angeles or other appropriate jurisdictional requirements for maintenance. Minor striping, lane configurations, and signal phasing modifications will be provided as needed.

- **ST-18. Construction Traffic Management Plan (Alternatives A, B, C, and D).**

  A complete construction traffic plan will be developed to designate detour and/or haul routes, variable message and other sign locations, communication methods with airport passengers, construction deliveries, construction employee shift hours, construction employee parking locations, and other relevant factors.

- **ST-19. Closure Restrictions of Existing Roadways (Alternatives A, B, C, and D).**

  Other than short time periods during nighttime construction, existing roadways will remain open until they are no longer needed for regular traffic or construction traffic, unless a temporary detour route is available to serve the same function. This will recognize that there are three functions taking place concurrently: (1) airport traffic, (2) construction haul routes, and (3) construction of new facilities.

- **ST-20. Stockpile Locations (Alternative D).**

  Stockpile locations will be confined to the eastern area of the airport vicinity, to the extent practical and feasible. After the eastern facilities are under construction in Alternative D, stockpile locations will be selected that are as close to I-405 and I-105 as possible, and can be accessed by construction

vehicles with minimal disruption to adjacent streets. Multiple stockpile locations may be provided, as required.

- **ST-21. Construction Employee Parking Locations (Alternative D).**

  During construction of the eastern airport facilities, employee parking locations will be selected that are as close to I-405 and I-105 as possible and can be accessed by employee vehicles with minimal disruption to adjacent streets. Shuttle buses will transport employees to construction sites. In addition, remote parking locations (of not less than 1 mile away from project construction activities) will be established for construction employees with shuttle service to the airport. An emergency return system will be established for employees that must to leave unexpectedly.

- **ST-22. Designated Truck Routes (Alternative D).**

  For dirt and aggregate and all other materials and equipment, truck deliveries will be on designated routes only (freeways and non-residential streets). Every effort will be made for routes to avoid residential frontages. The designated routes on City of Los Angeles streets are subject to approval by LADOT's Bureau of Traffic Management and may include, but will not necessarily be limited to:

  - Pershing Drive (Westchester Parkway to Imperial Highway)
  - Florence Avenue (Aviation Boulevard to I-405)
  - Manchester Boulevard (Aviation Boulevard to I-405)
  - Aviation Boulevard (Manchester Avenue to Imperial Highway)
  - Westchester Parkway/Arbor Vitae Street (Pershing Drive to I-405)
  - Century Boulevard (Sepulveda Boulevard to I-405)
  - Imperial Highway (Pershing Drive to I-405)
  - La Cienega Boulevard (north of Imperial Highway)
  - Airport Boulevard (Arbor Vitae Street to Century Boulevard)
  - Sepulveda Boulevard (Westchester Parkway to Imperial Highway)
  - I-405
  - I-105

Relocation of Residences and Businesses

- **RBR-1. Residential and Business Relocation Program (Alternatives A, B, C, and D).**

  To address the acquisition of properties and relocation of businesses and residents associated with the proposed Master Plan, LAWA will prepare a Residential and Business Relocation Plan ("Relocation Plan") in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, state and local regulations, and FAA Advisory Circular 150/5100-17, prior to the commencement of acquisition. LAWA will achieve the following objectives:

  - Fully inform eligible project-area residential occupants and business owners of the nature of and procedures for obtaining relocation assistance and benefits.
  - Determine the needs of each residential relocatee and business owner.
  - Provide an adequate number of referrals to comparable, decent, safe, and sanitary housing units within a reasonable time prior to relocation. No residential occupant would be required to move until comparable decent, safe, and sanitary housing is made available.
  - Provide at least 90 days advance written notice to vacate, as required by law. The notice period may be extended according to the needs of the affected relocatees.
  - Provide current and continuously updated information concerning replacement housing and business choices and opportunities.
  - Ensure that the relocation process does not result in different or separate treatment because of race, religion, national origin, gender, marital status, or other arbitrary circumstances.

- Ensure that the unique needs of minority and low-income persons and businesses are addressed, including the provision of assistance and materials in Spanish and other languages as necessary.
- Supply information concerning federal, state, city, and other governmental programs providing assistance to displaced persons or businesses.
- Assist each eligible person or business in the completion of all applications and claims for payment of benefits.
- Make relocation payments in accordance with Federal Relocation Regulations, including the provisions of Last Resort Housing, where applicable.
- Inform all affected occupants of LAWA's policies with regard to eviction and property management.
- Establish and maintain a formal grievance procedure for use by relocatees seeking administrative review of LAWA decisions with respect to relocation assistance.

Although it is expected that comparable replacement housing resources are available, LAWA will take all reasonable steps to make such resources available, including but not limited to the following:

- Provide vacated project structures to agencies that could relocate the structures to new sites and make them available for program-affected residents.
- Provide funding for possible construction of replacement housing.
- Provide funding for rehabilitation of housing units being sold or rented to program-affected residents.
- Consider other innovative actions to ensure the availability of replacement housing.

In addition to the above services, distinct business assistance services will include but not be limited to the following:

- LAWA will implement a business relocation assistance program to insure prompt and equitable relocation and re-establishment of businesses displaced as a result of the proposed Master Plan. The business relocation assistance program will include: 1) a determination of the relocation needs and preferences of each business to be displaced; 2) the maintenance of listings and contacts with commercial real estate brokers, commercial lenders, and government economic development agencies to assist displaced businesses in locating suitable replacement sites; 3) the provision to displaced businesses of information on programs administered by the Small Business Administration and other federal and state programs offering assistance to displaced persons; 4) the provision of special assistance to those who wish to remain close to their current sites or close to an airport in finding such sites, including sites on the airport such as LAX Northside/Westchester Southside, or other airport owned properties or developments; and 5) the provision of special assistance to address the specific needs of minority-owned businesses.
- LAWA will coordinate with the County of Los Angeles and the cities of Inglewood, Hawthorne, and El Segundo to locate properties within their jurisdictions suitable for businesses displaced by the acquisition program.
- LAWA will investigate and consider the use of the separate and ongoing Aircraft Noise Mitigation Program to redevelop noise impacted residential areas into commercial areas suitable for businesses displaced by the Master Plan acquisition program. As part of these efforts, LAWA will coordinate with the City of Inglewood and the County of Los Angeles to identify areas east of I-405 where land acquisition and conversion to compatible land uses is contemplated under applicable plans or is otherwise deemed appropriate.
- LAWA will provide opportunities for air freight, flight kitchens and other airport-related uses displaced by the acquisition program to relocate onto airport property, to the maximum extent practicable.
- LAWA will, to the maximum practicable extent, develop its property in Manchester Square (under Alternative A) and LAX Northside/Westchester Southside (under Alternatives A, B, C, and D) so as to provide relocation opportunities for businesses displaced by the acquisition program.

- With respect to any and all residential acquisitions under Alternatives A, B, C, and D, LAWA will implement a housing program similar to the existing "Move On Housing Program," which is currently being implemented in conjunction with the Existing ANMP Relocation Plan. The Move On Housing Program is a collaborative effort between public and not-for-profit organizations to move and rehabilitate Manchester Square and Belford area structures in order to transfer housing assets to residential areas in Los Angeles County, provide reasonable housing for displaced tenants, and provide construction-related employment opportunities to community residents.

Hydrology and Water Quality

- **HWQ-1. Conceptual Drainage Plan (Alternatives A, B, C, and D).**

Once a Master Plan alternative is selected, and in conjunction with its design, LAWA will develop a conceptual drainage plan of the area within the boundaries of the Master Plan alternative (in accordance with FAA guidance and to the satisfaction of the City of Los Angeles Department of Public Works, Bureau of Engineering). The purpose of the drainage plan will be to assess area-wide drainage flows as related to the Master Plan project area, at a level of detail sufficient to identify the overall improvements necessary to provide adequate drainage capacity to prevent flooding. The conceptual drainage plan will provide the basis and specifications by which detailed drainage improvement plans shall be designed in conjunction with site engineering specific to each Master Plan project. Best Management Practices (BMPs) will be incorporated to minimize the effect of airport operations on surface water quality and to prevent a net increase in pollutant loads to surface water resulting from the selected Master Plan alternative.

To evaluate drainage capacity, LAWA will use either the Peak Rate Method specified in Part G - Storm Drain Design of the City of Los Angeles' Bureau of Engineering Manual or the Los Angeles County Modified Rational Method, both of which are acceptable to the LADPW. In areas within the boundary of the selected alternative where the surface water runoff rates are found to exceed the capacity of the storm water conveyance infrastructure with the potential to cause flooding, LAWA will take measures to either reduce peak flow rates or increase the structure's capacity. These drainage facilities will be designed to ensure that they adequately convey storm water runoff and prevent flooding by adhering to the procedures set forth by the Peak Rate Method/Los Angeles County Modified Rational Method. Methods to reduce the peak flow of surface water runoff could include:

- Decreasing impervious area by removing unnecessary pavement or utilizing porous concrete or modular pavement.
- Building storm water detention structures.
- Diverting runoff to pervious areas (reducing directly-connected impervious areas).
- Diverting runoff to outfalls with additional capacity (reducing the total drainage area for an individual outfall).
- Redirecting storm water flows to increase the time of concentration.

Measures to increase drainage capacity could include:

- Increasing the size and slope (capacity) of storm water conveyance structures (pipes, culverts, channels, etc.).
- Increasing the number of storm water conveyance structures and/or outfalls.

To evaluate the effect of the selected Master Plan alternative on surface water quality, LAWA will prepare a specific Standard Urban Stormwater Mitigation Plan (SUSMP) for the selected alternative, as required by the LARWQCB. The SUSMP addresses water quality and drainage issues by specifying source control, structural, and treatment control BMPs with the objective of reducing the discharge of pollutants from the storm water conveyance system to the maximum extent practicable. Once BMPs are identified, an updated pollutant load estimate will be calculated that takes into account reductions from treatment control BMPs. These BMPs will be applied to both existing and future sources with the goal of achieving no net increase in loadings of pollutants of concern to receiving water bodies. LAWA will therefore address water quality issues, including erosion and sedimentation, and comply with the SUSMP requirements by designing the storm water system through incorporation of the structural and treatment control BMPs specified in the SUSMP.

The following list includes some of the BMPs that could be employed to infiltrate or treat storm water runoff and dry weather flows, and control peak flow rates:

- Vegetated swales and strips
- Oil/Water separators
- Clarifiers
- Media filtration
- Catch basin inserts and screens
- Continuous flow deflective systems
- Bioretention and infiltration
- Detention basins
- Manufactured treatment units
- Hydrodynamic devices

Other structural BMPs may also be selected from the literature and the many federal, state and local guidance documents available. It should be noted that, if an alternative is selected that involves the elimination of the Imperial water quality retention basin (Alternatives A, B, and C), an alternative retention and/or water quality treatment BMP will be provided as per SUSMP requirements.

Performance of structural BMPs varies considerably based on their design.[1035] USEPA has published estimated ranges of pollutant removal efficiencies for structural BMPs based on substantial document review. These ranges of removal efficiencies are presented in **Table F5-1**, Structural BMP Expected Pollutant Removal Efficiency.

Table F5-1

Structural BMP Expected Pollutant Removal Efficiency

BMP Type	Typical Pollutant Removal (percent)			
	Suspended Solids	Nitrogen	Phosphorus	Metals
Dry Detention Basins	30-35	15-45	15-45	15-45
Retention Basins	50-80	30-65	30-65	50-80
Infiltration Basins	50-80	50-80	50-80	50-80
Infiltration Trenches/Dry Wells	50-80	50-80	15-45	50-80
Porous Pavement	65-100	65-100	30-65	65-100
Grassed Swales	30-65	15-45	15-45	15-45
Vegetated Filter Strips	50-80	50-80	50-80	30-65
Surface Sand Filters	50-80	<30	50-80	50-80
Other Media Filters	65-100	15-45	0	50-80

Source: U.S. Environmental Protection Agency, Preliminary Data Summary of Urban Storm Water Best Management Practices Methodology, August 1999.

In addition to the structural BMP types that will be used, non-structural/source control BMPs will continue to be a part of the LAX program to reduce pollutant loadings. Existing practices and potentially new ones will be extended to acquisition areas and to the areas where airport operations will increase in frequency or duration. These source control BMPs will be incorporated into the LAX Storm Water Pollution Prevention Plan (SWPPP) and will consequently be required of LAWA and all airport tenants at all locations where industrial activities occur that have the potential to impact water quality.

The overall result of Master Plan Commitment HWQ-1 will be a drainage infrastructure that provides adequate drainage capacity to prevent flooding and control peak flow discharges, that incorporates

[1035] U.S. Environmental Protection Agency, Preliminary Data Summary of Urban Stormwater Best Management Practices Methodology, August 1999.

BMPs to minimize the effect of airport operations on surface water quality, and that prevents a net increase of pollutant loads to either receiving water body as a result of the selected Master Plan alternative.

Historic/Architectural and Archaeological/Cultural Resources

- **HR-1. Preservation of Historic Resources (Alternatives A, B, C, and D).**

  In implementing the LAX Master Plan and conducting ongoing activities associated with the operation of the airport, LAWA will support the preservation of identified significant historic/architectural resources through careful review of design and development adjacent to those resources and by undertaking any modifications to those resources in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties.[1036] Additionally, where sound insulation is proposed for identified significant historic/architectural resources under the Aircraft Noise Mitigation Program, LAWA will ensure that methods are developed with the approval of a qualified architectural historian or historic architect, who meets the Secretary of the Interior's Professional Qualifications Standards, in compliance with the Secretary of the Interior's Standards for Rehabilitation.[1037]

Energy Supply

- **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.

1036 Weeks and Grimmer, The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, U.S. Department of the Interior, National Park Service, 1995.

1037 This applies to sound insulation proposed under Mitigation Measure MM-LU-1, Implement Revised Aircraft Noise Mitigation Program (Alternatives A, B, C, and D) and Mitigation Measure MM-LU-2, Incorporate Residential Dwelling Units Exposed to Single Event Awakenings Threshold into Aircraft Noise Mitigation Program (Alternatives A, B, C, and D).

Light Emissions

- **LI-1. Ring Road Landscaping (Alternative B).**

  Prior to approval of final plans for the ring road and the roadway proposed to connect Airport Boulevard to Bellanca Avenue, the alignments of these roadways will be modified by LAWA to provide a minimum 20-foot landscaped setback between residential properties on Morely Street. Said plans will also locate and direct lighting to avoid direct glare or light spillover effects on the residential properties. Baseline measurements of ambient lighting will be made prior to construction of the ring road. The baseline data will be used to estimate potential change in ambient lighting conditions with development of the ring road. Plantings within the setback will include dense evergreen trees and other vegetation selected and located so that roadway lighting is sufficiently screened to ensure that lighting intensity does not increase by more than 2 footcandles over existing levels at the property lines of affected residential uses. Aesthetic enhancement of views along the ring road will also be achieved.

- **LI-2. Use of Non-Glare Generating Building Materials (Alternatives A, B, C, and D).**

  Prior to approval of final plans LAWA will ensure that proposed LAX facilities will be constructed to maximize use of non-reflective materials and minimize use of undifferentiated expanses of glass.

- **LI-3. Lighting Controls (Alternatives A, B, C, and D).**

  Prior to final approval of plans for new lighting, LAWA will conduct reviews of lighting type and placement to ensure that lighting will not interfere with aeronautical lights or otherwise impair Airport Traffic Control Tower or pilot operations. Plan reviews will also ensure, where feasible, that lighting is shielded and focused to avoid glare or unnecessary light spillover. In addition, LAWA or its designee will undertake consultation in selection of appropriate lighting type and placement, where feasible, to ensure that new lights or changes in lighting will not have an adverse effect on the natural behavior of sensitive flora and fauna within the Habitat Restoration Area.

Solid Waste

- **SW-1. Implement an Enhanced Recycling Program (Alternatives A, B, C, and D).**

  LAWA will enhance their existing recycling program, based on successful programs at other airports and similar facilities. Features of the enhanced recycling program will include: expansion of the existing terminal recycling program to all terminals, including new terminals; development of a recycling program at LAX Northside/Westchester Southside; lease provisions requiring that tenants meet specified diversion goals; and preference for recycled materials during procurement, where practical and appropriate.

- **SW-2. Requirements for the Use of Recycled Materials During Construction (Alternatives A, B, C, and D).**

  LAWA will require, where feasible, that contractors use a specified minimum percentage of recycled materials during construction of LAX Master Plan improvements. The percentage of recycled materials required will be specified in the construction bid documents. Recycled materials may include, but are not limited to, asphalt, drywall, steel, aluminum, ceramic tile, cellulose insulation, and composite engineered wood products. The use of recycled materials in LAX Master Plan construction will help to reduce the project's reliance upon virgin materials and support the recycled materials market, decreasing the quantity of solid waste requiring disposal.

- **SW-3. Requirements for the Recycling of Construction and Demolition Waste (Alternatives A, B, C, and D).**

  LAWA will require that contractors recycle a specified minimum percentage of waste materials generated during construction and demolition. The percentage of waste materials required to be recycled will be specified in the construction bid documents. Waste materials to be recycled may include, but are not limited to, asphalt, concrete, drywall, steel, aluminum, ceramic tile, and architectural details.

Construction Impacts

- **C-1. Establishment of a Ground Transportation/Construction Coordination Office (Alternatives A, B, C, and D).**

  Establish this office for the life of the construction projects to coordinate deliveries, monitor traffic conditions, advise motorists and those making deliveries about detours and congested areas, and monitor and enforce delivery times and routes. LAWA will periodically analyze traffic conditions on designated routes during construction to see whether there is a need to improve conditions through signage and other means.

  This office may undertake a variety of duties, including but not limited to:

  - Inform motorists about detours and congestion by use of static signs, changeable message signs, media announcements, airport website, etc.;
  - Work with airport police and the Los Angeles Police Department to enforce delivery times and routes;
  - Establish staging areas;
  - Coordinate with police and fire personnel regarding maintenance of emergency access and response times;
  - Coordinate roadway projects of Caltrans, City of Los Angeles, and other jurisdictions with those of the airport construction projects;
  - Monitor and coordinate deliveries;
  - Establish detour routes;
  - Work with residential and commercial neighbors to address their concerns regarding construction activity; and
  - Analyze traffic conditions to determine the need for additional traffic controls, lane restriping, signal modifications, etc.

- **C-2. Construction Personnel Airport Orientation (Alternatives A, B, C, and D).**

  All construction personnel will be required to attend an airport project-specific orientation (pre-construction meeting) that includes where to park, where staging areas are located, construction policies, etc.

Design, Art and Architecture Application/Aesthetics

- **DA-1. Provide and Maintain Airport Buffer Areas (Alternatives A, B, C, and D)**.

  Along the northerly and southerly boundary areas of the airport, LAWA will provide and maintain landscaped buffer areas that will include setbacks, landscaping, screening, or other appropriate view-sensitive improvements with the goals of avoiding land use conflicts, shielding lighting, enhancing privacy, and better screening views of airport facilities from adjacent residential uses. Use of the existing facilities in buffer areas may continue as required until LAWA can develop alternative facilities.

- **DA-2. Update and Integrate Design Plans and Guidelines (Alternatives A, B, C, and D).**

  The following plans and guidelines will be individually updated or integrated into a comprehensive set of design-related guidelines and plans; LAX Street Frontage and Landscape Development Plan (June 1994), LAX Air Cargo Facilities Development Guidelines (April 1998; updated August 2002), and LAX Northside Design Plan and Development Guidelines (1989), including conditions addressing heights, setbacks, and landscaping. The update will serve as a basis for reviewing future public and private development projects at LAX. The update will incorporate key provisions in current plans with an equivalent or greater level of compatibility and visual quality supported between LAX and adjacent land uses.

- **DA-3. Undergrounding of Utility Lines (Alternatives A, B, C, and D)**.

  In conjunction with the extension of the Century Freeway and other roadway/right-of-way improvement projects, LAWA will pursue opportunities to place existing overhead utility lines underground wherever feasible and appropriate.

Hazardous Materials

- **HM-1. Ensure Continued Implementation of Existing Remediation Efforts (Alternatives A, B, C, and D).**

  Prior to initiating construction of a Master Plan component, LAWA will conduct a pre-construction evaluation to determine if the proposed construction will interfere with existing soil or groundwater remediation efforts. For sites currently on LAX property, LAWA will work with tenants to ensure that, to the extent possible, remediation is complete prior to the construction. If remediation must be interrupted to allow for Master Plan-related construction, LAWA will notify and obtain approval from the regulatory agency with jurisdiction, as required, and will evaluate whether new or increased monitoring will be necessary. If it is determined that contamination has migrated during construction, temporary measures will be taken to stop the migration. As soon as practicable following completion of construction in the area, remediation will be reinstated, if required by the Regional Water Quality Control Board (RWQCB) or another agency with jurisdiction. In such cases, LAWA will coordinate the design of the Master Plan component and the re-design of the remediation systems to ensure that they are compatible, and to ensure that the proposed remediation system is comparable to the system currently in place. If it is determined during the pre-construction evaluation that construction will preclude reinstatement of the remediation effort, LAWA will obtain approval to initiate construction from the agency with jurisdiction.

  For properties to be acquired as part of the Master Plan, LAWA will evaluate the status of all existing soil and groundwater remediation efforts. As part of this evaluation, LAWA will assess the projected time required to complete the remediation activities and will coordinate with the land owner and the agency with jurisdiction to ensure that remediation is completed prior to scheduled demolition and construction activities, if possible. In cases where remediation cannot be completed prior to demolition and construction activities, LAWA will undertake the same steps required above, namely, an evaluation of the need to conduct monitoring; implementation of temporary measures to stop migration, if required; and reinstatement of remediation following completion of construction, if required.

- **HM-2. Handling of Contaminated Materials Encountered During Construction (Alternatives A, B, C, and D).**

  Prior to the initiation of construction, LAWA will develop a program to coordinate all efforts associated with the handling of contaminated materials encountered during construction. The intent of this program will be to ensure that all contaminated soils and/or groundwater encountered during construction are handled in accordance with all applicable regulations. As part of this program, LAWA will identify the nature and extent of contamination in all areas where excavation, grading, and pile-driving activities are to be performed. LAWA will notify the appropriate regulatory agency when contamination has been identified. If warranted by the extent of the contamination, as determined by the regulatory agency with jurisdiction, LAWA will conduct remediation prior to initiation of construction. Otherwise, LAWA will incorporate provisions for the identification, segregation, handling and disposal of contaminated materials within the construction bid documents. In addition, LAWA will include a provision in all construction bid documents requiring all construction contractors to prepare site-specific Health and Safety Plans prior to the initiation of grading or excavation. Each Health and Safety Plan would include, at a minimum, identification/description of the following: site description and features; site map; site history; waste types encountered; waste characteristics; hazards of concern; disposal methods and practices; hazardous material summary; hazard evaluation; required protective equipment; decontamination procedures; emergency contacts; hospital map and contingency plan.

  In the event that any threshold of significance listed in the Hazardous Materials section of the EIS/EIR for the LAX Master Plan is exceeded due to the discovery of soil or groundwater contaminated by hazardous materials, or if previously unknown contaminants are discovered during construction or a

spill occurs during construction, LAWA will notify the lead agency(ies) with jurisdiction and take immediate and effective measures to ensure the health and safety of the public and workers and to protect the environment, including, as necessary and appropriate, stopping work in the affected area until the appropriate agency has been notified.

Water Use

- **W-1. Maximize Use of Reclaimed Water (Alternatives A, B, C, and D).**

  To the extent feasible, LAWA will maximize the use of reclaimed water in Master Plan-related facilities and landscaping. The intent of this commitment is to maximize the use of reclaimed water as an offset for potable water use and to minimize the potential for increased water use resulting from implementation of the LAX Master Plan. This commitment also will facilitate achievement of the City of Los Angeles' goal of increased beneficial use of its reclaimed water resources. This commitment will be implemented by various means, such as installation and use of reclaimed water distribution piping for landscape irrigation and use of appropriate construction material in the new Central Utility Plant (CUP) to allow for reclaimed water use for cooling (Alternatives A, B, and C).

- **W-2. Enhance Existing Water Conservation Program (Alternatives A, B, C, and D).**

  LAWA will enhance the existing *Street Frontage and Landscape Plan for LAX* to ensure the ongoing use of water conservation practices at LAX facilities. The intent of this program, to minimize the potential for increased water use due to implementation of the LAX Master Plan, is also in accordance with regional efforts to ensure adequate water supplies for the future. Features of the enhanced conservation program will include identification of current water conservation practices and an assessment of their effectiveness; identification of alternate future conservation practices; continuation of the practice of retrofitting and installing new low-flow toilets and other water-efficient fixtures in all LAX buildings, as remodeling takes place or new construction occurs; use of Best Management Practices for maintenance; use of water efficient vegetation for landscaping, where possible; and continuation of the use of fixed automatic irrigation for landscaping.

- **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.

Wastewater

- **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.

Fire Protection

- **FP-1. LAFD Design Recommendations (Alternatives A, B, C, and D).**

  During the design phase prior to initiating construction of a Master Plan component, LAWA will work with LAFD to prepare plans that contain the appropriate design features applicable to that component, such as those recommended by LAFD,[1038] and listed below:

[1038] Reagan, Mike, Battalion Chief, City of Los Angeles Fire Department, Personal Communication, March 3, 2000; Warford,

- *Emergency Access*. During Plot Plan development and the construction phase, LAWA will coordinate with LAFD to ensure that access points for off-airport LAFD personnel and apparatus are maintained and strategically located to support timely access. In addition, at least two different ingress/egress roads for each area, which will accommodate major fire apparatus and will provide for major evacuation during emergency situations, will be provided.
- *Fire Flow Requirements*. Proposed Master Plan development will include improvements, as needed, to ensure that adequate fire flow is provided to all new facilities. The fire flow requirements for individual Master Plan improvements will be determined in conjunction with LAFD and will meet, or exceed, fire flow requirements in effect at the time.
- *Fire Hydrants*. Adequate off-site public and on-site private fire hydrants may be required, based on determination by the LAFD upon review of proposed plot plans.
- *Street Dimensions*. New development will conform to the standard street dimensions shown on the applicable City of Los Angeles Department of Public Works Standard Plan.
- *Road Turns*. Standard cut-corners will be used on all proposed road turns.
- *Private Roadway Access*. Private roadways that will be used for general access and fire lanes shall have at least 20 feet of vertical access. Private roadways will be built to City of Los Angeles standards to the satisfaction of the City Engineer and the LAFD.
- *Dead-End Streets*. Where fire lanes or access roads are provided, dead-end streets will terminate in a cul-de-sac or other approved turning area. No fire lane shall be greater than 700 feet in length unless secondary access is provided.
- *Fire Lanes*. All new fire lanes will be at least 20 feet wide. Where a fire lane must accommodate a LAFD aerial ladder apparatus or where a fire hydrant is installed, the fire lane will be at least 28 feet wide.
- *Building Setbacks*. New buildings will be constructed no greater than 150 feet from the edge of the roadways of improved streets, access roads, or designated fire lanes.
- *Building Heights*. New buildings exceeding 28 feet in height may be required to provide additional LAFD access.
- *Construction/Demolition Access*. During demolition and construction activities, emergency access will remain unobstructed.
- *Aircraft Fire Protection Systems*. Effective fire protection systems will be provided to protect the areas beneath the wings and fuselage portions of large aircraft. This may be accomplished by incorporating foam-water deluge sprinkler systems with foam-producing and oscillating nozzle (per NFPA 409, aircraft hangars for design criteria).

- **PS-1. Fire and Police Facility Relocation Plan (Alternatives A, B, C, and D).**

  Prior to any demolition, construction, or circulation changes that would affect LAFD Fire Stations 51, 80, and 95, or on-airport police facilities, a Relocation Plan will be developed by LAWA through a cooperative process involving LAFD, LAWAPD, the LAPD LAX Detail, and other airport staff. The performance standards for the plan will ensure maintenance of required response times, response distances, fire flows, and a transition to new facilities such that fire and law enforcement services at LAX will not be significantly degraded. The plan will also address future facility needs, including details regarding space requirement, siting, and design.

- **PS-2. Fire and Police Facility Space and Siting Requirements (Alternatives A, B, C, and D).**

  During the early design phase for implementation of the Master Plan elements affecting on-airport fire and police facilities, LAWA and/or its contractors will consult with LAFD, LAWAPD, LAPD, and other agencies as appropriate, to evaluate and refine as necessary, program requirements for fire and police facilities. This coordination will ensure that final plans adequately support future facility needs, including space requirements, siting and design.

Richard, Assistant Fire Marshall, City of Los Angeles Fire Department, Letter, January 22, 2001.

Law Enforcement

- **LE-1. Routine Evaluation of Manpower and Equipment Needs (Alternatives A, B, C, and D).**

  LAWA will assure that LAWAPD and LAPD LAX Detail continue to routinely evaluate and provide additional officers, supporting administrative staff, and equipment, to keep pace with forecasted increases in activity and development at LAX in order to maintain a high level of law enforcement services. This will be achieved through LAWA notification to LAWAPD and LAPD regarding pending development and construction and through LAWA review of status reports on law enforcement services at LAX.

- **LE-2. Plan Review (Alternatives A, B, C, and D).**

  During the design phase of terminal and cargo facilities and other major airport development, the LAPD, LAWAPD, and other law enforcement agencies will be consulted to review plans so that, where possible, environmental contributors to criminal activity, such as poorly-lit areas, and unsafe design, are reduced.

- **PS-1. Fire and Police Facility Relocation Plan (Alternatives A, B, C, and D).**

  Prior to any demolition, construction, or circulation changes that would affect LAFD Fire Stations 51, 80, and 95, or on-airport police facilities, a Relocation Plan will be developed by LAWA through a cooperative process involving LAFD, LAWAPD, the LAPD LAX Detail, and other airport staff. The performance standards for the plan will ensure maintenance of required response times, response distances, fire flows, and a transition to new facilities such that fire and law enforcement services at LAX will not be significantly degraded. The plan will also address future facility needs, including details regarding space requirement, siting, and design.

- **PS-2. Fire and Police Facility Space and Siting Requirements (Alternatives A, B, C, and D).**

  During the early design phase for implementation of the Master Plan elements affecting on-airport fire and police facilities, LAWA and/or its contractors will consult with LAFD, LAWAPD, LAPD, and other agencies as appropriate, to evaluate and refine as necessary, program requirements for fire and police facilities. This coordination will ensure that final plans adequately support future facility needs, including space requirements, siting and design.

5.3 Mitigation Measures

The following provides a list of the proposed mitigation measures recommended in Chapter 4 to avoid or reduce any significant impacts that were identified in the impact analysis for each environmental discipline. These mitigation measures pertain to all four build alternatives, unless otherwise noted. Additional mitigation measures pertaining to the LAX Expressway alignments and State Route 1 improvements associated with Alternatives A and C are provided in Appendix K, *Supplemental Environmental Evaluation for LAX Expressway and State Route 1 Improvements.*

Noise

- **MM-N-1. Reserve Runway 6L/24R for Arrival Traffic Only (Alternative A).**

  Reserve Runway 6L/24R for arrival traffic only, during normal operating conditions,[1039] after construction and commissioning for use.

- **MM-N-2. Reserve Runway 25L for Arrival Traffic (Alternative B).**

  Reserve Runway 25L for arrival traffic only after construction.

- **MM-N-3. Reserve Runway 7R for Departure Traffic (Alternative B).**

  Reserve Runway 7R for departure traffic only after construction.

[1039] Normal operational conditions assume that all runways are available for use.

- **MM-N-4. Update the Aircraft Noise Abatement Program Elements as Applicable to Adapt to the Future Airfield Configuration (Alternatives A, B, C, and D).**

  When existing runways are relocated or reconstructed as part of the Master Plan, the aircraft noise abatement actions associated with those runways shall be modified and re-established as appropriate to assure continuation of the intent of the existing program.

- **MM-N-5. Conduct Part 161 Study to Make Over-Ocean Procedures Mandatory (Alternatives A, B, C, and D).**

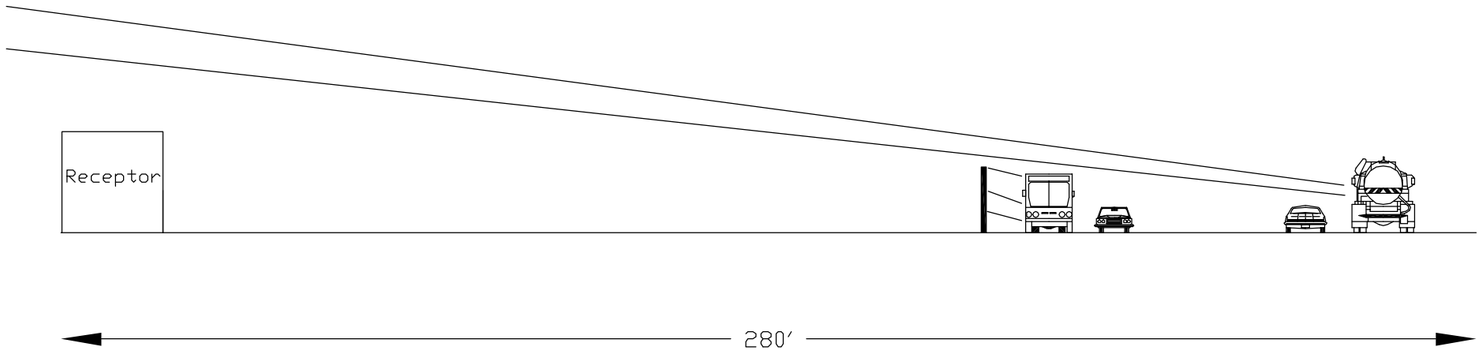
  A 14 CFR Part 161 Study shall be initiated to seek federal approval of a locally-imposed Noise and Access Restriction on departures to the east during Over-Ocean Operations, or when Westerly Operations remain in effect during the Over-Ocean Operations time period.

- **MM-N-6. Construct Noise Barrier (Soundwall) Adjacent to Areas Significantly Impacted by Road Traffic Noise (Alternatives A, B, and C).**

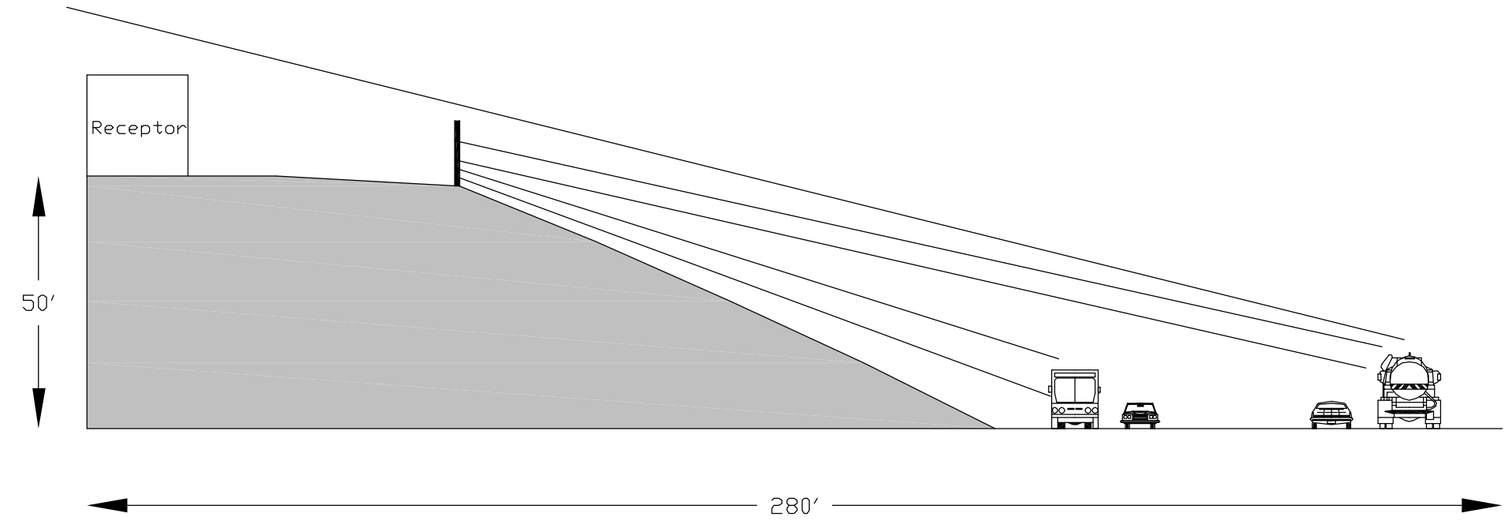
  In order to mitigate the significant impacts of increased road traffic noise along the I-105, a soundwall shall be constructed between the noise source (i.e., the highway) and nearby noise-sensitive receptors (i.e., existing homes and a school located south of the I-105, between Pershing Avenue and Sepulveda Boulevard).

  Due to the varying elevations of the residential units relative to the I-105, the actual height and recommended locations of the barrier necessary to break the line-of-sight between noise source and receptor will vary. For residential areas at the same elevation as the I-105, an 8+-foot tall soundwall shall be located along the south side of the I-105 right-of-way. For those noise sensitive areas that are elevated above the I-105, a soundwall constructed along the south side of the highway would need to be unreasonably tall (i.e., 20 to 25 feet) to break the line-of-sight between noise source and receptor; however, a much shorter soundwall could be located closer to the residential units in a location that obstructs all road noise, and shall not exceed eight feet in height. **Figure F5-1**, Soundwall Mitigation Benefits Depending on Elevation, illustrates the recommended soundwall configuration for both equal and unequal elevations. To eliminate the undesirable end effects of noise that could escape around the barrier, the barrier shall extend four times as far in each direction as the distance from the noise sensitive areas to the barrier or to Pershing Drive on the west and Sepulveda Boulevard on the east.

  The specific location, height, and design of the subject soundwall shall be determined in conjunction with the detailed design and engineering of the southern segment of the proposed ring road.



Recommended Soundwall Location Equal Elevation



Recommended Soundwall Location on Varying Elevation

0 30 60

GRAPHIC SCALE IN FEET

Source: Landrum & Brown, March 2003

LAX Master Plan Final EIS/EIR	**Soundwall Mitigation Benefits Depending on Elevation**	Figure **F5-1**

- **MM-N-7. Construction Noise Control Plan (Alternatives A, B, C, and D).**

  A construction Noise Control Plan will be prepared to provide feasible measures to reduce significant noise impacts throughout the construction period for all projects near noise sensitive uses. For example, noise control devices shall be used and maintained, such as equipment mufflers, enclosures, and barriers. Natural and artificial barriers such as ground elevation changes and existing buildings can shield construction noise.

- **MM-N-8. Construction Staging (Alternatives A, B, C, and D).**

  Construction operations shall be staged as far from noise-sensitive uses as feasible.

- **MM-N-9. Equipment Replacement (Alternatives A, B, C, and D).**

  Noisy equipment shall be replaced with quieter equipment (for example, rubber tired equipment rather than track equipment) when technically and economically feasible.

- **MM-N-10. Construction Scheduling (Alternatives A, B, C, and D).**

  The timing and/or sequence of the noisiest on-site construction activities shall avoid sensitive times of the day, as feasible (9 p.m. to 7 a.m. Monday - Friday; 8 p.m. to 6 a.m. Saturday; any time on Sunday or Holidays).

- **MM-N-11. Automated People Mover (APM) Noise Assessment and Control Plan (Alternative D).**

  In conjunction with detailed design and engineering of the proposed APM system, a noise control plan shall be prepared specifying noise attenuation measures to reduce APM noise levels at the two significantly impacted hotels to acceptable levels (i.e., less than 67 dBA CNEL for the Courtyard by Marriott and the Four Points Sheraton). Potential options for such noise control/reduction include, but are not limited to, the following:

  - Measures That Mitigate Noise At The Source
    - Stringent vehicle and equipment noise specifications
    - Operational restrictions
    - Vehicle skirts (i.e., steel/fiberglass panels that extend down to enclose wheel and undercarriage noise)
    - Undercar sound absorption
    - Limited turning radii
  - Measures That Mitigate Noise Along The Source-To-Receptor Propagation Path
    - Sound barriers close to vehicles
    - Sound barriers at Right-of-Way line
    - Alteration of horizontal and vertical alignments (i.e., altering the height or path of the APM alignment to reduce the exposure of noise sensitive receptors)
    - Acquisition of buffer zones
    - Resilient support on aerial guideway
  - Measures That Mitigate Noise At The Receptor
    - Construction of sound barriers within affected properties
    - Building noise insulation or insulation upgrades

Land Use

- **MM-LU-1. Implement Revised Aircraft Noise Mitigation Program (Alternatives A, B, C, and D).**

  LAWA shall expand and revise the existing Aircraft Noise Mitigation Program (ANMP) in coordination with affected neighboring jurisdictions, the State, and the FAA. The expanded Program shall mitigate land uses that would be rendered incompatible by noise impacts associated with implementation of

the LAX Master Plan, unless such uses are subject to an existing avigation easement and have been provided with noise mitigation funds. LAWA shall accelerate the ANMP's timetable for achieving full compatibility of all land uses within the existing noise impact area pursuant to the requirements of the California Airport Noise Standards (California Code of Regulations, Title 21, Subchapter 6) and current Noise Variance. With the exception of a possible new interior noise level standard for schools to be established through the study required by Mitigation Measure MM-LU-3, Conduct Study of the Relationship Between Aircraft Noise Levels and the Ability of Children to Learn, the relevant performance standard to achieve compatibility for land uses that are incompatible due to aircraft noise (i.e., residences, schools, hospitals and churches) is adequate acoustic performance (sound insulation) to ensure an interior noise level of 45 CNEL or less. As an alternative to sound insulation, incompatible property may also achieve compatibility if the incompatible use is converted to a noise-compatible use.

LAWA shall revise the ANMP to incorporate new, or expand existing measures, including, but not necessarily limited to, the following:

- Continued implementation of successful programs to convert existing incompatible land uses to compatible land uses through sound insulation of structures and the acquisition and conversion of incompatible land use to compatible land use.
- Ongoing monitoring and provision of annual updates in support of the requirements of the current LAX Noise Variance pursuant to the California Airport Noise Standards, with the updates made available (upon request) to affected local jurisdictions, the Airport Land Use Commission of Los Angeles County, and other interested parties.
- Continued pre- and post-insulation noise monitoring to ensure achievement of interior noise levels at or below 45 CNEL.
- Accelerated rate of land use mitigation to eliminate noise impact areas in the most timely and efficient manner possible through:
  - Increased annual funding by LAWA for land use mitigation;
  - Reevaluating requirement for granting of avigation easements with sound insulation mitigation;
  - Provision by LAWA of additional technical assistance, where needed, to local jurisdictions to support more rapid and efficient implementation of their land use mitigation programs;
  - Reduction or elimination, to the extent feasible, of structural and building code compliance constraints to mitigation of sub-standard housing.
- Revised criteria and procedures for selection and prioritization of properties to be sound insulated or acquired in consideration of the following:
  - Insulation or acquisition of properties within the highest CNEL measurement zone;
  - Acceleration of the fulfillment of existing commitments to owners wishing to participate within the current ANMP boundaries prior to proceeding with newly eligible properties;
  - Insulation or acquisition of incompatible properties with high concentrations of residents or other noise-sensitive occupants such as those housed in schools or hospitals.
- Amend ANMP to include libraries as noise-sensitive uses eligible for aircraft noise mitigation.
- Upon completion of acquisition and/or soundproofing commitment under the current Program, expand the boundaries of the ANMP as necessary over time. LAWA will continue preparing quarterly reports that monitor any expansion of the 65 CNEL noise contours beyond the current ANMP boundaries. Based upon these quarterly reports, LAWA will evaluate and adjust the ANMP boundaries, periodically as appropriate, so that as the 65 CNEL noise contours expand, residential and noise sensitive uses newly impacted by 65 CNEL noise levels would be included within the Program.

- **MM-LU-2. Incorporate Residential Dwelling Units Exposed to Single Event Awakenings Threshold into Aircraft Noise Mitigation Program (Alternatives A, B, C, and D).**

  In addition to any restrictive measures that may be implemented resulting from completion of Mitigation Measure MM-N-5, Conduct Part 161 Study to Make Over-Ocean Procedures Mandatory,

the boundaries of the ANMP will be expanded to include residential uses newly exposed to single event exterior nighttime noise levels of 94 dBA SEL, based on the Master Plan alternative that is ultimately approved and periodic reevaluation and adjustments by LAWA. Uses that are newly exposed would be identified based on annual average conditions as derived from the most current monitored data.

- **MM-LU-3. Conduct Study of the Relationship Between Aircraft Noise Levels and the Ability of Children to Learn (Alternatives A, B, C, and D).**

  Current studies of aircraft noise and the ability of children to learn have not resulted in the development of a statistically reliable predictive model of the relative effect of changes in aircraft noise levels on learning. Therefore, a comprehensive study shall be initiated by LAWA to determine what, if any, measurable relationship may be present between learning and the disruptions caused by aircraft noise at various levels. An element of the evaluation shall be the setting of an acceptable replacement threshold of significance for classroom disruption by both specific and sustained aircraft noise events.

- **MM-LU-4. Provide Additional Sound Insulation for Schools Shown by MM-LU-3 to be Significantly Impacted by Aircraft Noise (Alternatives A, B, C, and D).**

  Prior to completion of the study required by Mitigation Measure MM-LU-3, Conduct Study of the Relationship Between Aircraft Noise Levels and the Ability of Children to Learn, and within six months of the commissioning of any relocated runway associated with implementation of the LAX Master Plan, LAWA shall conduct interior noise measurements at schools that could be newly exposed to noise levels that exceed the interim LAX interior noise thresholds for classroom disruption of 55 dBA Lmax, 65 dBA Lmax, or 35 Leq(h), as presented in Section 4.1, *Noise,* of this Final EIS/EIR. All school classroom buildings (except those within schools subject to an avigation easement) that are found through the noise measurements to exceed the interim interior noise thresholds, as compared to the 1996 baseline conditions presented in the Final EIS/EIR, would become eligible for soundproofing under the ANMP.

  Upon completion of the study required by Mitigation Measure MM-LU-3 and acceptance of its results by peer review of industry experts, any schools found to exceed a newly established threshold of significance for classroom disruption, based on comparison with 1996 baseline conditions, due to implementation of the LAX Master Plan shall be eligible for participation in the ANMP administered by LAWA unless they are subject to an existing avigation easement. A determination of which schools become eligible will be made following application of the new threshold based on measured data.

- **MM-LU-5. Upgrade and Expand Noise Monitoring Program (Alternatives A, B, C, and D).**

  LAWA shall upgrade and expand its existing noise monitoring program in surrounding communities through new system procurement, noise monitor siting, and equipment installation. Permanent or portable monitors shall be located in surrounding communities to record noise data 24 hours per day, seven days per week for correlation with FAA radar data to cross-reference noise episodes with flight patterns. The upgraded system will support LAWA and other jurisdictional ANMP's when considering adjustments to airport noise mitigation boundaries.

On-Airport Surface Transportation

- **MM-ST-1. Require CTA Construction Vehicles to Use Designated Lanes (Alternative D).**

  Whenever feasible, construction vehicles shall be restricted to designated roadways or lanes of traffic on CTA roadways adjacent to the existing close-in parking, thus limiting the mix of construction vehicles and airport traffic.

- **MM-ST-2. Modify CTA Signage (Alternative D).**

  During construction, additional signage will be installed, as required, to separate construction traffic from non-construction traffic to the extent feasible.

- **MM-ST-3. Develop Designated Shuttle Stops for Labor Buses and ITC-CTA Buses (Alternative D).**

Develop shuttle stops for labor buses (i.e., buses carrying construction workers) and the ITC-CTA shuttle buses at the CTA arrivals level. All ITC-CTA shuttle buses will be routed to these lower level (arrivals) curb areas. These buses will not circulate through the upper level (departures) curbfront.

Off-Airport Surface Transportation

The recommended mitigation plans for the build alternatives include improvements proposed for specific intersections. These improvements are listed in tables unique to each alternatives as indicated below. These improvements fall into five general categories (MM-ST-6 through MM-ST-10). Several individual measures are also provided, including measures that are detailed within several tables provided below for off-airport surface transportation improvements.

Alternatives A, B, and C

- **MM-ST-4. Add Right-Turn Off-Ramp to Emerson Street (Alternatives A, B, and C)**.

  A westbound right-turn only off-ramp on the ring road connecting to a one-way northbound extension of Emerson Street near Westchester Parkway shall be added to provide access to the LAX Northside property (Westchester Southside) and reduce the number of northbound left turns at the intersection of Sepulveda Boulevard and La Tijera Boulevard.

- **MM-ST-5. Widen Arbor Vitae Street from Four to Six Lanes (Alternatives A, B, and C)**.

- **MM-ST-6. Add New Traffic Lanes (Alternatives A, B, and C)**.

  Traffic lanes shall be added to select intersections where necessary to the satisfaction of LADOT or other appropriate jurisdiction, sufficient to increase the capacity of the intersection without unnecessarily encroaching on adjacent sidewalks, on-street parking, or other land uses.

- **MM-ST-7. Restripe Existing Facilities (Alternatives A, B, and C)**.

  Existing traffic lanes shall be restriped to the satisfaction of LADOT or other appropriate jurisdiction, so that additional lane capacity will be provided without adding any new pavement to the intersection or road segment.

- **MM-ST-8. Add ATSAC[1040] or Equivalent (Alternatives A, B, and C)**.

  Automated Traffic Surveillance and Control (ATSAC) capability shall be added to select intersections as needed, and to the satisfaction of LADOT or other appropriate jurisdiction. These intersections will add to the existing ATSAC system, resulting in more complete and effective ATSAC network.

- **MM-ST-9. Add ATCS[1041] or Equivalent (Alternatives A, B, and C)**.

  Adaptive Traffic Control System (ATCS) capability shall be added to select intersections as needed, and to the satisfaction of LADOT or other appropriate jurisdiction. These intersections will add to the existing ATCS system, resulting in a more complete and effective ATCS network.

- **MM-ST-10. Modify Signal Phasing (Alternatives A, B, and C)**.

  The traffic signal phasing of select intersections shall be modified to the satisfaction of LADOT or other appropriate jurisdiction, to allow more efficient use of the intersections, particularly those that will experience a notable change in traffic characteristics as a result of the project.

- **MM-ST-11. Provide A One-Way Southbound Extension of Airport Boulevard Connecting to a Right-Turn-Only On-Ramp to the Ring Road near Westchester Parkway (Alternative B)**.

[1040] Automated Traffic Surveillance and Control (ATSAC) is a traffic signal control system that allows manual remote control of traffic signals. ATSAC provides manual monitoring of the conditions at traffic signals, with the option to remotely adjust signal timing at specific intersections based on current conditions.

[1041] Adaptive Traffic Control System (ATCS) is a traffic signal control system that continuously and automatically monitors traffic conditions on a traffic signal grid system, and electronically adjusts signal-timing characteristics of signals based on real-time conditions.

Alternative D

- **MM-ST-6. Add New Traffic Lanes (Alternative D)**

  Traffic lanes shall be added to select intersections to the satisfaction of LADOT or other appropriate jurisdiction, sufficient to increase the capacity of the intersection without unnecessarily reducing sidewalk widths, removing on-street parking, or encroaching onto other land uses.

- **MM-ST-7. Restripe Existing Facilities (Alternative D)**.

  Existing traffic lanes shall be restriped to the satisfaction of LADOT or other appropriate jurisdiction, so that additional lane capacity will be provided without adding any new pavement to the intersection or road segment.

- **MM-ST-8. Add ATSAC, ATCS or Equivalent (Alternative D)**.

  Automated Traffic Surveillance and Control (ATSAC) or Adaptive Traffic Control System (ATCS) capability or equivalent shall be added to select intersections to the satisfaction of LADOT or other appropriate jurisdiction. The improved capability will result in a more effective traffic signal network.

- **MM-ST-10. Modify Signal Phasing (Alternative D)**.

  The traffic signal phasing of select intersections shall be modified to the satisfaction of LADOT or other appropriate jurisdiction, to allow more efficient use of the intersections, particularly those that will experience a notable change in traffic characteristics as a result of the project.

- **MM-ST-12. Provide New Ramps Connecting I-105 to LAX Between Aviation Boulevard and La Cienega Boulevard (Alternative D).**

  These ramps shall be provided to allow for direct access and egress to/from the ITC and GTC via I-105, between Aviation Boulevard and La Cienega Boulevard. A feasibility study is underway to determine the best design for these ramps.

  These ramps may cause additional construction impacts, but no other significant impacts are expected to result, as discussed in subsection 4.3.2.9, *Environmental Impacts of Off-Airport Surface Transportation Mitigation Measures*.

There may be an interim period in which the GTC is open but the full mitigation plan associated with the GTC is not yet available, due to delays in obtaining permits, etc. Should this occur, temporary mitigation may be necessary, including, but not limited to, temporary installation of changeable message signs, traffic signal phasing adjustments, increased use of Highway Advisory Radio, and others. Any temporary mitigation would be closely coordinated with impacted transportation departments, including LADOT and Caltrans. Also, at the discretion of LAWA and in consultation with the LADOT, some of the mitigation measures may be replaced by other comparable measures due to changes that occur in the area.

- **MM-ST-13. Create A New Interchange at I-405 and Lennox Boulevard (Alternative D).**

  This interchange shall provide grade-separated ramps from I-405 directly into airport property, and vice-versa. It shall be located approximately mid-way between Century Boulevard and Imperial Highway. A feasibility study is underway to determine the best design for the interchange.

  This interchange will likely cause both visual and road noise impacts, and will require the relocation of several residential and commercial properties, as discussed in subsection 4.3.2.9, *Environmental Impacts of Off-Airport Surface Transportation Mitigation Measures (Alternative D),* below.

- **MM-ST-15. Provide Fair-Share Contributions to Transit Improvements (Alternative D).**

  Provide fair-share contributions to benefit transit to and from LAX to the satisfaction of LADOT and/or other appropriate jurisdiction or agency.

- **MM-ST-16. Provide Fair-Share Contribution to LA County's Project to Extend the Marina Expressway.**

  Provide fair-share contribution to Los Angeles County's project to extend the Marina Expressway (Route 90) to Admiralty Way or complete alternative off-site improvements.

Cumulative Impacts - Alternatives A, B, C, and D

- **MM-ST-14. Ground Transportation/Construction Coordination Office Outreach Program (Alternatives A, B, C, and D).**

  The construction coordination office proposed in Master Plan Commitment C-1, Establishment of a Ground Transportation/Construction Coordination Office (Alternatives A, B, C, and D), shall establish appropriate mechanisms to involve and coordinate with other major airport-area development projects to the extent feasible, to ensure that the cumulative impacts of construction in the airport area are coordinated and minimized.

Specific Listing of Recommended Improvements

Whereas the mitigation measures presented above for MM-ST-6 through MM-ST-10 describe the general nature, location, and timing of the recommended improvements, the following tables provide a more detailed listing of those recommended improvements relative to the affected facility (i.e., intersection or roadway link).

The specific improvements recommended for Alternative A are shown in **Table F5-2**, Year 2015 Alternative A Mitigation Plan (Adjusted Environmental Baseline Comparison).

Table F5-2

Year 2015 Alternative A Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Peak Hour[1]	Direc.	Improvement	Final V/C	Final LOS
Intersection 4	Airport and Century	AM	N/A	Restripe SB approach to add second RT lane	0.598	A
		PM	N/A		0.616	B
		AP	N/A		0.539	A
Intersection 6	Airport and Manchester	AM	N/A	Add a RT lane on the EB approach	0.735	C
		PM	N/A		0.755	C
		AP	N/A		0.895	D
Intersection 8	Arbor Vitae and La Cienega	AM	N/A	Add a RT lane to EB approach; Add a second LT lane on NB approach, add a free-flow RT lane on SB approach;	0.967	E
		PM	N/A	Upgrade signal to ATCS or equivalent.	0.989	E
		AP	N/A	Intersection remains unmitigated.	0.814	D
Intersection 11	Aviation and Century	AM	N/A	Add right- turn lane to SB, EB, and WB approaches;	0.900	D
		PM	N/A	Upgrade signal to ATCS	0.994	E
		AP	N/A		1.099	F
Intersection 12	Aviation and El Segundo	AM	N/A	Add RT lane to SB approach;	0.963	E
		PM	N/A	Upgrade signal to ATCS or equivalent	0.982	E
		AP	N/A		1.029	F
Intersection 13	Aviation and Imperial Hwy	AM	N/A	Restripe NB approach to convert TH/RT to RT only;	0.923	E
		PM	N/A	Upgrade signal to ATCS or equivalent	0.990	E
		AP	N/A		1.232	F
Intersection 15	Aviation and Rosecrans	AM	N/A	Upgrade signal to ATSAC or equivalent	1.273	F
		PM	N/A		1.642	F
		AP	N/A		1.623	F
Intersection 22	Centinela and Sepulveda	AM	N/A	Upgrade signal to ATSAC or equivalent	1.378	F
		PM	N/A		1.243	F
		AP	N/A		0.946	E
Intersection 26	Century and La Cienega	AM	N/A	Add second LT lane on EB approach;	0.795	C
		PM	N/A	Convert 2 SB RT lanes into a free-flow RT lane.	0.831	D
		AP	N/A	Intersection remains unmitigated.	0.553	A
Intersection 35	El Segundo and Sepulveda	AM	N/A	Upgrade signal to ATCS or equivalent	0.979	E
		PM	N/A		1.136	F
		AP	N/A		0.966	E
Intersection 40	Florence and La Cienega	AM	N/A	None	0.766	C
		PM	N/A		1.030	F
		AP	N/A		1.345	F
Intersection 44	Howard Hughes and Sepulveda	AM	N/A	Add 4th TH lane on NB approach	0.693	B
		PM	N/A		0.796	C
		AP	N/A		0.635	B

Table F5-2

Year 2015 Alternative A Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Peak Hour[1]	Direc.	Improvement	Final V/C	Final LOS
Intersection 45	I-105/Continental City and Imperial	AM	N/A	Upgrade signal to ATSAC	0.641	B
		PM	N/A		0.754	C
		AP	N/A		0.758	C
Intersection 46	I-105 NB Ramps at Imperial	AM	N/A	None	0.271	A
		PM	N/A		0.313	A
		AP	N/A		0.670	B
Intersection 50	Imperial and Sepulveda	AM	N/A	Add second LT lane on NB approach; change RT lane on	0.814	D
		PM	N/A	EB approach to a free-flow lane	1.041	F
		AP	N/A		0.713	C
Intersection 52	Imperial and La Cienega	AM	N/A	Restripe SB TH/RT lane as RT lane; Provide SB RT overlap	0.733	C
		PM	N/A	phasing; Upgrade signal to ATCS or equivalent	0.557	A
		AP	N/A		0.613	B
Intersection 57	Jefferson and Lincoln	AM	N/A	Convert NB RT lane to a free-flow lane;	1.051	F
		PM	N/A	Upgrade signal to ATCS or equivalent.	1.179	F
		AP	N/A	Intersection remains unmitigated.	0.831	D
Intersection 71	La Cienega and Lennox	AM	N/A	Restripe 1 WB LT lane to shared LT/RT lane	0.421	A
		PM	N/A		0.560	A
		AP	N/A		0.804	C
Intersection 72	La Cienega and Manchester	AM	N/A	Upgrade signal to ATSAC	0.661	B
		PM	N/A		0.723	C
		AP	N/A		1.015	F
Intersection 78	I-405 NB Ramps at La Tijera	AM	N/A	Add second LT lane on EB approach	0.818	D
		PM	N/A		0.705	C
		AP	N/A		0.365	A
Intersection 79	I-405 SB Ramps at La Tijera	AM	N/A	None	0.736	C
		PM	N/A		0.912	E
		AP	N/A		0.483	A
Intersection 81	La Tijera and	AM	N/A	Add 2 TH lanes on SB approach, add 1 TH lane on NB approach; Modify signal phasing to provide E-W permissive LT and EB RT overlap;	0.557	A
	Lincoln	PM	N/A	Upgrade signal to ATCS or equivalent	0.736	C
		AP	N/A		0.696	B
Intersection 83	La Tijera and Sepulveda	AM	N/A	Add second LT lane on NB approach; add TH lane each on NB and SB approaches; Install NB LT phasing; Restripe WB approach to provide 2 LT, 1 LT/TH, 1 TH/RT; Change EB/WB to split phase;	0.835	D
		PM	N/A	Upgrade signal to ATCS.	0.915	E
		AP	N/A	Intersection remains unmitigated.	0.385	A
Intersection 87	Lincoln and 83rd	AM	N/A	Add second LT lane on SB approach;	1.137	F
		PM	N/A	Upgrade signal to ATCS	1.480	F
		AP	N/A		1.377	F
Intersection 88	Lincoln and Manchester	AM	N/A	Add second LT lane on EB and WB approaches; add LT phasing for E-W movement with WB RT overlap; Add a separate RT lane on NB approach; Add TH lane on EB & WB approaches; Upgrade signal to ATCS	0.800	C
		PM	N/A		1.377	F
		AP	N/A		0.954	E
Intersection 94	Lincoln and Teale	AM	N/A	Add second SB LT lane; Upgrade signal to ATCS	0.729	C
		PM	N/A	or equivalent. Intersection remains unmitigated.	0.594	A
		AP	N/A		0.425	A
Intersection 98	Manchester and Pershing	AM	N/A	Add second LT lane on SB approach; Convert E-W split phasing	0.367	A
		PM	N/A	to permissive; Upgrade signal to ATCS	0.727	C
		AP	N/A		0.188	A
Intersection 99	Manchester and Sepulveda	AM	N/A	Restripe WB approach to add a separate RT lane	1.017	F
		PM	N/A		1.038	F
		AP	N/A		0.891	D
Intersection 100	Mariposa and Sepulveda	AM	N/A	Add second LT lane on NB approach; Add separate RT	0.765	C
		PM	N/A	lane on EB approach; Upgrade signal to ATSAC or equivalent	1.046	F
		AP	N/A		1.009	F
Intersection 103	Rosecrans and Sepulveda	AM	N/A	Upgrade signal to ATSAC or equivalent	1.563	F
		PM	N/A		1.647	F
		AP	N/A		1.873	F

Table F5-2

Year 2015 Alternative A Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Peak Hour[1]	Direc.	Improvement	Final V/C	Final LOS
Intersection 106	Sepulveda and 76th/77th	AM	N/A	Add a separate RT lane on WB approach;	0.790	C
		PM	N/A	Upgrade signal to ATCS	0.567	A
		AP	N/A		0.586	A
Intersection 111	La Cienega at I-405 SB Ramps N/O Century	AM	N/A	None	0.535	A
		PM	N/A		0.660	B
		AP	N/A		0.739	C
Intersection 307	La Cienega at I-405 NB Off-Ramp at Century	AM	N/A	Upgrade signal to ATCS or equivalent	0.738	C
		PM	N/A		0.585	A
		AP	N/A		0.361	A
Intersection 312	El Segundo and La Cienega	AM	N/A	None	0.677	B
		PM	N/A		0.690	B
		AP	N/A		0.500	A
Link 1	Lincoln s/o Venice	AM	NB/EB	None	0.765	C
			SB/WB		0.928	E
		PM	NB/EB		0.974	E
			SB/WB		0.932	E
		AP	NB/EB		0.784	C
			SB/WB		0.802	C
Link 2	Centinela s/o Venice	AM	NB/EB	None	0.946	E
			SB/WB		0.667	B
		PM	NB/EB		0.846	D
			SB/WB		0.932	E
		AP	NB/EB		0.774	C
			SB/WB		0.954	E
Link 4	Sepulveda s/o Venice	AM	NB/EB	Upgrade signal at Sepulveda Blvd & Venice Blvd to	0.849	D
			SB/WB	ATCS or equivalent; Upgrade signal at Sepulveda Blvd &	0.719	C
		PM	NB/EB	I-405 Freeway Ramps to ATCS or equivalent	1.053	F
			SB/WB		0.912	E
		AP	NB/EB		0.809	D
			SB/WB		1.040	F
Link 5	Overland s/o Venice	AM	NB/EB	Upgrade signals at Overland & Venice and at Overland &	0.888	D
			SB/WB	Washington to ATCS or equivalent	0.962	E
		PM	NB/EB		0.874	D
			SB/WB		1.161	F
		AP	NB/EB		0.856	D
			SB/WB		1.094	F
Link 14	Aviation n/o Rosecrans	AM	NB/EB	None	0.693	B
			SB/WB		0.263	A
		PM	NB/EB		0.474	A
			SB/WB		0.797	C
		AP	NB/EB		0.438	A
			SB/WB		0.346	A
Link 21	Lincoln s/o Jefferson	AM	NB/EB	Upgrade signals at Jefferson & Lincoln and at	0.998	E
			SB/WB	Lincoln & Teale to ATCS or equivalent	0.357	A
		PM	NB/EB		0.879	D
			SB/WB		0.675	B
		AP	NB/EB		0.616	B
			SB/WB		0.609	B
Link 26	Sepulveda s/o Slauson	AM	NB/EB	Upgrade signal at Sepulveda Blvd & Slauson Ave to	0.920	E
			SB/WB	ATSAC or equivalent	0.364	A
		PM	NB/EB		0.699	B
			SB/WB		0.806	D
		AP	NB/EB		0.472	A
			SB/WB		0.437	A
Link 27	Centinela w/o Sepulveda	AM	NB/EB	Upgrade signal at Centinela Ave and Sepulveda Blvd to ATSAC or equivalent	0.423	A
			SB/WB		0.922	E
		PM	NB/EB		0.838	D
			SB/WB		0.745	C
		AP	NB/EB		0.571	A
			SB/WB		0.763	C

Table F5-2

Year 2015 Alternative A Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Peak Hour[1]	Direc.	Improvement	Final V/C	Final LOS
Link 28	El Segundo w/o Hawthorne	AM	NB/EB	Upgrade signal at El Segundo Blvd & Hawthorne Blvd to ATSAC or equivalent	0.168	A
			SB/WB		0.489	A
		PM	NB/EB		0.781	C
			SB/WB		0.385	A
		AP	NB/EB		0.675	B
			SB/WB		0.880	D

N/A = Not Applicable.

[1] AP = Airport peak hour. Significant impacts occur in the airport peak hour only when total airport peak-hour traffic volumes exceed AM and PM peak-hour volumes and the criteria for significant impacts are met.

Source: Barton-Aschman Associates, Inc.

The specific improvements recommended for Alternative B are shown in **Table F5-3**, Year 2015 Alternative B Mitigation Plan (Adjusted Environmental Baseline Comparison).

Table F5-3

Year 2015 Alternative B Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Peak Hour[1]	Direc.	Improvements	Final V/C	Final LOS
Intersection 8	Arbor Vitae and La Cienega	AM	N/A	Upgrade signal to ATCS	0.936	E
		PM	N/A	Intersection remains unmitigated.	0.909	E
		AP	N/A		1.104	F
Intersection 11	Aviation and Century	AM	N/A	Add RT lane on EB, WB and NB approaches;	0.813	D
		PM	N/A	Add second LT lane on WB approach;	1.008	F
		AP	N/A	Upgrade signal to ATCS or equivalent	1.237	F
Intersection 12	Aviation and El Segundo	AM	N/A	None	1.041	F
		PM	N/A		1.076	F
		AP	N/A		1.143	F
Intersection 13	Aviation at Imperial	AM	N/A	Restripe one WB TH lane as TH/RT lane;	1.039	F
		PM	N/A	Restripe NB TH/RT lane for RT only lane;	1.186	F
		AP	N/A	Upgrade signal to ATCS	1.164	F
Intersection 14	Aviation and Manchester	AM	N/A	Upgrade signal to ATSAC or equivalent	0.863	D
		PM	N/A		1.007	F
		AP	N/A		1.423	F
Intersection 15	Aviation and Rosecrans	AM	N/A	Upgrade signal to ATSAC or equivalent	1.275	F
		PM	N/A		1.604	F
		AP	N/A		1.609	F
Intersection 22	Centinela and Sepulveda	AM	N/A	Upgrade signal to ATCS or equivalent	1.341	F
		PM	N/A		1.191	F
		AP	N/A		0.915	E
Intersection 26	Century and La Cienega	AM	N/A	Provide second LT lane for EB and NB approaches;	0.776	C
		PM	N/A	Upgrade signal to ATCS or equivalent	0.787	C
		AP	N/A	Intersection remains unmitigated.	0.519	A
Intersection 40	Florence and La Cienega	AM	N/A	None	0.760	C
		PM	N/A		1.060	F
		AP	N/A		1.441	F
Intersection 44	Howard Hughes and Sepulveda	AM	N/A	Add TH lane on NB approach	0.676	B
		PM	N/A		0.764	C
		AP	N/A		0.585	A
Intersection 45	I-105/Continental City At Imperial	AM	N/A	Upgrade signal to ATSAC	0.774	C
		PM	N/A		0.658	B
		AP	N/A		0.491	A

Table F5-3

Year 2015 Alternative B Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Peak Hour[1]	Direc.	Improvements	Final V/C	Final LOS
Intersection 48	I-105 WB Off/Nash at Imperial	AM	N/A	Upgrade signal to ATCS or equivalent	1.273	F
		PM	N/A		0.585	A
		AP	N/A		0.401	A
Intersection 50	Imperial and Sepulveda	AM	N/A	Add second LT lane on NB approach; Convert EB	0.700	B
		PM	N/A	RT lane to a free-flow lane; Upgrade signal to ATCS	1.001	E
		AP	N/A		0.654	B
Intersection 52	Imperial and La Cienega	AM	N/A	Restripe SB TH/RT as second RT lane;	0.727	C
		PM	N/A	Upgrade signal to ATCS or equivalent	0.469	A
		AP	N/A		0.628	B
Intersection 54	I-405 NB Ramps at Jefferson	AM	N/A	None	0.843	D
		PM	N/A		0.886	D
		AP	N/A		0.698	B
Intersection 57	Jefferson and Lincoln	AM	N/A	Restripe one NB TH lane as TH/RT lane; Restripe one WB TH lane as LT/TH lane; Change E/W phasing to split phase. Intersection remains unmitigated.	1.115	F
		PM	N/A		1.195	F
		AP	N/A		0.773	C
Intersection 72	La Cienega and Manchester	AM	N/A	None	0.684	B
		PM	N/A		0.769	C
		AP	N/A		1.092	F
Intersection 78	I-405 NB Ramps at La Tijera	AM	N/A	Restripe EB approach to provide second LT lane	0.806	D
		PM	N/A		0.673	B
		AP	N/A		0.416	A
Intersection 81	La Tijera and Lincoln	AM	N/A	Add TH lane on SB approach; Add third LT lane on NB approach; Add second RT lane on EB approach;	0.735	C
		PM	N/A	Modify SB, EB and WB LT phasing to permissive;	0.677	B
		AP	N/A	Upgrade signal to ATCS or equivalent	0.510	A
Intersection 82	La Tijera and Manchester	AM	N/A	None	0.539	A
		PM	N/A		0.726	C
		AP	N/A		0.563	A
Intersection 83	La Tijera and Sepulveda	AM	N/A	Add second LT lane and a RT lane on NB approach; Add second LT lane and restripe TH lane as LT/TH on WB approach;	0.897	D
		PM	N/A	Add TH/RT lane on EB approach; Split-phase EB and WB	0.845	D
		AP	N/A	Intersection remains unmitigated.	0.373	A
Intersection 87	Lincoln and 83rd	AM	N/A	Add second LT lane on SB approach;	1.135	F
		PM	N/A	Upgrade signal to ATCS	1.457	F
		AP	N/A		1.351	F
Intersection 88	Lincoln and Manchester	AM	N/A	Add RT lane on NB approach; Add TH lane	0.802	D
		PM	N/A	on WB approach; Add second LT lane on SB approach;	1.268	F
		AP	N/A	Convert WB RT lane to free-flow; Upgrade signal to ATCS	0.901	E
Intersection 94	Lincoln and Teale	AM	N/A	Upgrade signal to ATCS or equivalent	0.735	C
		PM	N/A	Intersection remains unmitigated.	0.619	B
		AP	N/A		0.456	A
Intersection 98	Manchester and Pershing	AM	N/A	Add second LT lane on SB approach	0.446	A
		PM	N/A		0.727	C
		AP	N/A		0.223	A
Intersection 99	Manchester and Sepulveda	AM	N/A	Restripe WB approach to install RT lane;	1.006	F
		PM	N/A	Add second LT lane on EB approach; Add third TH lane on	1.026	F
		AP	N/A	WB approach	0.835	D
Intersection 100	Mariposa and Sepulveda	AM	N/A	Add second LT lane on NB approach;	0.734	C
		PM	N/A	Add separate RT lane on EB approach;	1.067	F
		AP	N/A	Upgrade signal to ATSAC or equivalent	1.113	D
Intersection 101	Pershing and Westchester Pkwy	AM	N/A	None	0.547	A
		PM	N/A		0.623	B
		AP	N/A		0.415	A
Intersection 106	Sepulveda and 76th/77th	AM	N/A	Add separate RT lane on WB approach;	0.780	C
		PM	N/A	Upgrade signal to ATCS	0.544	A
		AP	N/A		0.610	B
Intersection 111	La Cienega at I-405 SB ramps n/o Century	AM	N/A	Add second LT lane on SB approach;	0.663	B
		PM	N/A	Add RT lane on WB approach	0.669	B
		AP	N/A		0.706	C

Table F5-3

Year 2015 Alternative B Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Peak Hour[1]	Direc.	Improvements	Final V/C	Final LOS
Intersection 307	I-405 NB Off-ramp at Century	AM	N/A	Upgrade signal to ATSAC or equivalent	0.740	C
		PM	N/A		0.582	A
		AP	N/A		0.361	A
Link 2	Centinela s/o Venice	AM	NB/EB	None	0.946	E
			SB/WB		0.663	B
		PM	NB/EB		0.839	D
			SB/WB		0.922	E
		AP	NB/EB		0.773	C
			SB/WB		0.935	E
Link 4	Sepulveda s/o Venice	AM	NB/EB	Upgrade signal at Sepulveda Blvd and Venice Blvd to	0.843	D
			SB/WB	ATCS or equivalent; Upgrade signal at Sepulveda	0.714	C
		PM	NB/EB	Blvd and I-405 Freeway Ramps to ATCS or equivalent	1.046	F
			SB/WB		0.919	E
		AP	NB/EB		0.792	C
			SB/WB		1.032	F
Link 5	Overland s/o Venice	AM	NB/EB	Upgrade signal at Overland Blvd and Venice Blvd to	0.874	D
			SB/WB	ATCS or equivalent; Upgrade signal at Overland	0.947	E
		PM	NB/EB	Ave and Washington Boulevard to ATCS or equivalent	0.868	D
			SB/WB		1.167	F
		AP	NB/EB		0.872	D
			SB/WB		1.064	F
Link 21	Lincoln s/o Jefferson	AM	NB/EB	Upgrade signal at Jefferson Blvd and Lincoln	0.990	E
			SB/WB	Blvd to ATCS or equivalent; Upgrade signal at Lincoln	0.354	A
		PM	NB/EB	Blvd and Teale Street to ATCS or equivalent	0.871	D
			SB/WB		0.668	B
		AP	NB/EB		0.616	B
			SB/WB		0.605	B
Link 26	Sepulveda s/o Slauson	AM	NB/EB	Upgrade signal at Sepulveda Blvd and Slauson Ave to	0.913	E
			SB/WB	ATSAC or equivalent	0.338	A
		PM	NB/EB		0.689	B
			SB/WB		0.809	D
		AP	NB/EB		0.461	A
			SB/WB		0.421	A
Link 28	El Segundo w/o Hawthorne	AM	NB/EB	None	0.194	A
			SB/WB		0.514	A
		PM	NB/EB		0.798	C
			SB/WB		0.408	A
		AP	NB/EB		0.702	C
			SB/WB		0.906	E

N/A = Not Applicable.

[1] AP = Airport peak hour. Significant impacts occur in the airport peak hour only when total traffic volumes in the airport peak hour exceeds AM and PM peak hour volumes and the criteria for significant impacts are met.

Source: Barton-Aschman Associates, Inc.

The specific improvements for Alternative C are shown in **Table F5-4**, Mitigation Plan, Year 2015 Alternative C.

Table F5-4

Mitigation Plan, Year 2015 Alternative C

Intersection	No.[1]	Improvement
Arbor Vitae / La Cienega	8	Widen the west side of La Cienega Boulevard to add a second left-turn only lane in the NB direction and a right-turn only lane in the SB direction. Widen Arbor Vitae Street to provide one left-turn-only lane, three through lanes and one right-turn only lane in both the EB and the WB directions. Right-of-way acquisition required. Upgrade signal to ATSAC or equivalent. Impact remains in the AM and PM peak periods.
Aviation / Century	11	Remove the Southern Pacific Railroad bridge structure over Century Boulevard and modify the median on Century Boulevard west of Aviation Boulevard to provide dual left-turn lanes in the EB direction. Widen the north side of Century Boulevard east of Aviation Boulevard to provide for a right-turn only lane in the WB direction. Widen the east side of Aviation Boulevard to provide an addition through lane in the NB direction. Widen the west side of Aviation Boulevard to provide dual right-turn only lanes in the SB direction. Right-of-way acquisition required.
Aviation / El Segundo	12	Remove the Southern Pacific Railroad bridge structure over El Segundo Boulevard and modify the median on the west leg to provide dual left-turn-only lanes in the EB direction. Modify the median on the south leg to provide dual left-turn-only lanes in the NB direction. Upgrade the signal to ATSAC or equivalent. Right-of-way acquisition required.
Aviation / Imperial	13	Widen the north side of Imperial Highway east of Aviation Boulevard to install an additional right-turn only lane
Aviation / Manchester	14	Upgrade signal to ATSAC or equivalent
Aviation / Rosecrans	15	Upgrade the signal to ATSAC or equivalent
Centinela / Sepulveda	22	Remove the traffic island and modify the curb return on the SE corner and restripe to provide a triple left-turn only lane in the NB direction. Widen the south side of Centinela Avenue west of Sepulveda Boulevard to provide three departure lanes in the WB direction to accommodate the NB triple left-turn only lanes.
Century / La Cienega	26	Upgrade the signal to ATCS or equivalent. Restripe the WB approach to provide a left-turn only lane, two through lanes, a through/right lane, and a right-turn only lane. This intersection remains unmitigated.
El Segundo / Sepulveda	35	Provide a WB right-turn overlapping arrow. Upgrade the signal to ATSAC or equivalent.
Grand / Vista del Mar	36	Upgrade signal to ATCS or equivalent. Provide a SB left-turn arrow in conjunction with a WB right-turn overlapping arrow.
Howard Hughes / Sepulveda	44	Upgrade the signal to ATCS or equivalent. LAX Expressway will remove impact.
I-105 WB off - Nash / Imperial	48	Upgrade the signal to ATCS or equivalent.
Imperial / Sepulveda	50	Modify the median island on the NB approach to provide dual left-turn only lanes in the NB direction. Provide for a NB right-turn overlapping arrow. Upgrade signal to ATSAC or equivalent.
Imperial / Vista del Mar	51	Provide for a WB right-turn overlapping arrow. Upgrade signal to ATCS or equivalent.
Imperial / La Cienega	52	Upgrade the signal to ATCS or equivalent.
Jefferson / Lincoln	57	Intersection remains unmitigated.
La Cienega / Lennox	71	Upgrade the signal to ATCS or equivalent. Modify the median on the south leg of La Cienega Boulevard to provide a left-turn only lane in the NB direction. Widen the north side of Lennox Boulevard east of La Cienega Boulevard to install an additional right-turn only lane. Right-of-way acquisition required.
La Cienega / Manchester	72	Upgrade signal to ATSAC or equivalent.
La Tijera / I-405 NB Ramps	78	Provide a fair-share contribution towards the La Tijera Bridge Widening at I-405 Freeway project.
La Tijera / Lincoln	81	Restripe the EB approach to provide a shared left/through and dual right-turn only lanes. Change phasing to provide an overlapping right-turn arrow in the EB direction. Widen the east side of Lincoln Boulevard to provide a fourth NB through lane. Upgrade the signal to ATSAC or equivalent. Right-of-way acquisition required. Impact remains in the PM peak period.
La Tijera / Sepulveda	83	Provide a fair-share contribution towards the Sepulveda Boulevard HOV/Transit Priority Lane project. Impact remains in the PM peak period.
Lincoln / 83rd	87	Widen the north and south sides of 83rd Street west of Lincoln Boulevard to provide dual left-turn only lanes and a through/right lane in the EB direction.
Lincoln / Manchester	88	Modify the median island on the east leg of Manchester Avenue to provide dual left-turn only lanes in the EB and WB directions. Widen the east side of Lincoln Boulevard south of Manchester Avenue to provide a free NB right-turn only lane. Upgrade the signal to ATCS or equivalent. Right-of-way acquisition required. Impact remains in the AM peak period.
Lincoln / Teale	94	Intersection remains unmitigated.
Manchester / Pershing	98	Restripe the SB approach to provide a left-turn only lane, a left/through lane, and a through/right lane. Upgrade the signal to ATCS or equivalent.
Manchester / Sepulveda	99	Upgrade signal to ATCS or equivalent.
Mariposa / Sepulveda	100	Upgrade signal to ATSAC or equivalent.
Rosecrans / Sepulveda	103	Upgrade signal to ATSAC or equivalent.
Sepulveda / 76th/77th	106	Provide a fair-share contribution towards the Sepulveda Boulevard HOV/Transit Priority Lane project.

Table F5-4

Mitigation Plan, Year 2015 Alternative C

Intersection	No.[1]	Improvement
La Cienega / I-405 SB ramps (N/O Century)	111	Upgrade signal to ATCS or equivalent.
Centinela / La Cienega	D	Widen the north side of Centinela Avenue east of La Cienega Boulevard to install a second left-turn only lane in the WB direction. Right-of-way acquisition required.
Bali / Lincoln	F	Provide a fair-share contribution toward LA County's Route 90 At-Grade Extension Project from Lincoln Boulevard to Admiralty Way.
Lincoln / Marina Expwy (SR-90)	H	Provide a fair-share contribution toward LA County's Route 90 At-Grade Extension Project from Lincoln Boulevard to Admiralty Way. Intersection remains unmitigated.
Lincoln / Maxella	I	Provide a fair-share contribution toward LA County's Route 90 At-Grade Extension Project from Lincoln Boulevard to Admiralty Way.
Lincoln / Venice	K	Widen the east side of Lincoln Boulevard south of Venice Boulevard to install a NB right-turn only lane.
Lincoln / Washington	L	Provide a fair-share contribution toward LA County's Route 90 At-Grade Extension Project from Lincoln Boulevard to Admiralty Way.
Sepulveda / 79th/80th	M	Provide a fair-share contribution towards the Sepulveda Boulevard HOV/Transit Priority Lane project.
Sepulveda / 83rd	N	Restripe the WB approach to provide a left-turn only lane, a through lane, and a right-turn only lane. Provide a fair-share contribution towards the Sepulveda Boulevard HOV/Transit Priority Lane project.
Sepulveda S/O Venice	4	Upgrade signal at Sepulveda Boulevard and Venice Boulevard from ATSAC to ATCS or equivalent; Upgrade signal at Sepulveda Boulevard and I-405 NB Ramps from ATSAC to ATCS or equivalent.
Overland S/O Venice	5	Upgrade signal at Overland Avenue and Venice Boulevard from ATSAC to ATCS or equivalent; Upgrade signal at Overland Avenue and Washington Boulevard from ATSAC to ATCS or equivalent.
Lincoln S/O Jefferson	21	Upgrade signal at Jefferson Boulevard and Lincoln Boulevard from ATSAC to ATCS or equivalent; Upgrade signal at Lincoln Boulevard and Teale Street from ATSAC to ATCS or equivalent.
Sepulveda S/O Slauson	26	Upgrade signal at Sepulveda Boulevard and Slauson Avenue from ATSAC to ATCS or equivalent; Upgrade signal at Sepulveda Boulevard and SR-90 EB Ramps from ATSAC to ATCS or equivalent; Provide a fair-share contribution to MTA's proposed Metro Rapid Program or other enhancements to benefit transit to and from LAX. To mitigate the intersection of Sepulveda Boulevard and Slauson Avenue, these enhancements would need to reduce NB through trips by 18 vehicles in the AM peak hour.

[1] Facility Number/Letter which corresponds to Figure F4.3.2-1.

The specific improvements recommended for Alternative D are shown in **Table F5-5**, Year 2008 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison) and **Table F5-6**, Year 2015 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison).

Table F5-5

Year 2008 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Improvements
Intersection 3	Airport and Arbor Vitae	This intersection is impacted in 2008, but not in 2015. Mitigation for this temporary impact involves restriping to add a northbound right-turn lane, with the option of changing one of the two NB through lanes to a TH/RT lane.
Intersection 7	Arbor Vitae and Aviation	Project Component Improvements call for widening the east side of Aviation Boulevard south of Arbor Vitae Street and widening the south side of Arbor Vitae Street east of Aviation Boulevard to achieve standard City of LA street widths. The traffic mitigation involves additional widening to achieve the following lane configuration: NB - 1 LT, 2 TH, 1 RT; SB - 1 LT, 1 TH, 1 TH/RT; EB - 1 LT, 2 TH, 1 TH/RT; WB - 2 LT, 2 TH, 1 RT.
Intersection 8	Arbor Vitae and La Cienega	The Arbor Vitae Street bridge (east leg of intersection) is proposed to be widened by Caltrans to a width of 103 feet. Project Component Improvements call for widening the south side of Arbor Vitae Street west of La Cienega Blvd. and the west side of La Cienega Blvd. south of Arbor Vitae Street to achieve standard City of LA street widths. The traffic mitigation involves the addition of an eastbound right-turn lane and widening the east side of La Cienega Boulevard by construction of retaining walls in Caltrans right-of-way to provide an additional northbound through lane. Resulting lane configuration is: NB - 1 LT, 1 TH, 1 TH/RT; SB - 1 LT, 1 TH, 1 TH/RT; EB - 1 LT, 3 TH, 1 RT; WB - 1 LT, 2 TH, 1 TH/RT, 1 RT.
Intersection 10	Aviation and 111th	Project Component Improvements call for widening the east side of Aviation Boulevard north and south of 111th Street to achieve standard City of LA street widths. The traffic mitigation involves the addition of a second southbound left-turn lane and a second westbound right-turn lane. Resulting lane configuration is: NB - 1 LT, 3 TH, 1 RT; SB - 2 LT, 2 TH, 1 TH/RT; EB - 1 LT, 1 TH/RT; WB - 1 LT, 1 TH/RT, 2 RT
Intersection 12	Aviation and El Segundo	Intersectional analysis assumed proposed improvement by County of LA is completed as separate project. Mitigation for this impact involves 1) restriping the EB approach from 1 LT, 3 TH, 1 RT to 1 LT, 3 TH, 1 TH/RT, and 2) upgrading the signal to ATSAC[8]/ATCS[9] equivalent.
Intersection 13	Aviation and Imperial	Project Component Improvements calls for widening the east side of Aviation Boulevard north of Imperial Highway to achieve City of LA standard street widths. Mitigation for this impact involves restriping the NB approach from 2 LT, 2 TH, 1 RT to 2 LT, 3 TH, 1 RT.
Intersection 15	Aviation and Rosecrans	Intersectional analysis assumed proposed improvement by the City of Hawthorne is completed. Mitigation for this impact involves changing the NB RTOR[10] from Auto to OLA.
Intersection 18	Centinela and Jefferson	Mitigation for this impact involves changing the southbound RTOR from Auto to OLA.
Intersection 22	Centinela and Sepulveda	Mitigation for this impact involves 1) removing the median island on the east leg from the intersection to the underpass of the I-405 Freeway in order to restripe the WB approach from 2 LT, 1 TH, 1 TH/RT to 2 LT, 2 TH, 1 RT and 2) providing a fair-share contribution to MTA's Metro Rapid Program or other enhancements to benefit transit to and from LAX. These enhancements would need to reduce SB through trips by 36 vehicles during the AM peak hour.
Intersection 27	Century and Sepulveda	Mitigation for this impact involves reconfiguring the west leg of the intersection to allow for authorized vehicles only into the Central Terminal Area and trimming the median island on the north leg of the intersection in order to restripe the WB lanes from 1 LT, 1 LT/TH, 2 RT to 2 LT, 1 LT/TH, 1 RT.
Intersection 34	Douglas and Imperial	Mitigation for this impact involves changing the NB RTOR from Auto to Free. To accommodate this movement, one EB through lane would need to be removed from Imperial Highway between Nash Street and Douglas Street.
Intersection 35	El Segundo and Sepulveda	Mitigation for this impact involves 1) changing the EB RTOR from Auto to OLA[11] and 2) upgrading the signal to ATSAC/ATCS equivalent.
Intersection 40	Florence and La Cienega	Mitigation for this impact involves 1) changing the NB/SB phasing from Split to Prot-Var, 2) restriping the SB lanes from 1 LT, 1 LT/TH, 1 TH, 1 RT to 2 LT, 1 TH, 1 TH/RT and 3) upgrading the signal to ATSAC/ATCS equivalent.

Table F5-5

Year 2008 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Improvements
Intersection 45	I-105 Fwy/Continental City at Imperial	Project Component Improvements call for the installation of a north leg of this at-grade intersection. The SB approach will be planned as 3 LT, and 2 RT. Project Component Improvements also call for widening the north side of Imperial Highway west of Continental City Drive in order to install a third WB through lane. The mitigation for this impact involves widening the north and south sides of Imperial Highway east of Continental City Drive in order to install two WB right-turn lanes. The WB lane configuration will be changed from 2 LT, 3 TH to 1 LT, 3 TH, 2 RT.
Intersection 46	I-405 Fwy NB Ramp and Imperial	Mitigation for this impact calls for 1) widening the off-ramp to change the northbound lane configuration from 1 LT, 1 RT to 2 LT, 1 LT/RT and 2) upgrading the signal to ATSAC/ATCS equivalent.
Intersection 50	Imperial and Sepulveda	Mitigation for this impact involves changing both the NB and WB RTOR from Auto to OLA. To mitigate the AP[12] period impact, provide fair-share contribution to MTA's[13] Metro Rapid Bus Program or other enhancements to benefit transit to and from LAX. These enhancements would need to reduce SB through trips by 246 vehicles during the airport peak hour.
Intersection 57	Jefferson and Lincoln	Intersectional analysis assumed full build out of the intersection per Playa Vista mitigation plans. Mitigation for this impact involves 1) restriping the NB approach from 1 LT, 3 TH, 1 TH/RT, 1 RT to 1 LT, 4 TH, 1 RT and 2) providing a fair-share contribution to MTA's proposed Metro Rapid Program or other enhancements to benefit transit traveling to and from LAX. This intersection remains partially unmitigated during the PM peak hour.
Intersection 67	La Cienega and 111th	Project Component Improvement calls for widening the south side of 111th Street west of La Cienega Blvd. and the removal of the median island on La Cienega Blvd. south of 111th Street. Resulting lane configuration is NB - 2 LT, 3 TH; SB - 3 TH, 1 RT; EB - 2 LT, 2 RT. Mitigation for this intersection involves 1) changing the EB signal phasing from Perm to Split and 2) changing the SB RTOR from Auto to OLA and 3) changing the NB phasing from Perm to Prot-Fix.
Intersection 72	La Cienega and Manchester	Mitigation for this impact involves 1) changing the NB/SB phasing from Split to Prot-Var and 2) restriping La Cienega Boulevard from north of Florence Avenue to south of Olive Street in order to change the SB approach from 1 LT, 1 LT/TH, 1 TH, 1 TH/RT to 2 LT, 1 TH, 1 TH/RT.
Intersection 81	La Tijera and Lincoln	This intersection is impacted in 2008, but not in 2015. The resulting short-term impact is temporary and less than significant.
Intersection 83	La Tijera and Sepulveda	Mitigation for this intersection involves restriping the WB approach from 1 LT, 1 TH, 1 TH/RT to 1 LT, 2 TH, 1 RT. This will require the removal of parking from the north side of La Tijera Boulevard east of Sepulveda Boulevard.
Intersection 87	Lincoln and 83rd	Mitigation for this impact involves 1) widening and restriping the EB approach from 1 LT, 1 TH/RT to 2 LT, 1 TH/RT and 2) changing the WB RTOR from Auto to OLA.
Intersection 94	Lincoln and Teale	Intersectional analysis assumed full build-out of the intersection by Playa Vista mitigation plans already in place. Mitigation for the impact involves 1) changing the NB RTOR from Auto to OLA and 2) providing a fair-share contribution to MTA's proposed Metro Rapid Program or other enhancements to benefit transit traveling to and from LAX. These enhancements would need to reduce NB through trips by 152 vehicles during the AM peak hour and reduce NB through trips by 340 vehicles during the PM peak hour.

Table F5-5

Year 2008 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Improvements
Intersection 99	Manchester and Sepulveda	Mitigation for this impact involves 1) restricting parking on the north side of Manchester Avenue during the airport and PM peak periods to allow the WB approach to be restriped as 2 LT, 2 TH, 1 TH/RT during all three peak hours, 2) changing the WB RTOR from Auto to OLA, and 3) providing a fair-share contribution to MTA's proposed Metro Rapid Program or other enhancements to benefit transit traveling to and from LAX. These enhancements would need to reduce WB through trips by 58 vehicles during the AM peak hour and reduce EB through trips by 278 vehicles during the PM peak hour.
Intersection 100	Mariposa and Sepulveda	Mitigation for this impact involves 1) upgrading the signal to ATSAC/ATCS equivalent and 2) providing a fair-share contribution to MTA's proposed Metro Rapid Program or other enhancements to benefit transit traveling to and from LAX. These enhancements would need to reduce NB through trips by 204 vehicles during the AM peak hour.
Intersection 103	Rosecrans and Sepulveda	Mitigation for this impact involves a signal upgrade to ATSAC/ATCS equivalent.
Intersection 105	Sepulveda and I-105 Off Ramp N/O Imperial	Mitigation for this impact involves 1) upgrading the signal to ATSAC/ATCS equivalent, and 2) providing a fair-share contribution to MTA's proposed Metro Rapid Program or other enhancements to benefit transit traveling to and from LAX. These enhancements would need to reduce NB through trips by 81 vehicles during the PM peak hour.
Intersection 109	Sepulveda and Westchester	This intersection is impacted in 2008, but not in 2015. The resulting short-term impact is temporary and less than significant.
Intersection 20	Centinela and La Cienega	Mitigation for this impact involves the removal of the median islands on La Cienega Boulevard north and south of Centinela Avenue and restriping the NB & SB lane configurations from 1 LT, 2 TH, 1 TH/RT to 2 LT, 2 TH, 1 TH/RT. The WB lane configuration would be changed from 1 LT, 3 TH, 1 RT to 2 LT, 2 TH, 1 TH/RT.
Intersection 25	Hawthorne/La Brea and Century	Mitigation for this impact involves removal of the raised median islands on La Brea Ave/ Hawthorne Blvd. and installing additional left-turn lanes for NB and SB traffic. The NB lane configuration would change from 1 LT, 3 TH, 1 TH/RT to 2 LT, 3 TH, 1 TH/RT; the SB lane configuration would change from 1 LT, 3 TH, 1 RT to 2 LT, 3 TH, 1 RT.
Intersection 42	Hawthorne and Imperial	Mitigation for this impact involves 1) upgrading the signal to ATSAC/ATCS equivalent, and 2) changing the SB lane configuration from 1 LT, 2 TH, 1 TH/RT to 1 LT, 3 TH, 1 RT. The removal of a short stretch of parking on the west side of Hawthorne Blvd. north of Imperial Hwy is required.
Intersection 96	Lincoln and Washington	Mitigation for this impact involves providing a fair-share contribution to MTA's proposed Metro Rapid Program or other enhancements to benefit transit traveling to and from LAX. These enhancements would need to reduce NB through trips by 57 vehicles during the PM peak hour.
Intersection 503	Century and Inglewood	Upgrade traffic signal to ATSAC/ATCS equivalent.
Intersection 505	Imperial and Inglewood	Mitigation for this impact involves 1) restriping the SB lanes from 1 LT, 1LT/TH to 1 LT, 1 TH, 1 RT and 2) upgrading the signal to

Table F5-5

Year 2008 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Improvements
Link 5	Overland s/o Venice	Integration of ATCS plus fair-share contributions to regional transit service will mitigate the impacts of this link.

[1] NB = Northbound.
[2] LT = Left turn.
[3] TH = Through.
[4] RT = Right turn.
[5] SB = Southbound.
[6] EB = Eastbound.
[7] WB = Westbound.
[8] ATAC = Automated Traffic Surveillance and Control.
[9] ATCS = Adaptive Traffic Control System.
[10] RTOR = Right turn on red.
[11] OLA = Overlap allowed.
[12] AP = Airport peak hour.
[13] MTA = Metropolitan Transportation Authority.

Source: Barton-Aschman Associates, Inc., 2002.

Table F5-6

Year 2015 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison)

					Conditions After Mitigation	
Facility Number	Facility Name	Peak Hour	Direction	Improvements	V/C[1]	LOS[2]
Intersection 6	Airport and Manchester	AM	N/A	Mitigation for this impact involves restriping the WB lane configuration from 1 LT[8], 2 TH, 1 RT to 1 LT, 3 TH, 1 RT.	0.691	B
		PM	N/A		0.730	C
		AP	N/A		0.893	D
Intersection 7	Arbor Vitae and Aviation	AM	N/A	Mitigation performed in 2008.	0.651	B
		PM	N/A		0.774	C
		AP	N/A		0.781	C
Intersection 8	Arbor Vitae and La Cienega	AM	N/A	Mitigation performed in 2008.	0.754	C
		PM	N/A		0.821	D
		AP	N/A		0.947	E
Intersection 10	Aviation and 111th St	AM	N/A	Mitigation performed in 2008.	0.585	A
		PM	N/A		0.582	A
		AP	N/A		0.742	C
Intersection 11	Aviation and Century	AM	N/A	The impact at this intersection is mitigated through the construction of the proposed Lennox Boulevard interchange.	0.643	A
		PM	N/A		0.739	C
		AP	N/A		0.986	E
Intersection 12	Aviation and El Segundo	AM	N/A	Mitigation performed in 2008.	0.923	E
		PM	N/A		0.941	E
		AP	N/A		0.959	E
Intersection 13	Aviation and Imperial	AM	N/A	Mitigation performed in 2008.	0.767	C
		PM	N/A		0.984	E
		AP	N/A		0.962	E

Table F5-6

Year 2015 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Peak Hour	Direction	Improvements	Conditions After Mitigation V/C[1]	Conditions After Mitigation LOS[2]
Intersection 14	Aviation and Manchester	AM	N/A	Mitigation for this impact involves 1) restriping both EB[9] and WB lane configuration from 1 LT, 2 TH, 1 RT to 1 LT, 2 TH, 1 TH/RT, and 2) upgrading the traffic signal to ATSAC[10]/ATCS[11] equivalent. This proposal would require the elimination of parking on the south side of Manchester Blvd. east of Aviation Blvd. and on the north side of Manchester Blvd. west of Aviation Blvd. in order to provide appropriate merging distances.	0.888	D
		PM	N/A		0.893	D
		AP	N/A		1.180	F
Intersection 15	Aviation and Rosecrans	AM	N/A	Mitigation performed in 2008.	1.107	F
		PM	N/A		1.190	F
		AP	N/A		1.183	F
Intersection 18	Centinela and Jefferson	AM	N/A	Mitigation performed in 2008.	0.919	E
		PM	N/A		1.105	F
		AP	N/A		0.736	C
Intersection 22	Centinela and Sepulveda	AM	N/A	Mitigation performed in 2008.	1.227	F
		PM	N/A		1.205	F
		AP	N/A		0.904	E
Intersection 26	Century and La Cienega	AM	N/A	Project Component Improvements call for restriping the intersection to provide the following lane configuration: NB[12] - 1 LT, 2 TH, 1 TH/RT, 1 RT; SB - 1 LT, 3 TH, 1 RT; EB - 1 LT, 3 TH, 2 RT; WB - 1 LT, 3 TH, 1 TH/RT. This intersection is partially mitigated in all three time periods.	1.200	F
		PM	N/A		1.048	F
		AP	N/A		0.981	E
Intersection 27	Century and Sepulveda	AM	N/A	Mitigation performed in 2008.	0.768	C
		PM	N/A		0.755	C
		AP	N/A		0.568	A
Intersection 34	Douglas and Imperial	AM	N/A	Mitigation performed in 2008.	0.300	A
		PM	N/A		0.585	A
		AP	N/A		0.315	A
Intersection 35	Sepulveda and El Segundo	AM	N/A	Mitigation performed in 2008.	1.152	F
		PM	N/A		1.125	F
		AP	N/A		0.992	E
Intersection 36	Grand and Vista del Mar	AM	N/A	Mitigation for this impact involves restriping the WB approach from 1 LT, 1 LT/TH, 1 RT to 1 LT, 1 LTR, 1 RT.	0.819	D
		PM	N/A		0.431	A
		AP	N/A		0.430	A
Intersection 40	Florence and La Cienega	AM	N/A	Mitigation performed in 2008.	0.737	C
		PM	N/A		1.002	F
		AP	N/A		1.412	F
Intersection 43	Highland/Vista del Mar at Rosecrans	AM	N/A	Mitigation for this impact involves changing the WB RTOR[13] from Auto to OLA.[14]	1.145	F
		PM	N/A		1.297	F
		AP	N/A		0.771	C
Intersection 44	Howard Hughes Pkwy and Sepulveda	AM	N/A	Mitigation for this impact involves providing a fair-share contribution to MTA's[15] proposed Metro Rapid Program or other enhancements to benefit transit traveling to and from LAX. These enhancements would need to reduce the NB through trips by 164 vehicles in the PM peak hour.	0.574	A
		PM	N/A		0.908	E
		AP	N/A		0.574	A
Intersection 45	I-105 Fwy/Continental City Dr. and Imperial	AM	N/A	Mitigation performed in 2008.	0.451	A
		PM	N/A		0.534	A
		AP	N/A		0.652	B
Intersection 46	I-405 Fwy NB Ramps at Imperial	AM	N/A	Mitigation performed in 2008.	0.306	A
		PM	N/A		0.425	B
		AP	N/A		0.618	A

Table F5-6

Year 2015 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Peak Hour	Direction	Improvements	Conditions After Mitigation V/C[1]	Conditions After Mitigation LOS[2]
Intersection 47	Imperial and Main	AM	N/A	Mitigation for this impact involves changing the WB approach from 1 LT, 2 TH to 2 LT, 2 TH. This will require reducing the width of the median island on the east leg of the intersection.	0.532	A
		PM	N/A		0.824	D
		AP	N/A		0.518	A
Intersection 49	Imperial and Pershing	AM	N/A	Mitigation for this impact involves widening the north side of Imperial Highway east of Pershing Drive to install either a second right-turn lane or a free right-turn for westbound traffic. Also, the median is to be narrowed to allow 3 receiving lanes for a SB triple left-turn movement. The SB[16] lane configuration is to be changed from 1 LT, 1 LTR, 1 RT to 2 LT, 1 LT/TH, 1 RT.	0.543	A
		PM	N/A		0.656	B
		AP	N/A		0.363	A
Intersection 50	Imperial and Sepulveda	AM	N/A	Mitigation performed in 2008.	0.854	D
		PM	N/A		1.098	F
		AP	N/A		0.888	D
Intersection 51	Imperial and Vista del Mar	AM	N/A	Mitigation for this impact involves 1) changing the WB phasing from Perm to Split, and 2) changing the NB RTOR from Auto to OLA.	0.906	E
		PM	N/A		0.619	B
		AP	N/A		0.587	A
Intersection 52	Imperial and La Cienega	AM	N/A	This intersection remains unmitigated.	0.662	B
		PM	N/A		0.714	C
		AP	N/A		0.853	D
Intersection 57	Jefferson and Lincoln	AM	N/A	Mitigation performed in 2008.	1.048	F
		PM	N/A		1.146	F
		AP	N/A		0.794	C
Intersection 67	La Cienega and 111th	AM	N/A	Mitigation performed in 2008.	0.316	A
		PM	N/A		0.229	A
		AP	N/A		0.667	B
Intersection 71	La Cienega and Lennox	AM	N/A	The impact of this intersection is mitigated through the construction of the proposed Lennox Boulevard interchange.	N/A	N/A
		PM	N/A		N/A	N/A
		AP	N/A		N/A	N/A
Intersection 72	La Cienega and Manchester	AM	N/A	Mitigation performed in 2008.	0.751	C
		PM	N/A		0.772	C
		AP	N/A		1.179	F
Intersection 82	La Tijera and Manchester	AM	N/A	Mitigation for this impact involves changing the eastbound RT lane to a TH/RT lane on Manchester Avenue. This may require the removal of parking on Manchester Avenue, east of La Tijera Boulevard during the PM peak hour.	0.615	B
		PM	N/A		0.737	C
		AP	N/A		0.565	A
Intersection 83	La Tijera and Sepulveda	AM	N/A	Mitigation performed in 2008.	0.828	D
		PM	N/A		0.828	D
		AP	N/A		0.400	A
Intersection 87	Lincoln and 83rd	AM	N/A	Mitigation performed in 2008.	0.867	D
		PM	N/A		1.057	F
		AP	N/A		0.765	C

Table F5-6

Year 2015 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Peak Hour	Direction	Improvements	Conditions After Mitigation V/C[1]	Conditions After Mitigation LOS[2]
Intersection 88	Lincoln and Manchester	AM	N/A	Intersectional analysis assumed Playa Vista development mitigation already in place. Mitigation for this impact involves 1) widening the north and south legs of the intersections to install a NB and SB right-turn only lanes, 2) removing the median island on the east leg of the intersection to install a second WB left-turn lane, and 3) providing a fair-share contribution to MTA's proposed Metro Rapid Program or other enhancements to benefit transit traveling to and from LAX. These enhancements would need to reduce SB through trips by 99 vehicles during the AM peak hour. The lane configurations would be as follows: NB - 1 LT, 4 TH, 1 RT; SB - 1 LT, 3 TH, 1 RT; WB - 2 LT, 2 TH, 1 RT; EB - 2 LT, 2 TH, 1 TH/RT	0.838	D
		PM	N/A		1.169	F
		AP	N/A		0.808	D
Intersection 94	Lincoln and Teale	AM	N/A	Mitigation performed in 2008.	0.798	C
		PM	N/A		0.976	E
		AP	N/A		0.649	B
Intersection 99	Manchester and Sepulveda	AM	N/A	Mitigation performed in 2008.	0.911	E
		PM	N/A		1.141	F
		AP	N/A		0.680	B
Intersection 100	Mariposa and Sepulveda	AM	N/A	Mitigation performed in 2008.	0.836	D
		PM	N/A		0.977	E
		AP	N/A		1.087	F
Intersection 103	Rosecrans and Sepulveda	AM	N/A	Mitigation performed in 2008.	1.211	F
		PM	N/A		1.564	F
		AP	N/A		1.156	F
Intersection 105	Sepulveda and I-105 ramp N/O[17] Imperial	AM	N/A	Mitigation performed in 2008.	1.151	F
		PM	N/A		1.048	F
		AP	N/A		0.841	D
Intersection 106	Sepulveda and 76th/77th	AM	N/A	Mitigation for this impact involves providing a fair-share contribution to MTA's proposed Metro Rapid Program or other enhancements to benefit transit traveling to and from LAX. These enhancements would need to reduce NB through trips by 30 vehicles during the PM peak hour.	0.671	B
			N/A		0.722	C
		PM				
		AP	N/A		0.663	B
Intersection 111	La Cienega and I-405 Ramps N/O Century	AM	N/A	The impact of this intersection is mitigated through the construction of the Lennox Boulevard interchange.	0.685	B
		PM	N/A		0.321	A
		AP	N/A		0.583	A
Intersection 312	El Segundo and La Cienega	AM	N/A	Mitigation for this impact involves an upgrade to the traffic signal to a ATSC/ATCS equivalent.	0.600	A
		PM	N/A		0.625	B
		AP	N/A		0.436	A
Intersection 16	Bali and Lincoln	AM	N/A	Mitigation for this impact involves providing a fair-share contribution to LA County's Route 90 At-Grade Extension Project from Lincoln Blvd. to Admiralty Way.[18]	0.559	A
		PM	N/A		0.726	C
		AP	N/A		0.657	B
Intersection 17	Centinela and Culver	AM	N/A	Mitigation for this impact involves changing the SB lane configuration from 1 LT, 1 TH, 1 TH/RT to 1 LT, 2 TH, 1 RT.	0.848	D
		PM	N/A		0.867	D
		AP	N/A		0.692	B
Intersection 20	Centinela and La Cienega	AM	N/A	Mitigation performed in 2008.	1.062	F
		PM	N/A		1.088	F
		AP	N/A		0.974	E
Intersection 25	Hawthorne/La Brea and Century	AM	N/A	Mitigation performed in 2008.	0.800	C
		PM	N/A		0.900	D
		AP	N/A		0.937	E

Table F5-6

Year 2015 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Peak Hour	Direction	Improvements	Conditions After Mitigation V/C[1]	Conditions After Mitigation LOS[2]
Intersection 39	Fiji and Lincoln	AM	N/A	Mitigation for this impact involves providing a fair-share contribution to LA County's Route 90 At-Grade Extension Project from Lincoln Blvd. to Admiralty Way.[18]	0.678	B
		PM	N/A		0.732	C
		AP	N/A		0.457	A
Intersection 42	Hawthorne and Imperial	AM	N/A	Mitigation performed in 2008.	0.613	B
		PM	N/A		0.772	C
		AP	N/A		0.896	D
Intersection 89	Lincoln and Marina Expy.			Mitigation for this impact involves 1) providing a fair-share contribution to LA County's Route 90 At-Grade Extension Project from Lincoln Blvd. to Admiralty Way[18] and 2) providing a fair-share contribution to MTA's proposed Metro Rapid Program or other enhancements to benefit transit traveling to and from LAX. These enhancements would need to reduce NB through trips by 246 vehicles during the AM peak hour, 354 NB through trips in the airport peak hour, and 201 NB through vehicles in the PM peak hour.		
		AM	N/A		1.011	F
		PM	N/A		1.085	F
		AP	N/A		0.786	C
Intersection 90	Lincoln and Maxella	AM	N/A	Mitigation for this impact involves providing a fair-share contribution to LA County's Route 90 gAt-Grade Extension Project from Lincoln Blvd. to Admiralty Way.[18]	0.693	B
		PM	N/A		0.888	D
		AP	N/A		0.799	C
Intersection 91	Lincoln and Mindanao	AM	N/A	Mitigation for this impact involves providing a fair-share contribution to LA County's Route 90 At-Grade Extension Project from Lincoln Blvd. to Admiralty Way.[18]	0.901	E
		PM	N/A		0.969	E
		AP	N/A		0.814	D
Intersection 96	Lincoln and Washington	AM	N/A	In addition to the mitigation performed in 2008, mitigation for this 2015 impact involves providing a fair-share contribution to LA County's Route 90 At-Grade Extension Project from Lincoln Blvd. to Admiralty Way.[18]	1.054	F
		PM	N/A		0.963	E
		AP	N/A		0.669	B
Intersection 136	Sepulveda and 79th/80th	AM	N/A	Mitigation for this intersection involves 1) widening the north side of 79th/80th Street to allow the WB approach to be restriped with 1 LT, 1 TH, 1 TH/RT, and 2) providing a fair-share contribution to MTA's proposed Metro Rapid Program or other enhancements to benefit transit traveling to and from LAX. These enhancements would need to reduce NB through trips by 335 vehicles and SB through trips by 48 vehicles during the PM peak hour.	0.674	B
		PM	N/A		0.845	D
		AP	N/A		0.541	A
Intersection 137	Sepulveda and 83rd	AM	N/A	Mitigation for this intersection involves providing a fair-share contribution to MTA's proposed Metro Rapid Program or other enhancements to benefit transit traveling to and from LAX. These enhancements would need to reduce NB through trips by 264 vehicles during the PM peak hour.	0.727	C
		PM	N/A		0.911	E
		AP	N/A		0.395	A
Intersection 309	Hawthorne and Lennox	AM	N/A	The impact of this intersection is mitigated through the construction of the Lennox Boulevard interchange.	0.502	A
		PM	N/A		0.639	B
		AP	N/A		0.717	C
Intersection 310	Inglewood and Lennox	AM	N/A	The impact of this intersection is mitigated through the construction of the Lennox Boulevard interchange.	0.661	B
		PM	N/A		0.724	C
		AP	N/A		0.658	B

Table F5-6

Year 2015 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Peak Hour	Direction	Improvements	Conditions After Mitigation V/C[1]	Conditions After Mitigation LOS[2]
Intersection 502	Arbor Vitae and Inglewood	AM	N/A	Mitigation for this impact involves restriping the SB lane configuration from 1 LTR to 1 LT, 1 TH, 1 RT. This would require the removal of parking on the west side of Inglewood Blvd, north of Arbor Vitae St.	0.703	C
		PM	N/A		0.727	C
		AP	N/A		0.783	C
Intersection 503	Century and Inglewood	AM	N/A	Mitigation performed in 2008.	0.715	C
		PM	N/A		0.729	C
		AP	N/A		0.829	D
Intersection 505	Imperial and Inglewood	AM	N/A	Mitigation performed in 2008.	0.785	C
		PM	N/A		1.016	F
		AP	N/A		0.901	E
Intersection 506	Arbor Vitae and La Brea	AM	N/A	Mitigation for this impact involves an upgrade of the traffic signal to ATSAC/ATCS equivalent.	0.614	B
		PM	N/A		0.650	B
		AP	N/A		0.819	D
Link 1	Lincoln S/O Venice	AM	NB/EB	Fair-share contributions to regional transit service will mitigate the impacts of this link.	0.775	N/A
			SB/WB		0.915	N/A
		PM	NB/EB		0.969	N/A
			SB/WB		0.910	N/A
		AP	NB/EB		0.773	N/A
			SB/WB		0.806	N/A
Link 2	Centinela S/O Venice	AM	NB/EB	Fair-share contributions to regional transit service will mitigate the impacts of this link.	0.933	N/A
			SB/WB		0.661	N/A
		PM	NB/EB		0.859	N/A
			SB/WB		0.901	N/A
		AP	NB/EB		0.762	N/A
			SB/WB		0.858	N/A
Link 3	Sawtelle S/O Venice	AM	NB/EB	Fair-share contributions to regional transit service will mitigate the impacts of this link.	0.561	N/A
			SB/WB		0.617	N/A
		PM	NB/EB		0.505	N/A
			SB/WB		0.824	N/A
		AP	NB/EB		0.603	N/A
			SB/WB		0.780	N/A
Link 4	Sepulveda S/O Venice	AM	NB/EB	Fair-share contributions to regional transit service will mitigate the impacts of this link.	0.909	N/A
			SB/WB		0.717	N/A
		PM	NB/EB		1.106	N/A
			SB/WB		0.933	N/A
		AP	NB/EB		0.896	N/A
			SB/WB		0.956	N/A
Link 5	Overland S/O Venice	AM	NB/EB	Fair-share contributions to regional transit service will mitigate the impacts of this link.	N/A	N/A
			SB/WB		N/A	N/A
		PM	NB/EB		N/A	N/A
			SB/WB		N/A	N/A
		AP	NB/EB		N/A	N/A
			SB/WB		N/A	N/A
Link 8	Centinela E/O La Brea	AM	NB/EB	Integration of an ATSAC-equivalent improvement will mitigate the impacts of this link.	0.394	N/A
			SB/WB		0.909	N/A
		PM	NB/EB		0.688	N/A
			SB/WB		1.148	N/A
		AP	NB/EB		0.719	N/A
			SB/WB		0.536	N/A
Link 13	Imperial W/O La Brea	AM	NB/EB	Integration of an ATSAC-equivalent improvement will mitigate the impacts of this link.	0.246	N/A
			SB/WB		0.342	N/A
		PM	NB/EB		0.563	N/A
			SB/WB		0.338	N/A
		AP	NB/EB		0.699	N/A
			SB/WB		0.717	N/A

Table F5-6

Year 2015 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison)

Facility Number	Facility Name	Peak Hour	Direction	Improvements	Conditions After Mitigation V/C[1]	Conditions After Mitigation LOS[2]
Link 20	Jefferson E/O Lincoln	AM	NB/EB	Fair-share contributions to regional transit service will mitigate the impacts of this link.	0.799	N/A
			SB/WB		0.508	N/A
		PM	NB/EB		0.539	N/A
			SB/WB		1.110	N/A
		AP	NB/EB		0.287	N/A
			SB/WB		0.440	N/A
Link 21	Lincoln S/O Jefferson	AM	NB/EB	Fair-share contributions to regional transit service will mitigate the impacts of this link.	0.802	N/A
			SB/WB		0.587	N/A
		PM	NB/EB		0.930	N/A
			SB/WB		0.709	N/A
		AP	NB/EB		0.617	N/A
			SB/WB		0.487	N/A
Link 22	Culver W/O Jefferson	AM	NB/EB	Fair-share contributions to regional transit service will mitigate the impacts of this link.	0.720	N/A
			SB/WB		0.309	N/A
		PM	NB/EB		0.555	N/A
			SB/WB		0.913	N/A
		AP	NB/EB		0.432	N/A
			SB/WB		0.505	N/A
Link 28	El Segundo W/O Hawthorne	AM	NB/EB	Integration of an ATSAC-equivalent improvement will mitigate the impacts of this link.	0.171	N/A
			SB/WB		0.484	N/A
		PM	NB/EB		0.778	N/A
			SB/WB		0.355	N/A
		AP	NB/EB		0.687	N/A
			SB/WB		0.872	N/A
Ramp 19	I-405 NB on-ramp and Century EB	AM	N/A	Addition of Lennox Interchange and I-105 ramps fully mitigate this impact.	0.599	N/A
		PM	N/A		0.933	N/A
		AP	N/A		0.571	N/A
Ramp 26	I-405 SB on-ramp and El Segundo	AM	N/A	Addition of Lennox Interchange and I-105 ramps fully mitigate this impact.	0.244	N/A
		PM	N/A		1.043	N/A
		AP	N/A		0.297	N/A
Ramp 35	I-105 WB off-ramp and Nash	AM	N/A	Addition of Lennox Interchange and I-105 ramps fully mitigate this impact.	1.155	N/A
		PM	N/A		0.238	N/A
		AP	N/A		0.631	N/A

1 V/C = Volume to Capacity ratio.
2 LOS = Level of Service.
3 N/A = Not Applicable.
4 WB = Westbound.
5 TH = Through.
6 RT = Right turn.
7 AP = Airport peak hour.
8 LT = Left turn.
9 EB = Eastbound.
10 ATSAC = Automated Traffic Surveillance and Control.
11 ATCS = Adaptive Traffic Control System.
12 NB = Northbound.
13 RTOR = Right turn on red.
14 OLA = Overlap allowed.
15 MTA = Metropolitan Transportation Authority.
16 SB = Southbound.
17 N/O = North of.
18 LA County's *Marina Expressway (SR-90) Connector Road to Admiralty Way* project is currently under environmental review and project funding has not been determined. Date of completion is targeted for 2011.
19 S/O = South of

Source: Barton-Aschman Associates, Inc., 2002.

Further, a more detailed mitigation phasing plan that shows the mitigation measures needed prior to operating each specific Alternative D project is show in **Table F5-7**, Off Airport Surface Transportation Phasing Plan.

Table F5-7

Off-Airport Surface Transportation Phasing Plan

Phase	Facility	Mitigation Measures Needed
1A	West Employee Parking Garage	♦ Complete off-site intersectional improvements at: ♦ Grand Avenue and Vista del Mar ♦ Highland Avenue/Vista del Mar and Rosecrans Boulevard ♦ Imperial Highway and Main Street ♦ Imperial Highway and Pershing Drive ♦ Imperial Highway and Sepulveda Boulevard ♦ Imperial Highway and Vista del Mar ♦ Jefferson Boulevard and Lincoln Boulevard ♦ Lincoln Boulevard and Manchester Avenue ♦ Lincoln Boulevard and Teale Street ♦ Rosecrans Avenue and Sepulveda Boulevard ♦ 83rd Street and Lincoln Boulevard; ♦ Provide a fair-share contribution to LA County's "Marina Expressway to Admiralty Way" project OR complete alternative off-site intersectional improvements at the following intersections: ♦ Bali Way and Lincoln Boulevard ♦ Fiji Way and Lincoln Boulevard ♦ Lincoln Boulevard and Marina Expressway ♦ Lincoln Boulevard and Maxella Avenue ♦ Lincoln Boulevard and Mindanao Way ♦ Lincoln Boulevard and Washington Boulevard ♦ Provide a fair-share contribution toward the LAC-MTA's Metro Rapid Bus Line Expansion Program (possible concepts include but are not limited to paying for larger or additional buses from those planned by the LAC-MTA or paying the cost of retrofitting some buses to better accommodate airline passengers and their baggage to and from LAX) OR other enhancements to benefit transit to and from LAX (possible concepts include but are not limited to traffic signal priority improvements for bus flow, transit marketing, airport employee and/or air passenger fare subsidies) to mitigate the following intersections: ♦ Imperial Highway and Sepulveda Boulevard ♦ Jefferson Boulevard and Lincoln Boulevard ♦ Lincoln Boulevard and Manchester Avenue ♦ Lincoln Boulevard and Marina Expressway ♦ Lincoln Boulevard and Teale Street ♦ Lincoln Boulevard and Washington Boulevard

Table F5-7

Off-Airport Surface Transportation Phasing Plan

Phase	Facility	Mitigation Measures Needed
1B	Intermodal Transportation Center (ITC)	♦ Complete pedestrian connection between ITC and Green Line light rail station south of Imperial Highway; ♦ Complete the project-component widening of Aviation Boulevard between Century Boulevard and Imperial Highway. This includes the mitigation of adding a second SB left-turn lane at 111th Street; ♦ Complete the project-component roadway improvements (discontinuous widening) along 111th Street between Aviation Boulevard and La Cienega Boulevard. This includes the mitigation of adding a second WB right-turn lane at Aviation Boulevard; ♦ Widen northbound I-405 off-ramp at Imperial Highway; ♦ Provide a "fair-share" contribution toward the LAC-MTA's Metro Rapid Bus Line Expansion Program (possible concepts include but are not limited to paying for larger or additional buses from those planned by the LAC-MTA or paying the cost of retrofitting some buses to better accommodate airline passengers and their baggage to and from LAX) OR other enhancements to benefit transit to and from LAX (possible concepts include but are not limited to traffic signal priority improvements for bus flow, transit marketing, airport employee and/or air passenger fare subsidies) to mitigate the following intersections: ♦ Centinela Avenue and Sepulveda Boulevard ♦ Howard Hughes Parkway and Sepulveda Boulevard ♦ Manchester Avenue and Sepulveda Boulevard ♦ Mariposa Avenue and Sepulveda Boulevard ♦ 76th St/77th St and Sepulveda Boulevard ♦ 79th St/ 80th St and Sepulveda Boulevard ♦ 83rd Street and Sepulveda Boulevard ♦ I-105 Freeway Westbound off-ramp at Sepulveda Boulevard ♦ Complete off-site intersectional improvements at: ♦ I-105 Freeway ramps/Continental City Drive & Imperial Highway (at-grade intersectional improvement only) • I-405 northbound off-ramp at Imperial Highway ♦ Aviation Boulevard and El Segundo Boulevard ♦ Aviation Boulevard and Imperial Highway ♦ Aviation Boulevard and Rosecrans Boulevard ♦ ♦ ♦ Douglas Street and Imperial Highway ♦ El Segundo Boulevard and La Cienega Boulevard ♦ La Cienega Boulevard and 111th Street ♦ Manchester Avenue and Sepulveda Boulevard ♦ Mariposa Avenue and Sepulveda Boulevard ♦ 79th Street/80th Street and Sepulveda Boulevard
1C	Southeast Surface Parking	♦ Complete construction of the project-component internal north-south airport roadway that bisects the surface parking lot and terminates at 111th Street.
1D	Consolidated Rent-a-Car Center	♦ Complete off-site intersectional improvements at: ♦ Airport Boulevard and Arbor Vitae Street ♦ Airport Boulevard and Manchester Avenue ♦ Centinela Avenue and Jefferson Boulevard ♦ Centinela Avenue and Sepulveda Boulevard ♦ Century Boulevard and Sepulveda Boulevard ♦ La Tijera Boulevard and Manchester Avenue ♦ La Tijera Boulevard and Sepulveda Boulevard ♦ Sepulveda Boulevard and I-105 Freeway WB Off-Ramp north of Imperial Highway
1F	Ground Transportation Center (including Commercial Vehicle Holding Area)	♦ Complete project-component GTC/ITC Roadways and Century Bridge; ♦ Complete project-component realignment of 104th Street east of the internal airport roadways to connect to 102nd Street ♦ Complete project-component widening of Arbor Vitae Street between Aviation Boulevard and La Cienega Boulevard. This includes the mitigation of installing a second WB left-turn lane at Aviation Boulevard and an EB right-turn lane at La Cienega Boulevard; ♦ Complete project-component widening of Aviation Boulevard between Arbor Vitae Street and Century Boulevard;

Table F5-7

Off-Airport Surface Transportation Phasing Plan

Phase	Facility	Mitigation Measures Needed
		♦ Complete project-component roadway improvements on La Cienega Boulevard between Arbor Vitae Street and Imperial Highway. This includes the mitigation of installing an additional through lane for NB traffic at Arbor Vitae Street; ♦ Complete project-component roadway improvements on Century Boulevard between Aviation Boulevard and Glasgow Place; ♦ Widen the off-ramp from southbound I-405 Freeway north of Century Boulevard at La Cienega Boulevard; ♦ Complete off-site intersectional improvements at: ♦ Arbor Vitae Street and Inglewood Avenue ♦ Arbor Vitae Street and La Brea Avenue ♦ ♦ Aviation Boulevard and Manchester Boulevard ♦ Centinela Avenue and Culver Boulevard ♦ Centinela Avenue and La Cienega Boulevard ♦ Century Boulevard and Hawthorne Blvd/La Brea Avenue ♦ Century Boulevard and Inglewood Avenue ♦ Century Boulevard and La Cienega Boulevard ♦ El Segundo Boulevard and Sepulveda Boulevard ♦ Florence Avenue and La Cienega Boulevard ♦ Hawthorne Boulevard and Imperial Highway ♦ Imperial Highway and Inglewood Avenue ♦ La Cienega Boulevard and Manchester Boulevard ♦ Begin construction of direct connection between I-105 Freeway ramps and internal airport roadways east of ITC (See Note 7); ♦ Begin construction of I-405 Interchange at Lennox Boulevard (See Note 7)

Notes:

1 For a detailed description of intersectional improvements, see Tables F4.3.2-28 and F4.3.2-29.

2 LADOT may recommend that temporary Certificates of Occupancy be granted in the event of any delay: 1) by Caltrans on encroachment permits, or 2) in obtaining required approvals from other City departments, government agencies or jurisdictions through no fault of Los Angeles World Airports, provided that LAWA has demonstrated reasonable efforts and due diligence to the satisfaction of LADOT.

3 In all cases, except as noted in (2) above, the required Traffic Mitigation or Project Component of each sub-phase for the corresponding land use sub-phase shall be guaranteed to the satisfaction of LADOT and City of Los Angeles Public Works prior to the issuance of any Building Permit and completed prior to the issuance of any Certificate of Occupancy permit.

4 Where appropriate, as determined by LAWA and LADOT, revisions may be made to this Phasing Plan.

5 Appropriate transit improvements to the LAC-MTA bus system to and from LAX and "fair-share" contributions to the LA County's "Marina Expressway to Admiralty Way" project must be agreed upon by LAWA, LADOT, FAA, and the respective outside agency. Depending on the outcome of the negotiations to determine LAWA's appropriate level and types of transit improvement or "fair-share" contribution, this phasing plan may be altered at the discretion of LADOT. FAA approval may still be required for substitute mitigations. Mitigation measures are applicable only to the extent that the use of airport revenue to funds such measures is permissible under federal law and policies.

6 In the event the applicant is unable to obtain necessary construction permits from the concerned agencies in a timely fashion, a temporary certificate of occupancy may be granted by the City provided the applicant has demonstrated reasonable efforts to complete the necessary designs and improvements to the satisfaction of LADOT. Should any improvement not receive required approval, the City may substitute an alternative measure of an equivalent effectiveness.

7 LAWA will strive for completion of both the direct freeway connections from the I-405 Freeway at Lennox Boulevard and from the I-105 Freeway onto the airport roadways east of the ITC. If these freeway improvements are not completed in time for the opening of the GTC, LAWA may be required to implement substitute mitigation improvements prior to opening the GTC, including, but not limited to, Changeable Message Signs to direct traffic and/or Closed Circuit Television Cameras to monitor traffic flow, to the satisfaction of LADOT.

8 For proposed LAX Master Plan facilities not listed, such as the CTA Landside Terminals, South CTA Concourse Rework, Satellite Concourse, Tom Bradley International Terminal Rework, North CTA Concourse, or LAX Northside, there are no traffic mitigations or project components to be specifically phased with the construction of those components.

9 Prior to the issuance of any final certificate of occupancy in the final phase of the Off-Airport Transportation Phasing Plan, all required improvements in the entire phasing plan shall be funded, completed, or resolved to the satisfaction of LADOT.

Source: Los Angeles World Airports (LAWA), 2002.

Relocation

- **MM-RBR-1. Phasing for Business Relocations (Alternatives A, B, C, and D).**

  To maximize opportunities for airport/airport-dependent businesses and other businesses being acquired to relocate in proximity to their current sites, LAWA shall, to the maximum degree feasible, reschedule acquisition phasing and/or development phasing to accommodate interested parties on airport property in a manner that would avoid delays to the overall construction and development schedule. First priority shall be given to airport/airport-dependent businesses, such as air freight forwarders and hotels, whose relocation off of the airport would present a unique hardship. Master Plan Commitment RBR-1, Residential and Business Relocation Program (Alternatives A, B, C, and D), can also serve to mitigate significant effects stemming from the acquisition program by using LAWA ANMP funds to redevelop noise impacted residential property for industrial uses.

The following mitigation measure is proposed to further address potential project-level and cumulative impacts associated with business relocation.

- **MM-RBR-2. Relocation Opportunities through Aircraft Noise Mitigation Program (Alternatives A, B, C, and D).**

  As a special project under the Aircraft Noise Mitigation Program (ANMP) for LAX, LAWA shall coordinate with the City of Inglewood and the County of Los Angeles to identify residential land uses that are subject to high levels of aircraft noise where land acquisition and conversion to compatible land uses is contemplated under applicable plans or is otherwise deemed appropriate. As residential uses are relocated outside of noise impacted areas under the ANMP, in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970, as amended, LAWA shall work with the jurisdictions to identify airport-related businesses interested in these sites. With support from the jurisdictions, as well as other businesses and organizations such as Gateway to L.A. that interact with LAWA. LAWA shall promote these sites for businesses subject to acquisition as part of the proposed LAX Relocation Plan business relocation assistance program. The multiple objectives of the effort shall be to mitigate noise impacted land uses, retain and promote local businesses dependent on airport proximity, and support local employment and economic growth. Areas under the City of Inglewood General Plan and redevelopment plan that are proposed for land use recycling along Century Boulevard shall be given high priority.

Air Quality

- **MM-AQ-1. LAX Master Plan - Mitigation Plan for Air Quality.**

  LAWA shall expand and revise the existing air quality mitigation programs at LAX through the development of an LAX Master Plan-Mitigation Plan for Air Quality (LAX MP-MPAQ). The LAX MP-MPAQ shall be developed in consultation with FAA, USEPA, CARB, and SCAQMD, as appropriate, and shall include technologically/legally feasible and economically reasonable methods to reduce air pollutant emissions from aircraft, GSE, traffic, and construction equipment both on and off the airport. The overall effect, and minimum requirement, of the LAX MP-MPAQ shall be reduced potential air pollutant emissions associated with implementation of the LAX Master Plan to levels equal to, if not less than, the post-mitigation levels identified in this Final EIS/EIR for the project. The LAX MP-MPAQ shall include feasible mitigation measures that are grouped into the following three categories:

  - Construction-Related Measure;
  - Transportation-Related Measure; and
  - Operations-Related Measure.

  The LAX MP-MPAQ will, initially, present the basic framework of the overall air quality mitigation program (basic LAX MP-MPAQ), and will, ultimately, define the specific measures to be implemented within the context of three (3) individual components specific to the categories of emissions indicated above (full LAX MP-MPAQ). Implementation of Mitigation Measure MM-AQ-2, Construction-Related Mitigation Measure, will define the specific measures to be included in the construction-related component; Mitigation Measure MM-AQ-3, Transportation-Related Mitigation Measure, will define the specific measures to be included in the surface transportation-related component; and Mitigation Measure MM-AQ-4, Operations-Related Mitigation Measure, will define the specific measures to be

included in the operations-related component. The basic framework of the LAX MP-MPAQ and the Construction-Related component will be developed prior to initiation of construction activities for the first project to be developed under the LAX Master Plan, and the development of the other two components will occur in conjunction with implementation of the Master Plan components that materially affect surface transportation emissions and operations emissions.

- **MM-AQ-2. Construction-Related Measure.**

The required components of the construction-related air quality mitigation measure are itemized below. These components include numerous specific actions to reduce emissions of fugitive dust and of exhaust emissions from on-road and nonroad mobile sources and stationary engines. All of these components must be in place prior to commencement of the first Master Plan construction project and must remain in place through build out of the Master Plan. An implementation plan will be developed, which provides available details as to how each of the elements of this construction-related mitigation measure will be implemented and monitored. Each construction subcontractor will be responsible to implement all measures that apply to the equipment and activities under his/her control, an obligation which will be formalized in the contractual documents, with financial penalties for noncompliance. LAWA will assign one or more environmental coordinators whose responsibility it will be to ensure compliance with the construction-related measure by use of direct inspections, records reviews, and investigation of complaints with reporting to LAWA management for follow-up action. The estimated ranges of emissions reductions quantified for this mitigation measure for Alternatives A, B, C, and D are shown in **Table F5-8,** Estimated Ranges of Emissions Reductions for Construction-Related Air Quality Mitigation Measures. Reliable emissions reductions were not able to be quantified for all of these components.

Table F5-8

Estimated Ranges of Emissions Reductions for Construction-Related Air Quality Mitigation Measures

Pollutant	Alternatives A, B, C, and D[1] (tons)
ROG	1 - 10
NO_X	300 - 1,100
CO	10 - 30
PM_{10}	140 - 400
SO_X	1 - 10

[1] In the year of peak construction emissions.

Source: Camp Dresser & McKee Inc., 2004.

The specific components of this construction-related air quality mitigation measure include:

1. Fugitive Dust Source Controls

   - Apply non-toxic soil stabilizer to all inactive construction areas (i.e., areas with disturbed soil).
   - Following the addition of materials to, or removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing non-toxic soil stabilizer.
   - Post a publicly visible sign with the telephone number and person to contact regarding dust complaints; this person shall respond and take corrective action within 24 hours.
   - Prior to final occupancy, the applicant demonstrates that all ground surfaces are covered or treated sufficiently to minimize fugitive dust emissions.
   - All roadways, driveways, sidewalks, etc. being installed as part of project should be completed as soon as possible; in addition, building pads should be laid as soon as possible after grading.
   - Pave all construction access roads at least 100 feet on to the site from the main road.

2. On-Road Mobile Source Controls

   - To the extent feasible, have construction employees work/commute during off-peak hours.
   - Make available on-site lunch trucks during construction to minimize off-site worker vehicle trips.

3. Nonroad Mobile Source Controls

   - Prohibit staging or parking of construction vehicles (including workers' vehicles) on streets adjacent to sensitive receptors such as schools, daycare centers, and hospitals.
   - Prohibit construction vehicle idling in excess of ten minutes.
   - Utilize on-site rock crushing facility during construction to reuse rock/concrete and minimize off-site truck haul trips.

4. Stationary Point Source Controls

   - Specify combination of electricity from power poles and portable diesel- or gasoline-fueled generators using "cleaner burning diesel" fuel and exhaust emission controls.

5. Mobile and Stationary Source Controls

   - Specify combination of construction equipment using "cleaner burning diesel" fuel and exhaust emission controls.
   - Suspend use of all construction equipment during a second-stage smog alert.
   - Utilize construction equipment having the minimum practical engine size (i.e., lowest appropriate horsepower rating for intended job).
   - Require that all construction equipment working on site is properly maintained (including engine tuning) at all times in accordance with manufacturers' specifications and schedules.
   - Prohibit tampering with construction equipment to increase horsepower or to defeat emission control devices.

6. Administrative Controls

   - The contractor or builder shall designate a person or persons to ensure the implementation of all components of the construction-related measure through direct inspections, records reviews, and investigations of complaints.

- **MM-AQ-3. Transportation-Related Measure.**

  The primary feature of the transportation-related air quality mitigation measure is the development and construction of at least eight (8) additional sites with FlyAway service similar to the service provided by the Van Nuys FlyAway currently operated by LAWA. The intent of these FlyAway sites is to reduce the quantity of traffic going to and from LAX by providing regional locations where LAX employees and passengers can pick up an LAX-dedicated, clean-fueled bus that will transport them from a FlyAway closer to their home or office into LAX and back. The reduction in vehicle miles traveled (VMT) translates directly into reduced air emissions, as well as a reduction in traffic congestion in the vicinity of the airport. An implementation plan will be developed which provides available details as to how each of the elements of this transportation-related mitigation measure will be implemented and monitored. The estimated emissions reductions associated with this component of the transportation-related air quality mitigation measure are shown in **Table F5-9,** Estimated Emissions Reductions (Tons) for Eight New FlyAway Terminals - 2015.

Table F5-9

Estimated Emissions Reductions (Tons) for Eight New FlyAway Terminals - 2015

Pollutant[1]	Alternative A	Alternative B	Alternative C	Alternative D
ROG	56.0	56.0	56.0	56.0
NO_X	82.9	82.9	82.9	82.9
CO	1064.5	1064.5	1064.5	1064.5
PM_{10}	152.6	152.6	152.6	152.6
SO_X	1.7	1.7	1.7	1.7

Note: Reductions are the combined totals from all new FlyAway capacity, and may include expansion of the existing FlyAway.

[1] Based on EMFAC2002 Emission Factors for Calendar Year 2015.

Source: Camp Dresser & McKee Inc., 2004.

The required two (2) elements of this transportation-related air quality mitigation measure include:

1. Development of New FlyAway Capacity:

Additional service capacity from at least eight (8) FlyAway service terminals are required under this measure, and all eight must be operational by 2015. LAWA has already begun analyzing potential FlyAway locations. Selection of the eight general locations should be made and included in the overarching air quality mitigation program plan discussed in Mitigation Measure MM-AQ-1, LAX Master Plan Mitigation Plan for Air Quality, as well as in the implementation plan for the transportation-related measures noted above. Final selection of the sites must be completed on a schedule that allows for property acquisition or leasing, terminal design, construction, and implementation of all sites by 2015.

The sites may include, but are not limited to the following:

- West San Fernando Valley/Eastern Ventura County
- Santa Monica/Pacific Palisades
- Central Los Angeles
- Long Beach/South Bay/San Pedro
- East San Fernando Valley
- San Gabriel Valley
- Southeast Los Angeles County
- North Los Angeles County

2. Public Outreach Program for FlyAway Service:

This measure also requires a public outreach program to inform potential users of the terminals about their existence and their locations. The outreach program would be geared towards encouraging the use of the FlyAways with convenience and low cost being the primary selling points.

Other feasible mitigation elements may be developed to ensure that the emission reductions for this transportation-related measure are achieved. These may include, for example:

Transit Ridership measures such as:

- Constructing on-site or off-site bus turnouts, passenger benches, or shelters to encourage transit system use.
- Constructing on-site or off-site pedestrian improvements/including showers for pedestrian employees to encourage walking/bicycling to work by LAX employees.

Highway and Roadway Improvements measures such as:

- Linking ITS with off-airport parking facilities with ability to divert/direct trips to these facilities to reduce traffic/parking congestion and associate air emissions in the immediate vicinity of the airport.
- Expanding ITS/ATCS systems, concentrating on I-405 and I-105 corridors, extending into South Bay and Westside surface street corridors to reduce traffic/parking congestion and associate air emissions in the immediate vicinity of the airport.
- Linking LAX traffic management system with airport cargo facilities, with ability to reroute cargo trips to/from these facilities to reduce traffic/parking congestion and associate air emissions in the immediate vicinity of the airport.
- Developing a program to minimize the use of conventional-fueled fleet vehicles during smog alerts to reduce air emissions from vehicles at the airport.

Parking measures such as:

- Providing free parking and preferential parking locations for ULEV/SULEV/ZEV in all (including employee) LAX lots; providing free charging stations for ZEV; including public outreach to reduce air emissions from automobiles accessing airport parking.
- Measures to reduce air emissions of vehicles in line to exit parking lots such as pay-on-foot (before getting into car) to minimize idle time at parking check out, including public outreach.
- Implementing on-site circulation plan in parking lots to reduce time and associated air emissions from vehicles circulating through lots looking for parking.
- Encouraging video conferencing and providing video conferencing capabilities at various locations on the airport to reduce VMT in associated air emissions in the vicinity of the airport.

Additional Ridesharing measures such as:

- Expanding the airport's ridesharing program to include all airport tenants.

Clean Vehicle Fleets measure such as:

- Promoting commercial vehicles/trucks/vans using terminal areas (LAX and regional intermodal) to install SULEV/ZEV engines to reduce vehicle air emissions.
- Promoting "best-engine" technology (SULEV/ZEV) for rental cars using on-airport RAC facilities to reduce vehicle air emissions.
- Consolidating nonrental car shuttles using SULEV/ZEV engines to reduce vehicle air emissions.

Energy Conservation measures such as:

- Covering, if feasible, any parking structures that receive direct sunlight, to reduce volatile emissions from vehicle gasoline tanks; and installing solar panels on these roofs where feasible to supply electricity or hot water to reduce power production demand and associated air emissions at utility plants.

These other components may require the approval of other federal, state, regional, and/or local government agencies. It should be noted that no air quality benefit (i.e., pollutant reduction) was estimated in this Final EIS/EIR for these additional components; hence, implementation of any of these other components would, in conjunction with the FlyAway terminals described above, provide for additional air quality benefits over and above amount of transportation-related pollutant reductions accounted for in this Final EIS/EIR.

- **MM-AQ-4. Operations-Related Measure.**

The primary component of the operations-related air quality mitigation measure consists of one airside item, the conversion of ground support equipment (GSE) to extremely low emission technology, (such as electric power, fuel cells, or future technological developments). Due to the magnitude of the effort to convert GSE, it must be a phased program and must be completed at build

out of the Master Plan in 2015. An implementation plan will be developed which provides available details as to how each of the elements of this operations-related mitigation measure will be implemented and monitored. Because this effort will apply to all GSE in use at LAX, both LAWA-owned equipment and tenant-owned equipment, the effort must begin upon City approval of the LAX Plan with a detailed inventory of the number, types, sizes, and usage history of all GSE at LAX. Because some of the tenant organizations (mainly the major domestic commercial airlines) have signed a memorandum of understanding (MOU) with the California Air Resources Board (CARB) that requires the signatories to replace a proportion of their GSE fleet with clean-fuel alternatives (including zero-emission equipment), it will be necessary for LAWA to evaluate the level of its commitment within the framework of the MOU. Because LAWA anticipates facilitating this component by providing incentives or tenant lease requirements, early negotiations with tenant organizations may allow LAWA to accommodate cost-sharing agreements to implement the GSE conversions in a timely manner, to make LAWA's financial commitment as cost effective as possible. LAWA will assign a GSE coordinator whose responsibility it will be to ensure the successful conversion of GSE in a timely manner. This coordinator must have adequate authority to negotiate on behalf of the city and have sufficient technical support to evaluate technical issues that arise during implementation of this measure. The estimated ranges of emissions reductions quantified for this component of the operations-related measure for Alternatives A, B, C, and D are shown in **Table F5-10,** Estimated Ranges of Emissions Reductions for GSE Conversion.

Table F5-10

Estimated Ranges of Emissions Reductions for GSE Conversion

Pollutant	Alternatives A, B, C, and D[1] (tons)
ROG	10 - 100
NO_X	300 - 400
CO	500 - 1000
PM_{10}	1 - 10
SO_X	1 - 5

[1] In the build-out year, 2015.

Source: Camp Dresser & McKee Inc., 2004.

The successful conversion of all GSE at LAX to zero emission or extremely low emission equipment by 2015 is the required component of this mitigation measure.

Consideration of other operations-related measures may include components such as contracting with commercial landscapers who operate lowest emitting equipment. Reliable emissions reductions have not been quantified for these other components.

An extensive list of potential mitigation measures was developed by the LAX Master Plan Team during preparation of the Draft EIS/EIR; that list was provided in Attachment X of Technical Report 4, *Air Quality Technical Report*. Based on the list of potential mitigation measures from the Draft EIS/EIR and public comments received on the Draft EIS/EIR, the LAX Master Plan Team refined the list of potential mitigation measures, which was discussed in Section 2.3 of Appendix S-E, *Supplemental Air Quality Impact Analysis*. Taking into account the air quality mitigation measure components recommended in the Supplement to the Draft EIS/EIR and public comments received on the Supplement to the Draft EIS/EIR, this Final EIS/EIR lists above the most "technologically/legally feasible and economically reasonable methods" as selected mitigation measures.

The required elements of the air quality mitigation measures include those components that have readily quantifiable air quality benefits. Those components of the air quality mitigation measures that may also be considered for implementation have air quality benefits that cannot easily be quantified. Air quality modeling was conducted for each of the build alternatives to identify the range of emission reductions associated with the readily quantifiable mitigation components.

With respect to the elements of the air quality mitigation measures that have air quality benefits that cannot readily be quantified, no emission reduction has been calculated for these components in reducing the project's significant air quality impacts and no credit has been accounted for these components in the dispersion modeling. Nonetheless, LAWA may consider implementing these elements. This approach represents a conservative quantitative analysis of air quality impacts following mitigation. For this reason, expected air quality impacts should in fact be less than those predicted in the mitigated analyses presented in this Final EIS/EIR.

Hydrology and Water Quality

The following mitigation measure is recommended to reduce cumulative drainage impacts within the Argo, Imperial, and Dominguez Channel sub-basins.

- **MM-HWQ-1. Upgrade Regional Drainage Facilities (Alternatives A, B, C, and D).**

  Regional drainage facilities should be upgraded, as necessary, in order to accommodate current and projected future flows within the watershed of each storm water outfall resulting from cumulative development. This could include upgrading the existing outfalls, or building new ones. The responsibility for implementing this mitigation measure lies with the Los Angeles County Department of Public Works and/or the City of Los Angeles Department of Public Works, Bureau of Engineering. A portion of the increased costs for the upgraded flood control and drainage facilities would be paid by LAX tenants and users in accordance with the possessory interest tax laws and other legal assessments, consistent with federal airport revenue diversion laws and regulations and in compliance with state, county and city laws. The new or upgraded facilities should be designed in accordance with the drainage design standards of each agency.

Historic/Architectural and Archaeological/Cultural Resources

- **MM-HA-1. Historic American Buildings Survey (HABS) Document (Alternatives A, B, C, and D).**

  For historic properties eligible at the federal, state, or local levels that are proposed for demolition or partial demolition (i.e., the Intermediate Terminal Complex under Alternatives A, B, and C; the International Airport Industrial District under Alternatives A, B, C, and D; and the Merle Norman Headquarters Complex under Alternative B), a Historic American Buildings Survey (HABS) document shall be prepared by LAWA in accordance with the Secretary of the Interior's Guidelines for Architectural and Engineering Documentation Standards. The level of documentation (I, II, or III) shall be determined by the National Park Service (NPS). Documentation shall adequately explicate and illustrate what is significant or valuable about each of the historic resources. Documentation data shall be collected prior to commencement of demolition of the buildings. Archival copies of the recordation document shall be submitted to the National Park Service, Library of Congress, and the California Office of Historic Preservation. Non-archival copies of the document shall be distributed to the City of Los Angeles Planning Department, City of Los Angeles Cultural Affairs Department, Los Angeles Public Library (main branch), Los Angeles Conservancy, and LAWA's Public Relations Division.

- **MM-HA-2. Historic Educational Materials (Alternatives A, B, C, and D).**

  For the significant historic resource proposed for demolition or partial demolition, educational materials suitable for the general public, secondary school use, and/or aviation historians and enthusiasts shall be designed with the assistance of a qualified historic preservation professional and implemented by LAWA. The purpose of these materials shall be to present in two- or three-dimensional format, the history of the airport and surrounding area. Such materials shall include, but not be limited to, a video/film documentary, curriculum program and teacher's guide, architectural models, and a historical brochure or pamphlet. These materials shall be made available via LAWA's public relations department to the general public, local community school history programs, and related interest groups.

- **MM-HA-3. Hangar One Relocation (Alternative B).**

  The relocation of Hangar One shall avoid demolition of the structure. Upon SHPO approval, the hangar shall be relocated to an appropriate site within the original Mines Field boundary. Maintaining the building's National Register listing and the majority of its aspects of integrity after relocation is the

primary objective of the FAA, LAWA, SHPO, and the ACHP. Therefore, the relocation site selected shall have a similar setting, location, feeling, and association. The building's design, materials, and workmanship shall be retained. Prior to the relocation of the building, a relocation document shall be prepared by LAWA in accordance with the guidelines outlined in the Department of the Interior's Regulations 36 CFR 60.14(b): National Register of Historic Places, Relocating Properties Listed in the National Register. The physical relocation process of this building shall follow state and federal relocation recommendations and standards approved and utilized by SHPO and NPS. Because of its construction, this two-story, rectangular shaped brick and concrete structure is a good candidate for relocation. Rehabilitation of this building after relocation shall conform to the Secretary of the Interior's Standards and Guidelines for Rehabilitation of Historic Structures.

Prior to relocation, a HABS document shall be prepared by LAWA in accordance with the Secretary of the Interior's Guidelines for Architectural and Engineering Documentation Standards. The level of documentation (I, II, or III) shall be determined by the National Park Service. Documentation shall adequately explicate and illustrate what is significant or valuable about the historic resource being documented.

- **MM-HA-4. Discovery (Alternatives A, B, C, and D).**

  The FAA shall prepare an archaeological treatment plan (ATP), in consultation with SHPO, that ensures the long-term protection and proper treatment of those unexpected archaeological discoveries of federal, state, and/or local significance found within the APE of the selected alternative. The ATP shall include a monitoring plan, research design, and data recovery plan. The ATP shall be consistent with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation;[1042] California Office of Historic Preservation's (OHP) *Archaeological Resources Management Report*, Recommended Contents and Format (1989), and the *Guidelines for Archaeological Research Design* (1991); and shall also take into account the ACHP's publication *Treatment of Archaeological Properties: A Handbook*. The ATP shall also be consistent with the Department of the Interior's Guidelines for Federal Agency Responsibility under Section 110 of the NHPA. In addition, those steps outlined in Section 21083.2(i) of CEQA and Section 15064.5(f) of the CEQA Guidelines shall be implemented, as necessary.

- **MM-HA-5. Monitoring (Alternatives A, B, C, and D).**

  Any grading and excavation activities within LAX proper or the acquisition areas that have not been identified as containing redeposited fill material or as having been previously disturbed shall be monitored by a qualified archaeologist. The archaeologist shall be retained by LAWA and shall meet the Secretary of the Interior's Professional Qualifications Standards.[1043] The project archaeologist shall be empowered to halt construction activities in the immediate area if potentially significant resources are identified. Test excavations may be necessary to reveal whether such findings are significant or insignificant. In the event of notification by the project archaeologist that a potentially significant or unique archaeological/cultural find has been unearthed, LAWA shall be notified and grading operations shall cease immediately in the affected area until the geographic extent and scientific value of the resource can be reasonably verified. Upon discovery of an archaeological resource or Native American remains, LAWA shall retain a Native American monitor from a list of suitable candidates obtained from the Native American Heritage Commission.

- **MM-HA-6. Excavation and Recovery (Alternatives A, B, C, and D).**

  Any excavation and recovery of identified resources (features) shall be performed using standard archaeological techniques and the requirements stipulated in the ATP. Any excavations, testing, and/or recovery of resources shall be conducted by a qualified[1044] archaeologist selected by LAWA.

- **MM-HA-7. Administration (Alternatives A, B, C, and D).**

  Where known resources are present, all grading and construction plans shall be clearly imprinted with all of the archaeological/cultural mitigation measures. All site workers shall be informed in writing by

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1042 48 FR 44634-37.

1043 48 FR 22716, September 1983.

1044 The Secretary of the Interior's Professional Qualifications Standards (48 FR 22716, September 1983).

the on-site archaeologist of the restrictions regarding disturbance and removal as well as procedures to follow should a resource deposit be detected.

- **MM-HA-8. Archaeological/Cultural Monitor Report (Alternatives A, B, C, and D).**

  Upon completion of grading and excavation activities in the vicinity of known archaeological resources, the Archaeological/Cultural monitor shall prepare a written report. The report shall include the results of the fieldwork and all appropriate laboratory and analytical studies that were performed in conjunction with the excavation. The report shall be submitted in draft form to the FAA, LAWA, and City of Los Angeles-Cultural Affairs Department. City representatives shall have 30 days to comment on the report. All comments and concerns shall be addressed in a final report issued within 30 days of receipt of city comments.

- **MM-HA-9. Artifact Curation (Alternatives A, B, C, and D).**

  All artifacts, notes, photographs, and other project-related materials recovered during the monitoring program shall be curated at a facility meeting federal and state standards.

- **MM-HA-10. Archaeological Notification (Alternatives A, B, C, and D).**

  If human remains are found, all grading and excavation activities in the vicinity shall cease immediately and the appropriate LAWA authority shall be notified; compliance with those procedures outlined in Section 7050.5(b) and (c) of the State Health and Safety Code, Section 5097.94(k) and (i) and Section 5097.98(a) and (b) of the Public Resources Code shall be required. In addition, those steps outlined in Section 15064.5(e) of the CEQA Guidelines shall be implemented.

Paleontological Resources

- **MM-PA-1. Paleontological Qualification and Treatment Plan (Alternatives A, B, C, and D).**

  A qualified paleontologist shall be retained by LAWA to develop an acceptable monitoring and fossil remains treatment plan (that is, a Paleontological Management Treatment Plan - PMTP) for construction-related activities that could disturb potential unique paleontological resources within the project area. This plan shall be implemented and enforced by the project proponent during the initial phase and full phase of construction development. The selection of the paleontologist and the development of the monitoring and treatment plan shall be subject to approval by the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County to comply with paleontological requirements, as appropriate.

- **MM-PA-2. Paleontological Authorization (Alternatives A, B, C, and D).**

  The paleontologist shall be authorized by LAWA to halt, temporarily divert, or redirect grading in the area of an exposed fossil to facilitate evaluation and, if necessary, salvage. No known or discovered fossils shall be destroyed without the written consent of the project paleontologist.

- **MM-PA-3. Paleontological Monitoring Specifications (Alternatives A, B, C, and D).**

  Specifications for paleontological monitoring shall be included in construction contracts for all LAX projects involving excavation activities deeper than six feet.

- **MM-PA-4. Paleontological Resources Collection (Alternatives A, B, C, and D).**

  Because some fossils are small, it will be necessary to collect sediment samples of promising horizons discovered during grading or excavation monitoring for processing through fine mesh screens. Once the samples have been screened, they shall be examined microscopically for small fossils.

- **MM-PA-5. Fossil Preparation (Alternatives A, B, C, and D).**

  Fossils shall be prepared to the point of identification and catalogued before they are donated to their final repository.

- **MM-PA-6. Fossil Donation (Alternatives A, B, C, and D).**

  All fossils collected shall be donated to a public, nonprofit institution with a research interest in the materials, such as the Los Angeles County Museum of Natural History.

- **MM-PA-7. Paleontological Reporting (Alternatives A, B, C, and D).**

  A report detailing the results of these efforts, listing the fossils collected, and naming the repository shall be submitted to the lead agency at the completion of the project.

Biotic Communities

- **MM-BC-1. Conservation of State-Designated Sensitive Habitat Within and Adjacent to the El Segundo Blue Butterfly Habitat Restoration Area (Alternatives A, B, C, and D).**

  LAWA or its designee shall take all necessary steps to ensure that the state-designated sensitive habitats within and adjacent to the Habitat Restoration Area are conserved and protected during construction, operation, and maintenance. These steps shall, at a minimum, include the following:

  Implementation of construction avoidance measures in areas where construction or staging are adjacent to the Habitat Restoration Area. Prior to the initiation of construction of LAX Master Plan components to be located adjacent to the Habitat Restoration Area, LAWA or its designee shall conduct a pre-construction evaluation to identify and flag specific areas of state-designated sensitive habitats located within 100 feet of construction areas. Subsequent to the pre-construction evaluation, LAWA or its designee shall conduct a pre-construction meeting and provide written construction avoidance measures to be implemented in areas adjacent to state-designated sensitive habitats. Construction avoidance measures include erecting a 10-foot-high tarped chain-link fence where the construction or staging area is adjacent to state-designated sensitive habitats to reduce the transport of fugitive dust particles related to construction activities. Soil stabilization, watering, or other dust control measures, as feasible and appropriate, shall be implemented to reduce fugitive dust emissions during construction activities within 2,000 feet of the El Segundo Blue Butterfly Habitat Restoration Area, with a goal to reduce fugitive dust emissions by 90 to 95 percent**.** In addition, to the extent feasible, no grading or stockpiling for construction activities should take place within 100 feet of a state-designated sensitive habitat. LAWA or its designee shall incorporate provisions for the identification of additional construction avoidance measures to be implemented adjacent to state-designated sensitive areas. All construction avoidance measures that address Best Management Practices shall be clearly stated within construction bid documents. In addition, LAWA shall include a provision in all construction bid documents requiring the presence of a qualified environmental monitor. Construction drawings shall indicate vegetated areas within the Habitat Restoration Area as "Off-Limits Zone."

  Ongoing maintenance and management efforts for the El Segundo Blue Butterfly Habitat Restoration Area. LAWA or its designee shall ensure that maintenance and management efforts prescribed in the Habitat Management Plan (HMP) for the Habitat Restoration Area shall continue to be carried out as prescribed.

  Pre-Construction Surveys to determine presence/absence of California spineflower. Under Alternative A, only, pre-construction surveys will be undertaken during the optimum time of year to determine the presence/absence of individuals of California spineflower within the proposed area of impact within the Habitat Restoration Area. The California spineflower is known to be sparsely distributed in subsite 3 within the Habitat Restoration Area. Should the species be determined present, individuals will be salvaged and relocated to a suitable location within the Habitat Restoration Area. Prior to construction, LAWA or its designee shall develop and implement a relocation plan to avoid the potential loss of individuals from the installation of navigational aids and associated service roads. Relocation efforts shall be undertaken by a qualified biologist, in coordination with CDFG.

- **MM-BC-2. Conservation of Floral Resources: Lewis' Evening Primrose (Alternatives A, B, C, and D).**

  LAWA or its designee shall prepare and implement a plan to compensate for the loss of individuals of the sensitive Lewis' evening primrose, currently located at the westerly end of the north runway and within the Habitat Restoration Area. LAWA or its designee shall collect seed from those plants to be removed, and properly clean and store the collected seed until used. If possible, seeds shall be collected in multiple years to ensure an adequate seed supply for planting. A mitigation site of suitable habitat equal to the area of impact shall be delineated within areas of the Los Angeles/El Segundo Dunes as described in MM-BC-10. Collected seed shall be broadcast (distributed) after the first wetting rain. LAWA or its designee shall implement a monitoring plan to monitor the

establishment of individuals of Lewis' evening primrose for a period of not more than five years. Performance criteria shall include the establishment of an equal number of plants as that impacted in the first year following the distribution of seed within the mitigation site. Performance criteria shall also include confirmation of recruitment for two years following the first year flowering is observed and establishment of individuals throughout the mitigation area within three years following the first year flowering is observed. Monitoring shall be undertaken in the manner set forth in MM-BC-5.

- **MM-BC-3. Conservation of Floral Resources: Mature Tree Replacement (Alternatives A, B, C, and D).**

  LAWA or its designee shall prepare and implement a plan to compensate at a ratio of 2:1 for the loss of approximately 300 mature trees, which would occur as a result of implementation of the LAX Northside/Westchester Southside project. The plan shall include provisions to census and map all mature trees with a diameter of at least 8 inches at breast height, which may be removed due to implementation of the Westchester Southside Plan. This information shall be gathered prior to initiation of construction. The plan shall include a program by which replacement (at a ratio of 2:1) of all impacted mature trees shall be included in plans prepared for landscape treatments within the Master Plan boundaries, which would then be implemented by LAWA. The species of newly planted replacement trees shall be local native tree species to the greatest extent feasible. Each mitigation tree shall be at least a 15-gallon or larger specimen.

- **MM-BC-4. Conservation of Faunal Resources (Alternatives A, B, and C).**

  LAWA or its designee shall develop and implement a relocation and monitoring plan to compensate for the loss of 1.34 habitat units (0.3 habitat units + 1.04 habitat units) of occupied western spadefoot toad habitat and for the loss of western spadefoot toad individuals currently in the southwestern portion of the AOA. LAWA or its designee shall identify possible relocation sites in consultation with the CDFG and USFWS and shall develop and implement a monitoring plan to monitor the success of the relocated tadpoles for a period of not more than five years. LAWA or its designee shall relocate the western spadefoot toad population currently inhabiting three locations on the AOA. One potential site is the Madrona Marsh Nature Center in Torrance, 20 miles south of LAX, which supports several vernal pools and one large pond capable of supporting western spadefoot toads.[1045] Spadefoot toad experts suggest the best approach to accomplish relocation is to transport tadpoles and metamorphs only, as adults return to their birth site.[1046] Site preparation shall include confirmation by a permitted biologist that no predators, such as mosquitofish or bullfrogs, are present within the proposed relocation site or in waterways surrounding the relocation site. The CDFG has suggested that if the first relocation effort is not successful, another attempt should be made the following year.[1047] Therefore, western spadefoot toads shall be collected two consecutive years prior to construction activities taking place in existing occupied spadefoot toad habitat. In addition, since the western spadefoot toad is known to become reproductively mature within three years, an additional performance criterion shall be the identification of tadpoles at the relocation site between years three and four. The success criteria should be 50 percent survival of all tadpoles and metamorphs for the first, second, and third years following the last relocation. This shall be accomplished through a five-year monitoring plan, with bi-monthly monitoring between January 31 and June 1, to document the success of this relocation effort.

  LAWA or its designee shall develop and implement a relocation and monitoring plan to compensate for the loss of 14.91 habitat units (5.82 habitat units + 9.09 habitat units) of occupied San Diego black-tailed jackrabbit habitat located within the AOA. LAWA or its designee shall relocate the San Diego black-tailed jackrabbit population currently inhabiting the AOA. Relocation efforts shall be coordinated with CDFG. The San Diego black-tailed jackrabbit shall be captured on the AOA using live traps and shall be released into the Habitat Restoration Area. Compensation for the loss of 14.91 habitat units shall be the utilization of at least 14.91 habitat units within the Los Angeles/El Segundo Dunes by the San Diego black-tailed jackrabbit individuals relocated to the site. Black-tailed

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1045 Wright, Walt, Madrona Marsh Nature Center, Personal Communication, April 28, 1998.

1046 Fisher, Dr. Robert, California State University San Diego, Frank Hovore, Hovore and Associates, Dr. Steve Moray, U.S. Fish and Wildlife Service, Personal Communication, April 28, 1998.

1047 Maxwell, Dwayne, California Department of Fish and Game, Letter to Dr. Brad Blood, Sapphos Environmental, Inc., April 29, 1998.

jackrabbit is currently absent from the Los Angeles/El Segundo Dunes. Opportunities for compensation for the loss of 14.91 habitat units are described in MM-BC-5 and include 13.52 habitat units from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Foredune; and 59.68 habitat units from restoration of Disturbed Dune Scrub/Foredune to Southern Foredune. LAWA or its designee shall implement a monitoring plan to monitor the success of the relocated individuals for a period of not more than five years. Performance criteria shall include confirmed success of survival for three years of the San Diego black-tailed jackrabbit within the Habitat Restoration Area. This shall be accomplished through a quarterly monitoring plan to document the success or failure of this relocation effort.

LAWA or its designee shall compensate for the loss of areas utilized by loggerhead shrike currently located on the western airfield and composed of 22.88 habitat units (17.06 habitat units + 5.82 habitat units). Compensation for the loss of 22.88 habitat units of habitat utilized by the loggerhead shrike shall be the utilization of at least 22.88 habitat units within the Los Angeles/El Segundo Dunes. Opportunities for compensation for the loss of 22.88 habitat units are described in MM-BC-5 and include 13.52 habitat units from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Foredune; and 59.68 habitat units from restoration of Disturbed Dune Scrub/Foredune to Southern Foredune. Compensation for the loss of at least 22.88 habitat units shall take place prior to construction. LAWA or its designee shall implement a monitoring program for a period of not more than five years. Performance criteria shall include the use of at least 22.8 habitat units by the loggerhead shrike for foraging and nesting. Monitoring shall take place quarterly for the first three years and biannually thereafter. Monitoring shall be timed appropriately to include monitoring during the breeding period, which is between February and June.

As a means of minimizing incidental take of active nests of loggerhead shrike, LAWA or its designee shall have all areas to be graded surveyed by a qualified biologist at least 14 days before construction activities begin to ensure maximum avoidance to active nests for loggerhead shrike. Construction avoidance measures shall include flagging of all active nests for loggerhead shrike and a 300 feet wide buffer area shall be designated around the active nests. A biological monitor shall be present to ensure that the buffer area is not infringed upon during the active nesting season, March 15 to August 15. In addition, LAWA or its designee shall require that vegetation clearing within the designated 300 feet buffer be undertaken after August 15 and before March 15.

LAWA or its designee shall conduct pre-construction surveys to determine the presence of individuals of sensitive arthropod species, the silvery legless lizard, the San Diego horned lizard, and the burrowing owl within the proposed area of impact within the Los Angeles/El Segundo Dunes. Surveys will be conducted at the optimum time to observe these species. Should an individual be observed, they will be relocated to suitable habitat for that species within the Habitat Restoration Area. Prior to construction, LAWA or its designee shall develop and implement a relocation plan to avoid the potential loss of individuals from the installation of navigational aids and associated service roads. Relocation efforts shall be undertaken by a qualified biologist, in coordination with CDFG.

- **MM-BC-5. Replacement of Habitat Units (Alternative A).**

LAWA or its designee shall undertake mitigation for the loss of habitat units resulting from implementation of Alternative A. Implementation of Alternative A would result in the loss of 61.27 habitat units. These habitat units shall be replaced at a ratio of 1:1 within the Los Angeles/El Segundo Dunes. Opportunities for compensation for the loss of 61.27 habitat units include 13.52 habitat units (16.9 acres x 0.8 Habitat Value) from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Foredune (36.11 acres of streets within the Los Angeles/El Segundo Dunes x 0.5 x 0.8 Habitat Value); and 59.68 habitat units from restoration of Disturbed Dune Scrub/Foredune to Southern Foredune (74.6 acres x 0.8 Habitat Value). A habitat value of 0.8 is considered to be the maximum feasible target value for restoration and enhancement of biotic communities. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the

Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

Valley Needlegrass Grassland restoration efforts consist of site preparation, propagation and planting of species characteristic of the Valley Needlegrass Grassland community at the Los Angeles/El Segundo Dunes, and maintenance and monitoring of the restoration site. The species to be planted include native perennials as described in the Long-Term Habitat Management Plan for Los Angeles Airport/El Segundo Dunes.[1048] The characteristic species include nodding needlegrass (*Nasella cernua*): 1,500 plants/habitat unit; white everlasting (*Gnaphlium microcephalum*): 40 plants/habitat unit; doveweed (*Eremocarpus setigerus*): 40 plants/habitat unit; California croton (*Croton californica*): 45 plants/habitat unit; and dune primrose (*Camissonia chieranthifolia*): 70 plants/habitat unit.[1049] Site preparation includes physical demarcation of the site, mapping of the restoration site onto a one inch equals 40 feet aerial photograph, and removal of all non-native species (weed abatement). Removal of non-native herbaceous species shall take place by mowing prior to seed set, raking to remove cut material, and hand-pulling the remainder. Removal of non-native shrubs shall be undertaken by cutting and daubing with herbicide. Propagation and planting of nodding needlegrass shall be accomplished by propagation from seed collected on-site during late spring/early summer. Seed shall be properly cleaned, dried, and stored until used. In late summer, nodding needlegrass seed shall be propagated at an on-site nursery in two-inch thimble pots and properly maintained. Nodding needlegrass shall be planted at a rate of 1,500 plants per habitat unit within Non-Native Grassland/Ruderal community, within the Los Angeles/El Segundo Dunes, which has undergone site preparation as described above. Planting shall take place in the fall or after the first wetting rain. Maintenance of restoration plantings shall consist of adequate irrigation and weed abatement. Given the irregularity of rainfall in southern California, supplemental irrigation shall be provided for two years to ensure the successful establishment of mitigation plantings. Irrigation of the site shall be adjusted to adequately provide for the establishment of the out-plantings. Weed abatement shall take place on a quarterly basis for a period of five years. Monitoring shall be undertaken on a quarterly basis for the first three years following planting, and twice a year thereafter. Monitoring shall consist of qualitative and quantitative monitoring; quantitative monitoring shall take place once a year. Performance criteria to be met include the attainment of at least a 10 percent cover of native cover in the first year and 20, 30, 40, and 45 percent cover of native species over a five-year period as determined by the point-intercept transect method (the CDFG has adopted a 10 percent threshold of native cover as its criteria for significance of native grasslands).[1050] This plan assumes the performance criteria outlined above shall be met. If monitoring discerns any failure in performance goals, remedial plantings shall be undertaken. Habitat restoration shall be conducted by a qualified habitat restoration specialist.

Southern Foredune restoration efforts consist of site preparation, propagation, and planting of the species characteristic of the Southern Foredune community at the Los Angeles/El Segundo Dunes, and maintenance and monitoring of the restoration site. The species to be planted include primary and secondary perennial plants as described in the Long-Term Habitat Management Plan for Los Angeles Airport/El Segundo Dunes.[1051] Site preparation, propagation and planting, and maintenance and monitoring shall take place as described above. Performance criteria to be met include the attainment of 10, 20, 30, 40, and 45 percent cover of native species over a five-year period as determined by the point-intercept method. The Long-Term Habitat Management Plan for Los Angeles Airport/El Segundo Dunes assumes the performance criteria stated above shall be met. If monitoring discerns any failure in performance goals, remedial plantings shall be undertaken. Habitat restoration shall be conducted by a qualified habitat restoration specialist.

1048 Environmental Science Associates in Association with Sapphos Environmental, Inc. and Rudolf H. T. Mattoni, Ph. D. Long-term Habitat Management Plan for Los Angeles Airport/El Segundo Dunes. Prepared for City of Los Angeles, Environmental Affairs Department, July 23, 1992.

1049 Mattoni, R., El Segundo Sand Dunes Revegetation at LAX, Report, Contract C-86086, City of Los Angeles, Environmental Affairs Department, November 16, 1994.

1050 Keeley, Jon E., "The California Valley Grassland," in Allan A. Schoenherr (ed.). Endangered Plant Communities of Southern California, Southern California Botanists Special Publication, No. 3, 1990, p. 17.

1051 Environmental Science Associates in Association with Sapphos Environmental, Inc. and Rudolf H. T. Mattoni, Ph. D., Long-term Habitat Management Plan for Los Angeles Airport/El Segundo Dunes, prepared for City of Los Angeles, Environmental Affairs Department, July 23, 1992, pp. B-1.

Any combination of habitat replacement completed by LAWA or its designee drawn from the above-listed opportunities that equals at least 61.27 habitat units shall be considered sufficient replacement for the loss of habitat units resulting from implementation of Alternative A.

- **MM-BC-6. Replacement of Habitat Units (Alternative B).**

  LAWA or its designee shall undertake mitigation for the loss of habitat units resulting from implementation of Alternative B. Implementation of Alternative B would result in the loss of 67.81 habitat units. These habitat units shall be replaced at a ratio of 1:1 within the Los Angeles/El Segundo Dunes. Opportunities for compensation for the loss of 67.81 habitat units include 13.52 habitat units (16.9 acres x 0.8 Habitat Value) from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Foredune (36.11 acres of streets within the Los Angeles/El Segundo Dunes x 0.5 x 0.8 Habitat Value); and 59.68 habitat units from restoration of Disturbed Dune Scrub/Foredune to Southern Foredune (74.6 acres x 0.8 Habitat Value). A habitat value of 0.8 is considered to be the maximum feasible target value for restoration and enhancement of biotic communities. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

  Valley Needlegrass Grassland and Southern Foredune restoration efforts shall be the same as described under Alternative A.

  Any combination of habitat replacement completed by LAWA or its designee drawn from the opportunities listed under Alternative A that equals at least 67.81 habitat units shall be considered sufficient replacement for the loss of habitat units resulting from implementation of Alternative B.

- **MM-BC-7. Replacement of Habitat Units (Alternative C).**

  LAWA or its designee shall undertake mitigation for the loss of habitat units resulting from implementation of Alternative C. Implementation of Alternative C would result in the loss of 49.87 habitat units. These habitat units shall be replaced at a 1:1 ratio within the Los Angeles/El Segundo Dunes. Opportunities for compensation for the loss of 49.87 habitat units include: 13.52 habitat units (16.9 acres x 0.8 Habitat Value) from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Foredune (36.11 acres of streets within the Los Angeles/El Segundo Dunes x 0.5 x 0.8 Habitat Value); and 59.68 habitat units from restoration of Disturbed Dune Scrub/Foredune to Southern Foredune (74.6 acres x 0.8 Habitat Value). A habitat value of 0.8 is considered to be the maximum feasible target value for restoration and enhancement of biotic communities. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

  Valley Needlegrass Grassland and Southern Foredune restoration efforts shall be the same as described under Alternative A.

  Any combination of habitat replacement completed by LAWA or its designee drawn from the opportunities listed under Alternative A that equals at least 49.87 habitat units shall be considered sufficient replacement for the loss of habitat units resulting from implementation of Alternative C.

- **MM-BC-8. Replacement of Habitat Units (Alternative D).**

  LAWA or its designee shall undertake mitigation for the loss of habitat units resulting from implementation of Alternative D. Implementation of Alternative D would result in the loss of 45.43 habitat units. These habitat units shall be replaced at a 1:1 ratio within the Los Angeles/El Segundo Dunes. Opportunities for compensation for the loss of 45.43 habitat units include 13.52 habitat units

(16.9 acres x 0.8 Habitat Value) from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Foredune (36.11 acres of streets within the Los Angeles/El Segundo Dunes x 0.5 x 0.8 Habitat Value); and 59.68 habitat units from restoration of Disturbed Dune Scrub/Foredune to Southern Foredune (74.6 acres x 0.8 Habitat Value). A habitat value of 0.8 is considered to be the maximum feasible target value for restoration and enhancement of biotic communities. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

Valley Needlegrass Grassland and Southern Foredune restoration efforts shall be the same as described under Alternative A.

Any combination of habitat replacement completed by LAWA or its designee drawn from the opportunities listed under Alternative D that equals at least 45.43 habitat units shall be considered sufficient replacement for the loss of habitat units resulting from implementation of Alternative D.

- **MM-BC-9. Conservation of Faunal Resources (Alternative D).**

LAWA or its designee shall develop and implement a relocation and monitoring plan to compensate for the loss of 1.34 habitat units (0.3 habitat units + 1.04 habitat units) of occupied western spadefoot toad habitat and for the loss of western spadefoot toad individuals currently in the southwestern portion of the AOA. LAWA or its designee shall identify possible relocation sites in consultation with the CDFG and USFWS and shall develop and implement a monitoring plan to monitor the success of the relocated tadpoles for a period of not more than five years. LAWA or its designee shall relocate the western spadefoot toad population currently inhabiting three locations on the AOA. One potential site is the Madrona Marsh Nature Center in Torrance, 20 miles south of LAX, which supports several vernal pools and one large pond capable of supporting western spadefoot toads.[1052] Spadefoot toad experts suggest the best approach to accomplish relocation is to transport tadpoles and metamorphs only, as adults return to their birth site.[1053] Site preparation shall include confirmation by a permitted biologist that no predators, such as mosquitofish or bullfrogs, are present within the proposed relocation site or in waterways surrounding the relocation site. The CDFG has suggested that if the first relocation effort is not successful, another attempt should be made the following year.[1054] Therefore, western spadefoot toads shall be collected two consecutive years prior to construction activities taking place in existing occupied spadefoot toad habitat. In addition, since the western spadefoot toad is known to become reproductively mature within three years, an additional performance criterion shall be the identification of tadpoles at the relocation site between years three and four. The success criteria should be 50 percent survival of all tadpoles and metamorphs for the first, second, and third years following the last relocation. This shall be accomplished through a five-year monitoring plan, with bi-monthly monitoring between January 31 and June 1, to document the success of this relocation effort.

LAWA or its designee shall develop and implement a relocation and monitoring plan to compensate for the loss of 2.38 habitat units of occupied San Diego black-tailed jackrabbit habitat located within the AOA. LAWA or its designee shall relocate the San Diego black-tailed jackrabbit population currently inhabiting the AOA. Relocation efforts shall be coordinated with CDFG. The San Diego black-tailed jackrabbit shall be captured on the AOA using live traps and shall be released into the Habitat Restoration Area. Compensation for the loss of 2.38 habitat units shall be the utilization of at least 2.38 habitat units within the Los Angeles/El Segundo Dunes by the San Diego black-tailed jackrabbit individuals relocated to the site. Black-tailed jackrabbit is currently absent for the Los Angeles/El Segundo Dunes. Opportunities for compensation for the loss of 2.38 habitat units include

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1052 Wright, Walt, Madrona Marsh Nature Center, Personal Communication, April 28, 1998.

1053 Fisher, Dr. Robert, California State University San Diego, Frank Hovore, Hovore and Associates, Dr. Steve Moray, U.S. Fish and Wildlife Service, Personal Communication, April 28, 1998.

1054 Maxwell, Dwayne, California Department of Fish and Game, Letter to Dr. Brad Blood, Sapphos Environmental, Inc., April 29, 1998.

13.52 habitat units from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Foredune; and 59.68 habitat units from restoration of Disturbed Dune Scrub/Foredune to Southern Foredune. LAWA or its designee shall implement a monitoring plan to monitor the success of the relocated individuals for a period of not more than five years. Performance criteria shall include confirmed success of survival for three years of the San Diego black-tailed jackrabbit within the Habitat Restoration Area. This shall be accomplished through a quarterly monitoring plan to document the success or failure of this relocation effort.

LAWA or its designee shall compensate for the loss of areas utilized by loggerhead shrike currently located on the western airfield and composed of 10.83 habitat units (equivalent to 83.25 acres). Compensation for the loss of 10.83 habitat units of habitat utilized by the loggerhead shrike shall be the utilization of at least 10.83 habitat units within the Los Angeles/El Segundo Dunes. Opportunities for compensation for the loss of 10.83 habitat units include 13.52 habitat units from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Foredune; and 59.68 habitat units from restoration of Disturbed Dune Scrub/Foredune to Southern Foredune. Compensation for the loss of at least 10.83 habitat units shall take place prior to construction. LAWA or its designee shall implement a monitoring program for a period of not more than five years. Performance criteria shall include the use of at least 10.83 habitat units of improved habitat by the loggerhead shrike for foraging and nesting. Monitoring shall take place quarterly for the first three years and biannually thereafter. Monitoring shall be timed appropriately to include monitoring during the breeding period, which is between February and June.

As a means of minimizing incidental take of active nests of loggerhead shrike, LAWA or its designee shall have all areas to be graded surveyed by a qualified biologist at least 14 days before construction activities begin to ensure maximum avoidance to active nests for loggerhead shrike. Construction avoidance measures shall include flagging of all active nests for loggerhead shrike and a 300 feet wide buffer area shall be designated around the active nests. A biological monitor shall be present to ensure that the buffer area is not infringed upon during the active nesting season, March 15 to August 15. In addition, LAWA or its designee shall require that vegetation clearing within the designated 300 feet buffer be undertaken after August 15 and before March 15.

LAWA or its designee shall conduct pre-construction surveys to determine the presence of individuals of sensitive arthropod species, the silvery legless lizard, the San Diego horned lizard, and the burrowing owl within the proposed area of impact within the Los Angeles/El Segundo Dunes. Surveys will be conducted at the optimum time to observe these species. Should an individual be observed, they will be relocated to suitable habitat for that species within the Habitat Restoration Area. Prior to construction, LAWA or its designee shall develop and implement a relocation plan to avoid the potential loss of individuals from the installation of navigational aids and associated service roads. Relocation efforts shall be undertaken by a qualified biologist, in coordination with CDFG.

- **MM-BC-10. Replacement of State-Designated Sensitive Habitat (Alternative A).**

LAWA or its designee shall undertake mitigation for the loss of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, including the Habitat Restoration Area. Installation of navigational aids and associated service roads under Alternative A would result in impacts to 58,476 square feet (1.34 acre) of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, including 30,261 square feet (0.70 acre) within the Habitat Restoration Area (of which 8,514 square feet (0.20 acre) are within habitat occupied by the El Segundo blue butterfly). These square feet shall be replaced at a no net loss ratio of 1:1 within the Los Angeles/El Segundo Dunes, including the Habitat Restoration Area. The replacement of 58,476 square feet (1.34 acres) of State-designated sensitive habitat shall be undertaken through restoration of 58,476 square feet (1.34 acres). Opportunities for restoration include: 16.9 acres of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 36.11 acres from removal and restoration of 50 percent of the existing roadways to Southern Foredune; and 74.6 acres of Disturbed Dune Scrub/Foredune to Southern Foredune. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement

between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

Valley Needlegrass Grassland restoration efforts consist of site preparation, propagation and planting of Valley Needlegrass Grassland species, and maintenance and monitoring of the restoration site as described in MM-BC-5, Replacement of Habitat Units (Alternative A).

Southern Foredune restoration efforts consist of site preparation, propagation, and planting of the species characteristic of the Southern Foredune community at the Los Angeles/El Segundo Dunes, and maintenance and monitoring of the restoration site as described in MM-BC-5, Replacement of Habitat Units (Alternative A).

Replacement of the 8,514 square feet (0.20 acre) of habitat occupied by the El Segundo blue butterfly shall be undertaken as described in MM-ET-2, El Segundo Blue Butterfly Conservation: Habitat Restoration (Alternatives A and B).

- **MM-BC-11. Replacement of State-Designated Sensitive Habitat (Alternative B).**

  LAWA or its designee shall undertake mitigation for the loss of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, including the Habitat Restoration Area. Installation of navigational aids and associated service roads under Alternative B would result in impacts to 50,492 square feet (1.16 acres) of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, including 16,811 square feet (0.39) within the Habitat Restoration Area (of which 2,316 square feet (0.05 acre) are within habitat occupied by the El Segundo blue butterfly). These square feet shall be replaced at a no net loss ratio of 1:1 within the Los Angeles/El Segundo Dunes, including the Habitat Restoration Area. The replacement of 50,492 square feet (1.16 acres) of State-designated sensitive habitat shall be undertaken through restoration of 50,492 square feet (1.16 acres). Opportunities for restoration include: 16.9 acres of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 36.11 acres from removal and restoration of 50 percent of the existing roadways to Southern Foredune; and 74.6 acres of Disturbed Dune Scrub/Foredune to Southern Foredune. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

  Valley Needlegrass Grassland and Southern Foredune restoration efforts shall be implemented the same as described under Alternative A.

  Replacement of the 2,316 square feet (0.05 acre) of habitat occupied by the El Segundo blue butterfly shall be undertaken as described in MM-ET-2, El Segundo Blue Butterfly Conservation: Habitat Restoration (Alternatives A and B).

- **MM-BC-12. Replacement of State-Designated Sensitive Habitat (Alternative C).**

  LAWA or its designee shall undertake mitigation for the loss of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, not including the Habitat Restoration Area. Installation of navigational aids and associated service roads under Alternative C would result in impacts to 30,210 square feet (0.69 acre) of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, not including the Habitat Restoration Area. These square feet shall be replaced at a no net loss ratio of 1:1 within the Los Angeles/El Segundo Dunes, not including the Habitat Restoration Area. The replacement of 30,210 square feet (0.69 acres) of State-designated sensitive habitat shall be undertaken through restoration of 30,210 square feet (0.69 acres). Opportunities for restoration include: 16.9 acres of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 36.11 acres from removal and restoration of 50 percent of the existing roadways to Southern Foredune; and 74.6 acres of Disturbed Dune Scrub/Foredune to Southern Foredune. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement between FAA

and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

Valley Needlegrass Grassland and Southern Foredune restoration efforts shall be implemented the same as described under Alternative A.

- **MM-BC-13. Replacement of State-Designated Sensitive Habitat (Alternative D).**

LAWA or its designee shall undertake mitigation for the loss of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, including the Habitat Restoration Area. Installation of navigational aids and associated service roads under Alternative D would result in impacts to 66,675 square feet (1.53 acres) of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, including 33,334 square feet (0.77 acre) within the Habitat Restoration Area (of which 10,597 square feet (0.24 acre) are within habitat occupied by the El Segundo blue butterfly. These square feet shall be replaced at a no net loss ratio of 1:1 ratio within the Los Angeles/El Segundo Dunes. The replacement of 66,675 square feet (1.53 acres) of State-designated sensitive habitat shall be undertaken through restoration of 66,675 square feet (1.53 acres). Opportunities for restoration include: 16.9 acres of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 36.11 acres from removal and restoration of 50 percent of the existing roadways to Southern Foredune; and 74.6 acres of Disturbed Dune Scrub/Foredune to Southern Foredune. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

Valley Needlegrass Grassland restoration efforts consist of site preparation, propagation and planting of Valley Needlegrass Grassland species, and maintenance and monitoring of the restoration site as described in MM-BC-5, Replacement of Habitat Units (Alternative A).

Southern Foredune restoration efforts consist of site preparation, propagation, and planting of the species characteristic of the Southern Foredune community at the Los Angeles/El Segundo Dunes, and maintenance and monitoring of the restoration site as described in MM-BC-5, Replacement of Habitat Units (Alternative A).

Replacement of the 10,597 square feet (0.24 acre) of habitat occupied by the El Segundo blue butterfly shall be undertaken as described in MM-ET-4, El Segundo Blue Butterfly Conservation: Habitat Restoration (Alternative D).

Endangered and Threatened Species of Flora and Fauna

- **MM-ET-1. Riverside Fairy Shrimp Habitat Restoration (Alternatives A, B, C, and D).**

LAWA or its designee shall undertake mitigation for impacts to 1.3 acres of degraded wetland habitat containing embedded cysts of Riverside fairy shrimp under Alternatives A, B, and C. Mitigation shall include the creation of vernal pool habitat at a mitigation ratio of not more than 3:1 at a suitable alternate location(s).

Under Alternative D, LAWA or its designee shall undertake mitigation for direct impacts to 0.04 acre (1,853 square feet) of degraded wetland habitat containing embedded cysts of the Riverside fairy shrimp and potential indirect impacts to 1.26 acres of degraded wetland habitat containing embedded cysts of the Riverside fairy shrimp. As specified in the Biological Opinion, soils containing embedded cysts of the Riverside fairy shrimp in 0.04 acres (1,853 square feet) shall be salvaged and relocated to property owned by the FAA and designated a habitat preserve at the former Marine Corps Air Station at El Toro, or comparable site(s) approved by the USFWS at a ratio of not more than 3:1. The 1.26 acres of degraded wetland habitat containing embedded cysts of the Riverside fairy shrimp retained on the LAX airfield shall be avoided through the implementation of construction avoidance measures, including Best Management Practices (BMPs), and the creation of a buffer area around the occupied, degraded areas. The FAA shall oversee the development of a Vernal Pool Creation, Maintenance, and Monitoring Plan for the embedded cysts to ensure that Alternative D would be consistent with the recommendations provided in the *Recovery Plan for Vernal Pools of Southern*

California[1055] and with the conservation measures provided in the Biological Opinion. As specified in the Biological Opinion, LAWA shall be responsible for all costs identified in the Vernal Pool Creation, Maintenance, and Monitoring Plan related to off-site relocation of soils containing cysts of the Riverside fairy shrimp, including entitlement for use and designation for long-term conservation, site preparation, monitoring, and maintenance.

Ongoing Section 7 consultation among LAWA, FAA, and USFWS has been necessary to identify suitable mitigation sites pursuant to Section 7 of the Endangered Species Act. As a result, extensive research has been conducted to identify sites that historically or currently support vernal pools or vernal pool- associated species in southern California. Information was gathered from the *Recovery Plan for Vernal Pools of Southern California*, the California Natural Diversity Database (CNDDB), and coordination with recognized experts in the field. This information was augmented through a review of geologic maps of the coastal portions of Los Angeles and topographic quadrangles for locations known to have historically supported vernal pools. A total of 35 potential relocation sites were identified for further site characterization (**Figure F5-2**, Vernal Pool Restoration Opportunities Considered).

Each of the 35 sites was visited and inspected by teams of biologists and environmental analysts. Analysis of site topography, historic or extant vernal pools, historic or extant vernal pool species, drainage features, climate, and parent material (from regional geologic maps) was conducted. Hazardous materials databases were consulted for information on known potential sources of contamination for those sites. In-field soil texture analysis was conducted, followed by laboratory analysis of collected soil samples. Land use at the site and surrounding the site was characterized, plant communities were characterized, and the presence or absence of suitable hydrology was determined.

Prioritization of the potential sites for the relocation of soils containing cysts of the Riverside fairy shrimp was based solely on the presence of physical and biological characteristics provided in the *Recovery Plan for Vernal Pools of Southern California* and did not reflect planning constraints indicated by current land uses. LAWA and FAA, in consultation with the USFWS, recommended the relocation of cysts to alternate locations within the Los Angeles County portion of the Los Angeles Basin-Orange Management Area for vernal pools (**Figure F5-2)**. The use of these sites within Los Angeles County was determined infeasible and LAWA undertook evaluation of the feasibility of vernal pools or vernal pool complexes located in the Orange County portion of the Los Angeles Basin-Orange Management Area and the Ventura County portion of the Transverse Management Area. As a result of consultation with the USFWS, property owned by the FAA and designated a habitat preserve at the former Marine Corps Air Station at El Toro was identified as a mitigation site for the receipt of soils containing embedded cysts of the Riverside fairy shrimp, or an alternate comparable site(s).

Once a suitable mitigation site(s) is secured, vernal pool creation shall be undertaken by LAWA or its designee, in consultation with the USFWS. Methods of vernal pool creation may vary depending on the physical and biological characteristics of the selected sites. LAWA or its designee, in conjunction with the USFWS and a qualified wildlife biologist, shall develop a program to monitor the progress of vernal pool creation. LAWA or its designee shall undertake the relocation of soils containing embedded cysts of Riverside fairy shrimp from the western portion of the airfield to the vernal pool mitigation sites. Soils containing embedded cysts of the Riverside fairy shrimp shall not be salvaged and translocated until the created vernal pool(s) is established and has met certain success criteria as described in detail below and included in the 12 conservation measures within the Biological Opinion.

Under Alternative D, soils containing embedded cysts of the Riverside fairy shrimp from EW001 and EW002 (**Figure F5-3**, North Area Ephemerally Wetted Pools and Buffer Areas) shall be salvaged and translocated to created vernal pool habitat on property owned by the FAA and designated as a habitat preserve at the former Marine Corps Air Station at El Toro (El Toro), or another site as approved by Carlsbad Fish and Wildlife Office (CFWO). The created vernal pool(s) shall contain a minimum of 5,559 square feet of vernal pool surface area (as determined by a 3:1 mitigation ratio). Soils

[1055] U.S. Fish and Wildlife Service, Vernal Pools of Southern California Recovery Plan, U.S. Department of the Interior, Fish and Wildlife Service, Region One, Portland, Oregon, 1998.

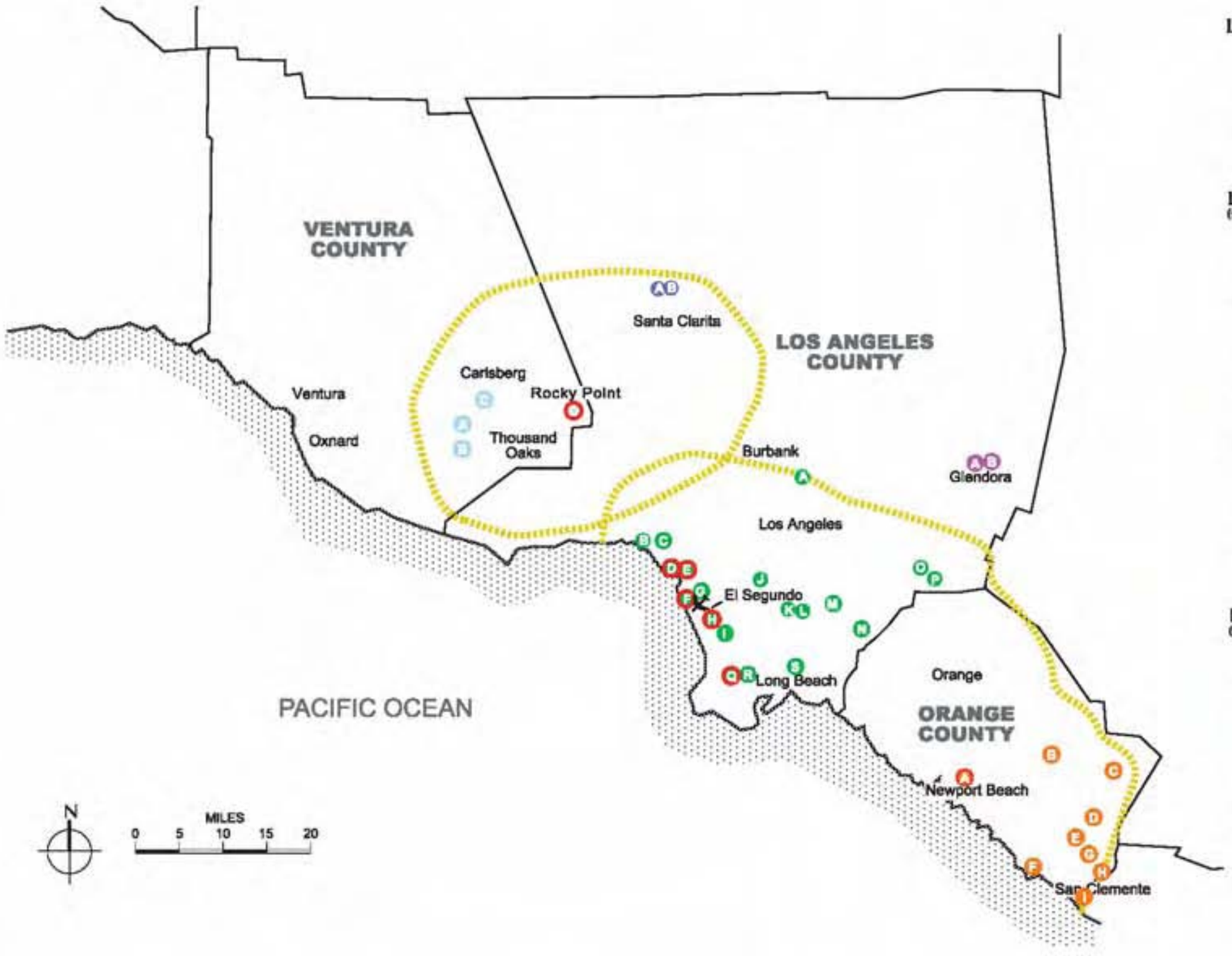
containing embedded cysts of the Riverside fairy shrimp from EW001 and EW002 will not be salvaged and translocated from LAX until the created vernal pool(s) is established and has met certain success criteria specified in the Biological Opinion. As a contingency measure, if the specified success criteria for the created vernal pools have not been attained within six years of project authorization, in spite of a good faith effort on the part of LAWA, soils containing embedded cysts of the Riverside fairy shrimp will be salvaged from EW001 and EW002 and placed in appropriate storage at the San Diego Zoological Society's Center for the Reproduction of Endangered Species. Soils containing embedded cysts of the Riverside fairy shrimp from EW006 (**Figure F5-4**, South Area Ephemerally Wetted Pools and Buffer Areas) shall be salvaged and stored prior to implementation of Alternative D and shall be translocated to the created vernal pool(s) with EW001 and EW002 once the success criteria are met. Soils containing embedded cysts of the Riverside fairy shrimp from EW006 shall be placed in appropriate storage at the San Diego Zoological Society's Center for the Reproduction of Endangered Species. Until soils bearing embedded cysts of the Riverside fairy shrimp have been appropriately salvaged and stored, or vernal pool creation has been completed and embedded cysts have been appropriately salvaged and translocated to the created vernal pool(s), habitat-altering activities associated with Alternative D in these areas shall be avoided.

Under Alternative D, LAWA shall be responsible for implementing construction avoidance measures for the six areas (EW009, EW012, EW013, EW014, EW015, and EW016) that would not be directly affected, as indicated in the Biological Opinion. Construction avoidance measures shall include implementation of construction avoidance measures, including BMPs required pursuant to the Standard Urban Stormwater Mitigation Plan and the LAX Stormwater Pollution Prevention Plan, and establishment of a buffer area around the six occupied areas retained on the LAX airfield **(Figure 5-4)**. In addition, LAX operations personnel with vehicular access to the airfield operations area shall be apprised of these off-limit buffer areas annually. The construction avoidance measures shall be periodically inspected by LAWA, or its designee throughout construction to ensure the efficacy of the BMPs, and corrective action shall be undertaken as necessary to ensure that construction and operation of airport facilities do not result in adverse impacts to surface water quality.

Soils containing embedded cysts of the Riverside fairy shrimp will not be translocated to the created vernal pool(s) until the vernal pool(s) is established and has met certain success criteria specified in the Biological Opinion. Success criteria for the created vernal pool(s) includes holding water for a minimum of 60 days, having less than 10 percent absolute cover exotic herbaceous species in the pool(s), having less than 20 percent absolute cover of exotic herbaceous species within 300 feet of the area from limits of the pool, removal of all non-herbaceous plant species within the pool and 300 feet from the pool annually, and provide suitable water quality for Riverside fairy shrimp. Duration of inundation, exotic species removal, and water quality analyses may be undertaken within the first year after vernal pool creation. The performance criteria for percent absolute cover of exotic herbaceous species within 300 feet of the area from limits of the pool may be redesignated by mutual agreement of FAA, LAWA, and USFWS.

Upon meeting success criteria and approval from the USFWS, soils containing embedded cysts of the Riverside fairy shrimp may be brought to the pool(s). LAWA shall make every effort to collect all cyst-bearing soils from the entire surface area of EW001, EW002, and EW006, however it is expected that some small number of undetected individual cysts will remain in the soil. Soil containing the cysts shall be salvaged and translocated during the dry season to minimize damage to the cysts during transport. The soil shall be collected using a hand trowel, removed in chucks, and kept out of direct sunlight to ensure viability. Soil shall be stored in properly labeled boxes or bags with adequate ventilation. The soils shall then be deposited and spread out in small basins or pool-like areas of similar size without active mechanical compaction to minimize potential damage to the cysts. Any potential indirect environmental impacts resulting from vernal pool construction activities shall be compliant with BMPs and terms and conditions stipulated by the permitting agencies.

LAWA or its designee, in conjunction with the USFWS and a qualified wildlife biologist, shall also develop a program to monitor created habitat for the presence of Riverside fairy shrimp as described in the Vernal Pool Creation, Maintenance, and Monitoring Plan. As specified in the Biological Opinion, LAWA shall be responsible for implementing a monitoring and reporting program to demonstrate successful achievement of the performance standards for off-site relocation over a 25-year period:



LEGEND

- County Boundary
- Vernal Pool Management Areas
- Los Angeles International Airport

Los Angeles Basin-Orange (within Los Angeles County)

- A Burbank
- B Santa Monica
- C Soliders House
- D Ballona Marsh
- E Ballona Bluff
- F El Segundo Dunes
- G Airfield Operations Area
- H El Segundo
- I Redondo Beach
- J Hyde Park
- K Gardena
- L Rosecrans
- M Downey
- N Lakewood
- O Whittier
- P La Habra
- Q Madrona Marsh
- R Henrietta Basin
- S Bixby Knolls

Los Angeles Basin-Orange (within Orange County)

- A Fairview Park
- B Irvine
- C Saddleback Meadows
- D Chiquita Ridge
- E Laguna Lakes
- F Dana Point
- G San Mateo
- H Lomas Ridge
- I San Clemente

Transverse (within Los Angeles County)

- A Cruzan Mesa
- B Southern Cruzan Mesa

Transverse (within Ventura County)

- A Thousand Oaks(a)
- B Thousand Oaks(b)
- C Carlsberg
- D Rocky Point

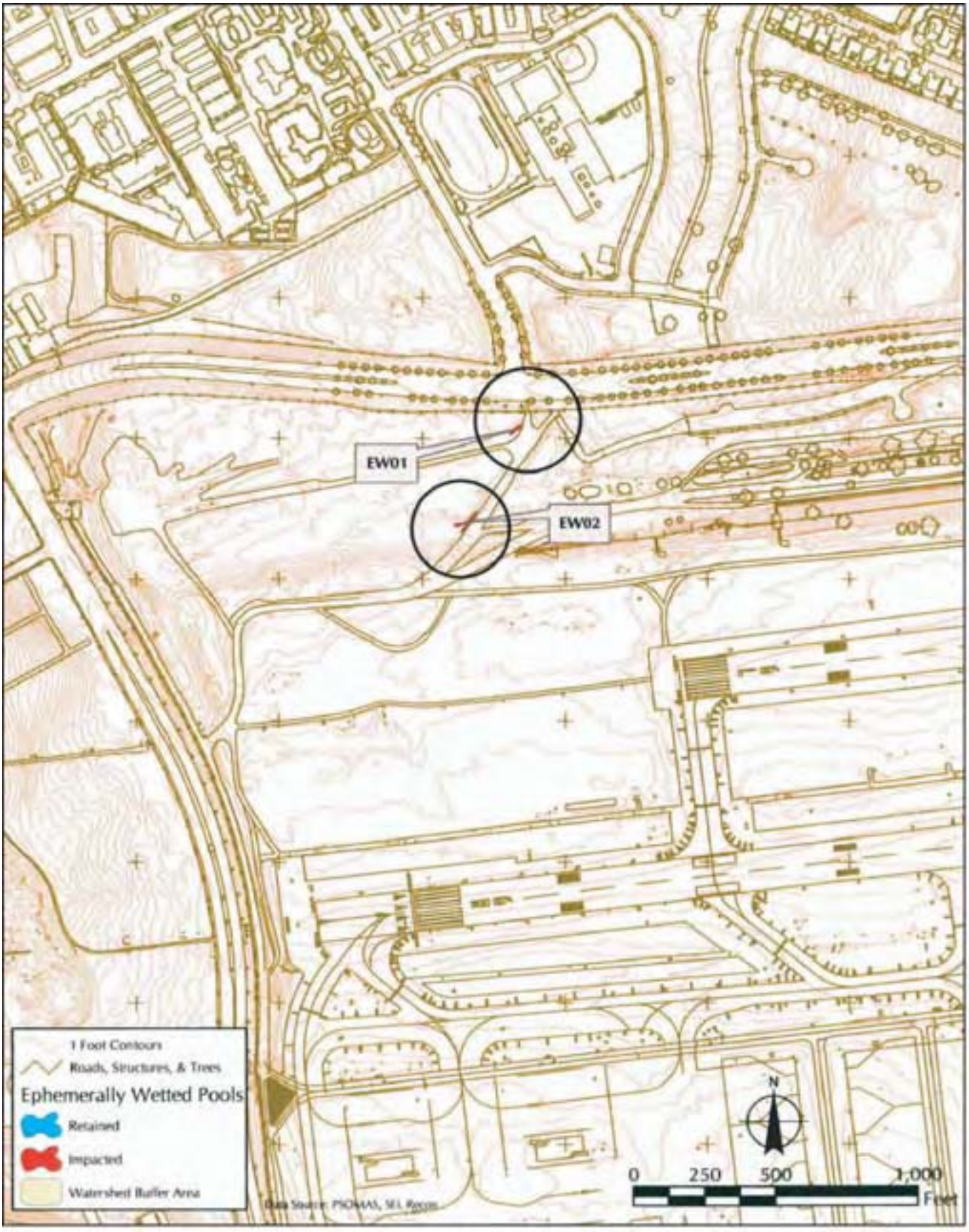
Other Los Angeles County Locations

- A Glendora
- B San Dimas

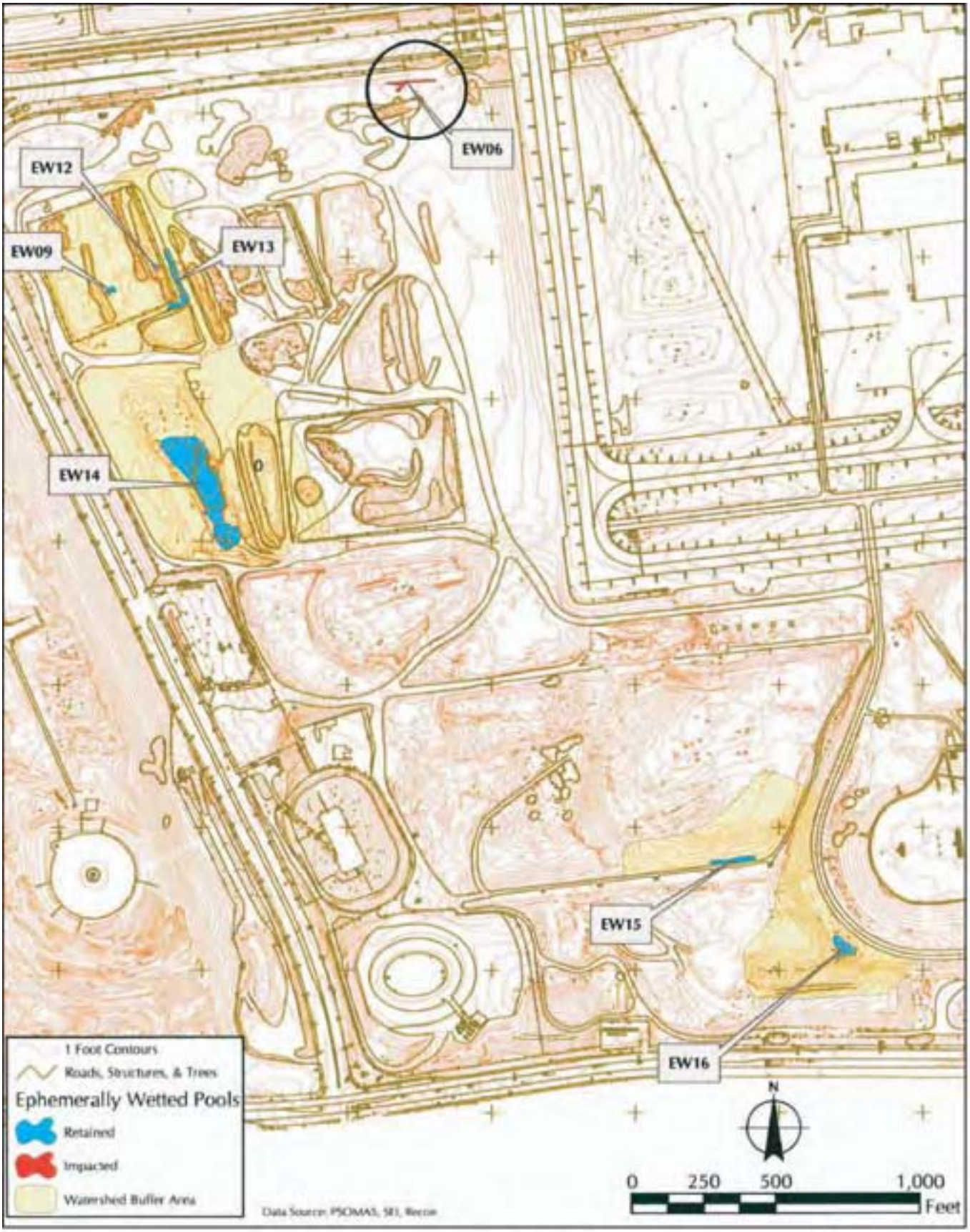
Sites Considered in Feasibility Assessment for Conservation of Riverside Fairy Shrimp

- D Ballona Marsh
- E Ballona Bluff
- F El Segundo Dunes
- H El Segundo
- Q Madrona Marsh
- O Rocky Point
- A Fairview Park

LAX Master Plan Final EIS/EIR	**Vernal Pool Restoration Opportunities Considered**	Figure F5-2



LAX Master Plan Final EIS/EIR	North Area Ephemerally Wetted Pools and Buffer Areas	Figure F5-3



LAX Master Plan Final EIS/EIR	South Area Ephemerally Wetted Pools and Buffer Areas	Figure F5-4

- Monthly during the first year, following relocation of soils containing embedded cysts of the Riverside fairy shrimp
- Quarterly in the second, third, and fourth years, following relocation of soils containing embedded cysts of the Riverside fairy shrimp
- Biannually in the fifth, seventh, and ninth years, following relocation of soils containing embedded cysts of the Riverside fairy shrimp
- Annually in the tenth, fifteenth, twentieth, and twenty-fifth years, following relocation of soils containing embedded cysts of the Riverside fairy shrimp

LAWA shall provide the USFWS with annual monitoring reports as specified in the Vernal Pool Creation, Maintenance, and Monitoring Plan. The monitoring report, due on September 1 of each specified monitoring year, shall provide information regarding the implementation of the vernal pool creation, restoration, and maintenance activities. The yearly report shall also discuss the effectiveness of the project as it pertains to the existing condition of the created vernal pool(s) and Riverside fairy shrimp population. To measure the effectiveness of the created vernal pool(s), the FAA and LAWA shall work with the USFWS to develop long-term goals and objectives as part of their habitat creation plan.

Lastly, LAWA shall coordinate with the USFWS to create educational materials on the Riverside fairy shrimp for integration into LAWA's public outreach program. Educational opportunities regarding federally endangered Riverside fairy shrimp include public outreach in the form of an educational brochure made available through the LAWA Public Affairs Department, information provided on LAWA's Web site describing the ephemeral habitat required to support the species, and LAWA's outreach to local schools.

Implementation of Mitigation Measure MM-ET-1 would provide for replacement of 0.04 acres (1,853 square feet) of degraded wetland habitat containing embedded cysts of the Riverside fairy shrimp, with estimated habitat value of 0.15; with 0.12 acres (5,559 square feet) of created vernal pool habitat with an estimated habitat value of 0.75 (see **Table F5-11**, Mitigation Land Evaluation Procedure for the Mitigation Site). By relocating embedded cysts to habitat restoration sites that are managed for the existence of the species, the opportunity for embedded cysts to complete the adult phase of their life cycle would be enhanced.

Table F5-11

Mitigation Land Evaluation Procedure for the Mitigation Site

	Habitat Reference Sites	Riverside Fairy Shrimp Wetland Habitat Mitigation Site
Topography/Hydrology	**0.20**	**0.20**
Mound-Depression Microrelief	0.05	0.05
Native Soils w/Slope <10%	0.05	0.05
Areas w/Period of Inundation ≥30 days	0.05	0.05
Summer Desiccation	0.05	0.05
Flora	**0.20**	**0.20**
>10% Vegetative Cover	0.05	0.05
Native Grasses >10%	0.05	0.05
Vernal Pool Associated Species	0.05	0.05
Listed Vernal Pool Associated Species	0.05	0.05
Fauna	**0.20**	**0.15**
Dominated by Native Fauna (reproducing)	0.05	0.05
Grassland-Associated Species (reproducing)	0.05	0.05
Sensitive Vernal Pool-Associated Species (reproducing)	0.05	0.05
Listed Vernal Pool-Associated Species (reproducing)	0.05	0.00
Ecosystem Functional Integrity	**0.40**	**0.20**
Contiguous w/Wetland and State-designated Sensitive Terrestrial Habitat	0.10	0.00
Under Regulatory Conservation	0.10	0.10
Variety of Pollinator/Dispersal Mechanisms Present (Wind, Wildlife)	0.10	0.10
Contiguous Native Habitat >40 acres	0.10	0.00
Total Habitat Value (HV)	**1.00**	**0.75**

Source: Sapphos Environmental, Inc. 2003.

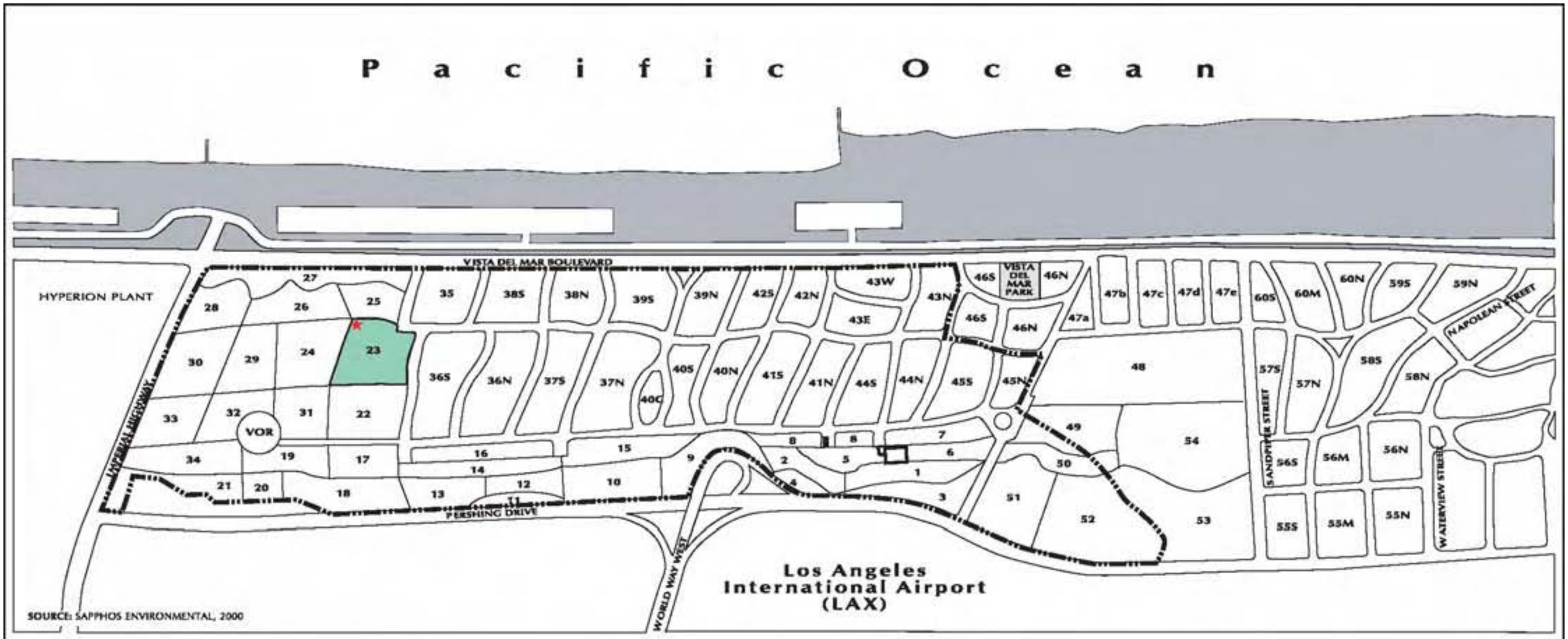
- **MM-ET-2. El Segundo Blue Butterfly Conservation: Habitat Restoration (Alternatives A and B).**

  LAWA or its designee shall take all necessary steps to avoid the flight season of the El Segundo blue butterfly (June 14 - September 30) when undertaking installation of navigational aids and associated service roads proposed under Master Plan Alternatives A and B within habitat occupied by the El Segundo blue butterfly. Installation of navigational aids within the Habitat Restoration Area should be required to take place between October 1 and May 31. The number of coast buckwheat plants impacted shall be mitigated at a ratio of 1:1, or as otherwise determined through Section 7 consultation with the USFWS. Coast buckwheat shall be planted a minimum of three years prior to the impact, not only to allow for establishment of the plants, but also to ensure that the plants are mature enough to bloom.[1056] The plantings of coast buckwheat shall be located within the southwest corner of subsite 23 of the Habitat Restoration Area, as depicted in **Figure F5-5**, Mitigation Site for El Segundo Blue Butterfly Relocation. Mitigation plantings for Alternative A shall encompass 8,514 square feet (0.20 acre). Mitigation plantings for Alternative B shall encompass 2,316 square feet (0.05 acre). This area shall be the designated mitigation site for planting coast buckwheat and the site to which El Segundo blue butterfly pupae shall be relocated. Prior to navigational aid installation, a permitted and qualified biologist shall salvage El Segundo blue butterfly larvae in coordination with the USFWS to minimize impacts to the butterfly. Based on LAWA's restoration experience within the Habitat Restoration Area, occupation of restored habitat can occur within two to three years of restoration efforts. Therefore, there would be no net loss in acres or value of occupied habitat.

- **MM-ET-3. El Segundo Blue Butterfly Conservation: Dust Control (Alternatives A, B, C, and D).**

  To reduce the transport of fugitive dust particles related to construction activities, soil stabilization watering or other dust control measures, as feasible and appropriate, shall be implemented with a goal to reduce fugitive dust emissions 90 to 95 percent during construction activities within 2,000 feet of theel Segundo Blue Butterfly Habitat Restoration Area. In addition, to the extent feasible, no grading or stockpiling for construction activities should take place within 100 feet of occupied habitat of the El Segundo blue butterfly.

[1056] The time period of three years was determined from coast buckwheat restoration efforts previously undertaken by LAWA within the Habitat Restoration Area of the Los Angeles/El Segundo Dunes.



LAX Master Plan Final EIS/EIR	**Mitigation Site for El Segundo Blue Butterfly Relocation**	Figure F5-5

fig 4.11-6.ai

- **MM-ET-4. El Segundo Blue Butterfly Conservation: Habitat Restoration (Alternative D).**

  LAWA or its designee shall take all necessary steps to avoid the flight season of the El Segundo blue butterfly (June 14 - September 30) when undertaking installation of navigational aids and associated service roads proposed under Master Plan Alternative D within habitat occupied by the El Segundo blue butterfly. Installation of navigational aids within the Habitat Restoration Area should be required to take place between October 1st and May 31st. In conformance with the Biological Opinion, activities associated with navigational aid development shall be limited to the existing roads and proposed impacts areas as depicted in this Final EIS/EIR. Coast buckwheat shall be planted a minimum of three years prior to the impact, not only to allow for establishment of the plants, but also to ensure that the plants are mature enough to bloom.[1057] The plantings of coast buckwheat shall be located within the southwest corner of subsite 23 of the Habitat Restoration Area, as depicted in **Figure F5-5,** and shall encompass 1.25 acres in conformance with the Biological Opinion. Coast buckwheat plants will be planted at an initial density of 200 plants per acre to ensure the long-term planting density target (130 plants per acre). Coast buckwheat plants will be placed in clusters or groupings based on microtopographic features present within subsite 23 to better support the ESB, which is known to prefer large clusters of plants for nectaring and shelter. As possible, depending on the location and condition of individual plants, FAA and LAWA shall salvage existing coast buckwheat plants and any larvae on the plant or pupae in the soil below the plant that would be removed to accommodate the replacement navigational aids to further conserve this species. These plants shall be salvaged immediately prior to the installation of the replacement navigational aids outside of the butterfly flight season. These salvaged plants shall be transported in a suitable container and replanted after the onset of winter rains in subsite 23 near the area restored as described in MM-BC-13. This area shall be the designated mitigation site for planting coast buckwheat and the site to which El Segundo blue butterfly pupae shall be relocated. Gathering of coast buckwheat seed shall take place from September 15 through June 1. Propagation and planting methodologies successfully employed by LAWA during 1984 through 1994 restoration efforts shall be employed for propagation of additional coast buckwheat plants. An existing irrigation system proximal to subsite 23 will be used to increase the success of the restoration effort. Prior to navigational aid installation, a permitted and qualified biologist shall salvage El Segundo blue butterfly larvae in coordination with the USFWS in order to minimize impacts to the butterfly. Based on LAWA's restoration experience within the Habitat Restoration Area, occupation of restored habitat can occur within two to three years of restoration efforts. Therefore, there would be no net loss in acres or value of occupied habitat. Additionally, after the navigational aid system is in place and during the first subsequent flight season of the El Segundo blue butterfly, LAWA shall document El Segundo blue butterfly behavior with respect to the lighting system and submit a monitoring report to the USFWS.

  Lastly, LAWA shall coordinate with the USFWS to create educational materials on the El Segundo blue butterfly for integration into LAWA's public outreach program.

Light Emissions

- **MM-LI-1. LAX Expressway Lighting Assessment (Alternatives A, B, and C).**

  As part of final design for the LAX Expressway, LAWA shall undertake an assessment of potential adverse lighting effects based on detailed plans. The documentation shall include baseline ambient lighting measurements along the portions of the LAX Expressway adjacent to sensitive uses. The baseline data shall be used to estimate potential change in ambient lighting conditions with development of the Expressway. If it is determined that adverse effects would occur on residential uses, then landscaped buffer areas, setbacks, lighting specifications and placement, or other techniques shall be required to ensure that lighting intensity over baseline conditions for residential uses does not increase by more than 2 footcandles.

[1057] The time period of three years was determined from coast buckwheat restoration efforts previously undertaken by LAWA within the Habitat Restoration Area of the Los Angeles/El Segundo Dunes.

Solid Waste

- **MM-SW-1. Provide Landfill Capacity to Accommodate Cumulative Solid Waste (Alternatives A, B, and C).**

  Additional landfill capacity in the Los Angeles region should be provided through the siting of new landfills, the expansion of existing landfills, or the extension of permits for existing facilities to address the projected landfill capacity shortfall resulting from cumulative development. As an alternative, or to augment regional landfill capacity, landfill capacity outside the region could be accessed by developing the necessary rail haul infrastructure. The responsibility for implementing this mitigation measure lies with state, county, and local solid waste planning authorities. The costs for implementing this mitigation measure will be passed on to LAX and other solid waste generators through increased solid waste disposal costs.

Design, Art and Architectural Application/Aesthetics

- **MM-DA-1. Construction Fencing (Alternatives A, B, C, and D).**

  Construction fencing and pedestrian canopies shall be installed by LAWA to the degree feasible to ensure maximum screening of areas under construction along major public approach and perimeter roadways, including Sepulveda Boulevard, Century Boulevard, Westchester Parkway, Pershing Drive, and Imperial Highway west of Sepulveda Boulevard. Along Century Boulevard, Sepulveda Boulevard, and in other areas where the quality of public views are a high priority, provisions shall be made by LAWA for treatment of the fencing to reduce temporary visual impacts.

- **MM-DA-2. LAX Expressway View Analysis (Alternatives A, B, and C).**

  As part of final design for the LAX Expressway, a view analysis shall be undertaken by LAWA to address aesthetic impacts on residential and other view sensitive properties. The view analysis shall document proposed roadway elevations, setbacks, and landscaped buffer areas, determining the extent to which existing views from residential and other view sensitive properties would be degraded. As a performance standard, project design features or conditions of approval shall ensure that the LAX Expressway is attractively screened from the view of significantly impacted properties to an equivalent or greater level than provided by existing landscaping or other intervening structures that screen views to the I-405. Screening shall be achieved through measures that may include, but shall not be limited to, decorative block walls and landscaped greenbelts.

- **MM-DA-3(a). Scattergood Visual Effects (Alternative B).**

  Prior to approval of fuel farm plans for the Scattergood site and based on more detailed development and grading plans, LAWA shall complete a visual survey to determine the following:

  - Existing views of the ocean and of the tank site from residences on Loma Vista Avenue.
  - The effects of the planned development on existing views from residences on Loma Vista including staking of maximum tank heights.
  - The line-of-sight and exposed tank surface area (including the 50-foot fire water tank) of the existing and proposed facility, from east- and west-bound Grand Avenue, south-bound Vista del Mar, west-bound Franklin Avenue (City of El Segundo), Dockweiler State Beach, and the South Bay Bicycle Trail located west of Vista del Mar.
  - The changes to the site topography and tank exposure affected by the removal of the existing berm.

- **MM-DA-3(b). Scattergood Visual Effects (Alternative B).**

  The visual survey shall specify measures to be implemented by LAWA which shall maintain or enhance the visual quality of the site and reduce to a less-than significant level visual impacts on views from Vista del Mar, Dockweiler State Beach, the regional bike path, Franklin Street, Grand Avenue, and affected residential uses on Loma Vista. Performance standards include:

  - Avoiding view blockage from primary windows and viewing areas of adjacent homes; or, if not feasible, achieving a less than 10 percent diminishment of existing ocean views.

- Ensuring no net increase in surface tank exposure to views from Vista del Mar, Dockweiler State Beach, the regional bike path, Franklin Street, and Grand Avenue.
- Achieving an equivalent or greater level of aesthetic quality than currently exists on the site as viewed from public vantage points.

To achieve these performance standards, LAWA actions shall include but not necessarily be limited to the following:

- Placement of the proposed facilities to prevent incursion into existing ocean views.
- The use of contour grading to enhance the dune natural appearance of the site.
- Development of site topography to reduce the visual exposure of the fuel tanks and facilities from key vantage points.
- Reduction in the proposed height of individual fuel tanks to reduce visual exposure from key vantage points and avoid screening of existing ocean views.
- Provision of setbacks from Grand Avenue and from the northern property line equivalent to, or greater than, what exists.
- Installation of dense landscaped buffers along Grand Avenue and in other areas of the site to screen the industrial facilities from key vantage points along Vista del Mar and to the west.
- Development of walls or berms combined with landscaping for screening.
- Subtle coloring of the tanks and on-site structures consistent with earth tones.
- Verification of achievement of the performance standards prior to initiation of facility operations.

Wastewater

- **MM-WW-1. Provide Additional Wastewater Treatment Capacity to Accommodate Cumulative Flows (Alternatives A, B, C, and D).**

  Additional wastewater capacity within the City of Los Angeles should be provided by the expansion/upgrade of the city's wastewater treatment systems via a combination of improvements to address the projected wastewater shortfall resulting from cumulative development. Such improvements could include increasing capacity at HTP, building new reclamation capacity upstream of HTP, conservation of potable water, and infiltration/inflow reduction. Implementation of this mitigation measure is the responsibility of the City of Los Angeles Department of Public Works, Bureau of Sanitation. Specific improvements will be identified in the City's IPWP and Wastewater Facilities Plan component of the City's Integrated Resources Plan. The cost for implementing this mitigation measure would be passed on to LAX and other wastewater generators through increased wastewater fees.

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